AFAQ SUN SERIES

Lesson Plans Mathematics

7

Total: SLO = 74

Total: LPs = 210

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 1 **Lesson Plan:** 1

Unit Name: Rational Numbers **Topic:** Introduction **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Introduce themselves, get familiar with their fellows and learn about the rules of the classroom.

Resource Material:

Chalk/Marker, White/Blackboard, Index cards or paper and pens/pencils, "Classroom Rules" poster or handout.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Let students introduce themselves to you and their fellows turn by turn.

Main Activities/Concept Building: (25 mins)

Activity 1:

Ask the students to pair up with someone they don't know well.

Provide each pair with an index card or paper and pen/pencil.

Ask them to interview each other and find out three things they have in common and three things that are different.

After five minutes, ask the pairs to share what they learned about their partner with the class.

Activity 2:

Display the "Classroom Rules" poster or handout.

Discuss each rule with the class, providing examples of why the rule is important and what could happen if the rule is not followed.

Ask the students to brainstorm consequences for breaking each rule.

Write the consequences on the board or chart paper.

Sum Up: (5 min)

Sum up the lecture by Review the rules and consequences with the students.

Ask the students if they have any questions or concerns.

End the lesson by thanking the students for their participation and looking forward to a great year together.

Assessment: (5min)

The students' participation in the introductory activity and their ability to introduce themselves and their classmates will be assessed informally. The students' understanding of the classroom rules will be assessed through their participation in the classroom rules activity and their ability to provide appropriate consequences for breaking each rule.

Homework: (0 min)

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 1 **Lesson Plan:** 2

Unit Name: Rational Numbers **Topic:** Rational Numbers **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Define a rational number as a number that can be expressed in the form where p and q are integers and $q > 0$.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 1-2, worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Start with 'Bismillah' and tell them to recite it before starting any work.

Have students open textbook at page 1. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those question. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers****: The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners*.)

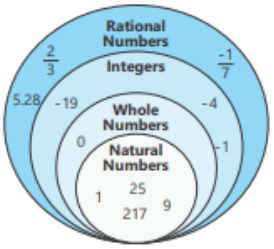
Main Activities/Concept Building: (25 mins)

Before the main concept, tell them briefly about the unit outline and its real life relevance. Have students open textbook at page 2. Write down a set of numbers on the board as:

{ 1, 2, 3, 4, ….}. Now ask any of the students to name the given set. Now, add a '0' in the set i.e., {0, 1, 2, 3, 4, ….} and ask a student to name the set. Now in whole numbers, if we include the set of negative numbers, it becomes the set of integers that contain both positive and negative integers along with 0.

Z = {..., -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, ...}. Now, tell students that when an integer is divided by another integer, the result may or may not be an integer. For example, the result of dividing -8 by 3 doesn't result in an integer. As an outcome, a set of rational numbers was introduced to meet the requirements of such problems.

Introduce the idea of rational numbers and explain that they are numbers that can be expressed as a fraction where the numerator and denominator are integers. In general, we express rational numbers in the form of where p and q are integers and $q \neq 0$. A set of rational numbers is denoted by Q. Write several examples of rational numbers (including the ones given on page 2) on the board, including fractions, decimals, and mixed numbers and explain why they are rational numbers. Describe to students that the above examples of rational numbers can also be described by Venn diagram as explained on page 2 of textbook. Here, the Venn diagram shows that:



The set of natural numbers is a subset of whole numbers. The set of whole numbers is a subset of the set of integers. The set of integers is a subset of rational numbers.

Sum Up: (3min)

Sum up the lesson by retelling what rational numbers are. Explain "Note to remember" given at page 2 of their textbook.

Assessment: (5min)

To assess, ask students randomly to give some examples of rational numbers. Write them on the board and let the student explain why they are rational.

Homework: (2 min)

Attempt the worksheet at home.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. **Encircle T for true and F for false.**

   a) All the whole numbers are rational numbers. True / False

   b) All the integers are rational numbers. True / False

   c) 7/0 is a rational number. True / False

   d) 0 is a rational number. True / False

   e) 0/9 is a rational number. True / False

   f) All rational numbers are integers. True / False

   g) Square root of 36 is a rational number. True / False

   h) 0.25 is a rational number. True / False

2. **Write each of the following integers as the rational numbers. Write the numerator and denominator in each case:**

   a) 4 b) -10 c) 0 d) -63.

3. **List five rational numbers between -3 and -2.**

4. **List five rational numbers between 0 and 1.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 1 **Lesson Plan:** 3

Unit Name: Rational Numbers **Topic:** Integers **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Recall integers (positive, negative and neutral integers).

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 3 and 12, worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 mins)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Write some statements on the board and ask students randomly to tell whether the statement is true or false?

a) Zero is the smallest integer. b) The smallest negative number is -1.

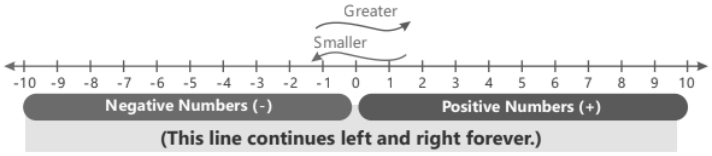
c) 0 is greater than -7. d) -8 is greater than -28. e) Every negative integer is smaller than zero.

Take their response and appreciate them for their effort.

Main Activities/Concept Building: **(25 mins)**

Explain to students that the set of integers includes all positive and negative numbers, as well as 0.

Tell students that no fraction or decimal number is included in the set of integers. Draw number line on the board to make the representation of numbers clearer.



Explain that integers can be positive {1, 2, 3, 4, 5, ...}, or negative { -1, -2, -3, -4, -5, ...}, or zero {0}.

Here, '0' does not contain any sign positive or negative so it is also called neutral integer.

The set of integers is denoted by the capital letter Z.

Describe to students that it can also be written as:

Z = {..., 5, 4, 3, 2, 1, 0, 1, 2, 3, 4, 5, ...} or Z = {0 , ± 1 , ± 2 , ± 3 , ± 4 , ...}

We usually don't put a plus sign with a positive integer. For example, 5 is the same as +5. But for negative integers, it is essential to use the minus sign. Discuss how integers are different from decimals and fractions.

Have them recall how integers are used to represent many real life situations. Have them open textbook page 3. Explain various real life situations mentioned in the book where we use integers. Ask them to come up with their own examples like these.

Activity:

Distribute the given worksheet among students and ask them to complete it. Roam around the class and guide them where required.

Sum Up: **(3min)**

Sum up the lesson by recalling the definition of integers and different ways of writing integers in forms of sets.

Assessment: **(5min)**

Ask students randomly to give a real life example involving integers.

Homework: **(2 min)**

Solve Q1 and 2 of "Learning check 1.1" given at page 12 of textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. Write the opposite value of each integer.

a) 12 _____ b) –25 _____ c) 9 _____

d) -11 _____ e) –99 _____ f) 4 _____

g) -23 _____ h) 1 _____ i) 36 _____

j) –57 _____ k) -100 _____ l) -33 _____

2. Write all the integers between –1 and –7.

_____

3. Write an integer to represent each situation mentioned below:

a) The temperature fell 8 degrees overnight.

b) The parking of the mall is at basement level 2.

c) Ali has to pay a Rs 810 fine for driving too fast.

d) Sana withdrew Rs 45000 from her bank account.

e) Zeeshan received Rs 10000 as prize.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 1 **Lesson Plan:** 4

Unit Name: Rational Numbers **Topic:** Integers **Date:** _____

Objective(s):

At the end of this period, the students will be able to:

Recall absolute or numerical value of integers.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 3 and 4 & textbook page 12.

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 mins)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Start the lesson by asking students if they have ever encountered situations where they needed to measure the distance between two points. For instance, you can use examples such as measuring the distance between their house and the grocery store or school. Ask them how they would measure the distance and write down their responses on the board. Then, ask them if it is possible to measure the distance between two points that are in opposite directions. This will lead to the introduction of the absolute value of integers.

Main Activities/Concept Building: **(25 mins)**

Activity 1:

Draw number line on the board and ask student to observe how far -7 is from 0 and how far 7 is from 0.

Explain to students that on the number line, -7 is 7 steps away from 0 to its left. +7 is also 7 steps away from 0, but to its right.

So, the distance of -7 sand 7 is same from 0 but in opposite directions.

Explain to students that the absolute value of an integer is its distance from zero on the number line. For example, the absolute value of 7 is 7 because it is 7 units away from zero on the number line. Similarly, the absolute value of -7 is also 7 because it is also 7 units away from zero but in the opposite direction. The absolute value of an integer is always positive. The value of an integer, which is measured from "0" is called its numerical value. It is also called the absolute value of the integer.

To indicate the direction of integers, we use the appropriate sign (+ or -), with "numerical value" or "absolute value." So, -7 indicates seven steps to the left of 0, while +7 indicates seven steps to the right of 0. We represent the absolute value of any integer using the symbol "| |". Thus, |+7| = | 7| = 7. Therefore, the absolute or numerical value of |+7| and | 7| is always 7. Provide examples of how to use absolute value in solving real-life problems. For instance, you can use the example of measuring the distance between two cities, where one is located north and the other south. This will help them to understand how to use the absolute value of integers in solving problems. Explain worked examples given on page 4 of textbook to further elaborate the concept.

Activity 2:

Have the student solve Q3(a, b, c) of "Learning check 1.1" given at page 12 of their textbook. Move around the class and help out where necessary.

Sum Up: **(3min)**

Sum up the lesson by retelling about the absolute or numerical value and the method to find it.

Assessment: **(5min)**

Ask students to solve 'pause and try' given on page 4 of their textbook.

Homework: **(2 min)**

Solve Q3(d, e, f, g) of "Learning check 1.1" given at page 12 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 1 **Lesson Plan:** 5

Unit Name: Rational Numbers **Topic:** Fractions and their conversion **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify and convert between various types of fractions.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 4, 5 and 6, Textbook page 12

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Begin the lesson by asking students if they know what a fraction is and provide some examples. Ask them to tell if they know the types of fractions. As they are already familiar with fractions, they might come up with answers like proper fractions, improper fractions, mixed fractions , unit fractions etc. Take their responses and appreciate them.

Main Activities/Concept Building: (25 mins)

Have student open page 4 of their textbook. Describe to students that in a fraction when the numerator of a fraction is less than its denominator then that fraction is called a proper fraction. Write some examples of proper fraction on the board (including the ones given in book). Draw figures to show some of the fractions to make it clearer.

Next, tell them a fraction in which the numerator is greater than or equal to the denominator is called an improper fraction. Write a few examples of improper fraction on the board. Draw a few fraction models to further clarify the concept. Next tell them that when a fraction is written as a combination of a whole number and a proper fraction, it is called a mixed fraction or mixed number. Write some examples of mixed fractions on the board including the ones given in book. You can also use visuals such as fraction strips or discs to help students visualize each type of fraction. Provide examples of each type of fraction and ask students to identify them. Explain to students how to convert between improper and mixed fractions step by step. Use the worked examples given on page 5 of textbook and draw visuals to help students understand the process of conversion.

Activity:

Have the student solve Q8 of “Learning check 1.1” given at page 12 of their textbook. Move around the class and help out where necessary.

Sum Up: (3min)

Sum up the lesson by summarizing the key points covered, including the types of fractions and how to convert between them.

Assessment: (5min)

To assess their learning, ask students to solve Q9(a, b, c) and Q10(a, b, c) of “Learning check 1.1” given at page 12 of their textbook. Move around the class and help out where necessary.

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Homework: (2 min)

solve Q9(d, e, f, g, h) and Q10(d, e, f, g, h) of “Learning check 1.1” given at page 12 of their textbook

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 1 **Lesson Plan: 6**

Unit Name: Rational Numbers **Topic:** Place Value **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify the place value of digits in whole numbers and decimal numbers.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 6, Textbook page 12

Teaching & Learning Activities:

Opening Activities/Warm-up: (3 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Start the lesson by asking students if they know what place value is and why it's important. Use visual aids such as a place value chart to explain the concept of place value and its role in understanding the value of numbers.

Main Activities/Concept Building: (27 mins)

Explain to students that today they will learn to show whole numbers and decimals in a place value table.

Recall the concept of place value as: Place value is the basis of our entire number system. This is the system in which the position of a digit in a number determines its value. Ask students to open textbook page 6. Read the statement of worked example 1. Explain the standard and expanded form of the number given. Make them clear that the concept of place value applies to individual digits within a number, rather than to the number as a whole. Arite the number in a place value chart for a clear visual of the digits. Explain the example step by step. Similarly, explain the worked example 2 on page 6. Tell them that the place values of digits after the decimal starts with “Tenths” and every next digit has a 10 times smaller value than digit to its right. Explain the examples in detail step by step. Encourage them to ask questions if they have any ambiguity.

Activity 1:

Have the student solve Q4(a, b, c) of “Learning check 1.1” given at page 12 of their textbook. Move around the class and help out where necessary.

Sum Up: (3 min)

Sum up the lesson by retelling the concept of place value of digits in whole number sand decimals by giving some random examples.

Assessment: (5 min)

Ask students to attempt ‘pause and try’ of page no 6 on their notebooks and get that checked.

Homework: (2 min)

Solve Q4(d to h) and Q5 of “Learning check 1.1” given at page 12 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 1 **Lesson Plan: 7**

Unit Name: Rational Numbers **Topic:** Rational number on a number line **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and represent rational numbers on a number line.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 7, 8, 12, papers, pencils, markers, ruler

Teaching & Learning Activities:

Opening Activities/Warm-up: (3 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Start the lesson by asking students to define rational number and give a few examples. Ask them if they remember representing whole numbers, fractions and decimals on a number line. Take their responses. Appreciate them.

Main Activities/Concept Building: (28 mins)

Explain to students that all the positive rational numbers are represented on the right side of the origin, and the negative ones are on the left side. The values of integers increase when we move in the right direction on the number line and their values decrease when we move in the left direction on the number line.
For fractions, explain that if it is a proper fraction, the numerator value is less than the denominator value; hence, the given rational number should be less than 1 and greater than zero. Similarly, if it is an improper fraction, the numerator value is greater than the denominator value; hence, the given rational number should be greater than 1. Tell them that in such case, first convert the improper fraction into a mixed one. This conversion helps to locate the exact position of the given fraction on the number line. It helps to know between which integer the fraction lie. To draw digits on the number line we need to keep the same distance between all numbers. For decimals, tell them that we divide each segment of the number line into an appropriate number of smaller parts.
Demonstrate it by solving worked examples given on page 7 and 8 on the textbook.

Activity:

Divide the class into two teams and have them line up on opposite sides of the room. Give each team-papers, pencils or markers, and a ruler. Explain that each team member must take turns drawing a number line and placing a rational number on it. The team that places all the rational numbers on the number line first and correctly wins. Hand out the questions from “Learning check 1.1 Q6(a and e) and Q7(a) of Textbook page 12” to each team member. Each team must place on the number line correctly to win the game. Start the race and monitor the progress of each team. Provide assistance as needed. When one team completes the task, declare them the winner and ask them to explain how they placed the rational numbers on the number line correctly.

Sum Up: (2 min)

Sum up the lesson by briefly repeating the method to represent rational numbers on number line.

Assessment: (5min)

Ask students to attempt Q6(b) and Q7(b) of Learning check 1.1 on Textbook page 12.

Homework: (2 min)

Solve Q6(c, d, f) and Q7(c,, d) of Learning check 1.1 on Textbook page 12.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 2 **Lesson Plan:** 1

Unit Name: Rational Numbers **Topic:** Comparing and ordering **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Compare (using symbols <, >, =, ≤ and ≥) and arrange whole numbers and integers.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 9 & 10, Textbook page 12 & 13.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about the signs <, >, and =. Now tell students as they have learnt to use these signs earlier. Write a few numbers with comparison symbols and ask students to read them. For example, write 56 > 23. The students must read it as “56 is greater than 23”. Similarly write a few more comparison sentences and ask students to read them correctly. Appreciate them for active participation.

Main Activities/Concept Building: (25 mins)

Ask students to open textbook page 8. Read the statement of Worked example 1 and tell students that here we need to compare the given amounts and tell who has more money. Tell them that when we are comparing whole numbers, we start comparing from the greatest place and then move towards the smaller ones step wise. Explain the example by comparing digits of the given amounts using symbols.

Similarly, ask them to move to page 9 of textbooks. Explain that to arrange numbers, we first need to compare them and then arrange in the desired order(ascending or descending). Solve the example 2 on page 9(arranging numbers) step by step. Next explain the method to compare and order integers. Elaborate the rules mentioned in the textbook page 9 and then solve worked examples given on page 9 and 10 for more clarification.

Sum Up: (3min)

Sum up the lesson by retelling how to compare and order integers and whole numbers.

Assessment: (5min)

Assess students’ understanding by asking them to solve ‘pause and try’ given on page 9 - 10 of textbook.

Homework: (2 min)

SolveQ11 (a to d, h) and Q12(a,b,c) on page 12 and 13 of learning check 1.1 of textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 2 **Lesson Plan:** 2

Unit Name: Rational Numbers **Topic:** Comparing and ordering Decimals and fractions **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Compare (using symbols <, >, =, ≤ and ≥) and arrange decimal numbers and fractions.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 10 & 11, Textbook page 12 & 13.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students to tell if they remember like and unlike fractions. Take responses and tell them that like fractions are fractions that have the same denominator, while unlike fractions have different numbers as their denominators.

Main Activities/Concept Building: (25 mins)

Activity 1:

Ask students to open textbook page 10. Explain to students that we can compare two or more fractions by making their denominators same. For this we can use equivalent fractions. Equivalent fractions are fractions that have the same value but are written in a different way. Demonstrate how to convert fractions to equivalent fractions with a common denominator.

When fractions have the same denominator, the fractions with the smaller numerator is smaller and the fraction with a greater numerator is greater. Explain the worked example 1 on page 10 step by step. Similarly tell them that to arrange a set of fractions, we need to first compare them. Solve worked example 2 given on page 11 to explain the method pf arranging fractions. Similarly explain that demonstrate how to compare decimals using the symbols <, >, and =. To compare decimals, you compare the digits starting from the leftmost digit. If the digits are equal, you move to the next digit to the right until you find digits that are not equal. Explain the method of comparing and arranging decimals by explaining the worked example 1 and 2 given on page 11 of textbook. Encourage them to ask questions if they have any ambiguity.

Sum Up: (3min)

Sum up the lesson by retelling how to compare and order fractions and decimals.

Assessment: (5min)

Assess students' understanding by asking them to solve 'pause and try' given on page 10-11 of textbook.

Homework: (2 min)

SolveQ11 (e, f, g, i) and Q12(d, e, f) on page 12 and 13 of learning check 1.1 of textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 2 **Lesson Plan:** 3

Unit Name: Rational Numbers **Topic:** Rounding off numbers **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Round off whole numbers and decimal numbers to a required degree of accuracy or decimal places.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 13 & 14, Textbook page 16.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Write down few 3 and 4 digit value on the board and ask students randomly to round off the values to the nearest 10 and hundred.

Appreciate students for correct attempt.

Main Activities/Concept Building: (25 mins)

Activity 1:

Explain to students that we can round off numbers to get a idea or an estimate. Start with whole numbers. Explain that the place value of a digit in a whole number is important while in rounding off. Write a number on the board and ask students to identify the digit in the place value they want to round to. For example, 2,548 rounded to the nearest hundred would be 2,500. If the digit to the right of the place value to be rounded is 5 or more, round up. If it is less than 5, round down. Ask the students to open textbook page 13. Explain the rule of rounding off whole numbers to students step by step by solving worked example 1 and 2. Tell them about the symbol of rounding off as well.

Next move on to decimal numbers. Explain that the same concept of rounding off whole numbers applies to decimals. Write a decimal number on the board and ask students to identify the digit in the place value they want to round to. For example, 3.14159 rounded to the nearest hundredth would be 3.14. If the digit to the right of the place value to be rounded is 5 or more, round up. If it is less than 5, round down. After this, explain the method to round of decimals by solving worked example 3 and 4 step by step given on page 13 and 14.

Activity 1:

Divide the class into pairs. Give each pair a set of number cards [Consisting of Q1(a, b, c) and Q2(a, b, c) of Learning check 1.2 page 16]. Instruct the pairs to shuffle the cards and place them face down on the table. Ask one member from each pair to pick a card from the deck and read it out loud. Instruct the pairs to race against each other to round off the number on the card to the specified number of digits. Once they have rounded off the number, ask them to shout out the rounded off number. The first pair to shout out the correct answer wins a point. Keep playing until all the cards have been used, or until a specific number of points have been reached.

Sum Up: (3min)

Sum up the lesson by retelling the definition of rounding off and the rules to round off whole numbers and decimals.

Assessment: (5 min)

Assess students' understanding by asking them to solve 'pause and try' given on page 14 of textbook.

Homework: (2 min)

S solve Q1(d to h) and Q2(d to h) of "Learning check 1.2" given at page 16 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 2 **Lesson Plan:** 4

Unit Name: Rational Numbers **Topic:** Significant figures **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Round off whole numbers and decimal numbers to a required significance.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 14, 16, basket, paper slips

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Write a few numbers on the board and ask students to round off them to specified number of places. Check their work and appreciate for their correct answers.

Main Activities/Concept Building: (27 mins)

Describe to the students that today we will learn how to determine the number of significant figures in any number.

- All non-zero digits are significant figures. For example, 172.3 has 4 significant figures.
- Zeros at the start of a number are never significant. For example, 0.0789 has 3 significant figures.
- Zeros that are within any two non-zero digits and at the end of a number after the decimal point are significant. For example, 89.045 has 5 and 9.500 has 4 significant figures.

Now, explain the rules to round to a specified number of significant figures.

When rounding to the specified number of significant digits, round down if the next digit is less than 5 and round up when the next digit is greater than or equal to 5. Ask students to open textbook page 14. Demonstrate the method to round off to specified number of significant figures by explaining the worked examples 1 and 2 given on page 14.

Activity:

Divide student in groups. Write Q5(a, b, c) in three different columns on the board. Put paper slips in a basket with "round off to 2 significant figures" and "round off to 3 significant figures" written on them. Call students randomly from each group and ask them to pick one slip randomly. Then round the number written on board to the specified number of significant figures written on the slip they chose. Repeat till all groups have their turns.

Sum Up: (3min)

Sum up the lesson by retelling the facts and rule to round off whole numbers to specified number of significant figures.

Assessment: (3 min)

Assess students' understanding by asking them to solve 'pause and try' given on page 14 of textbook.

Homework: (2 min)

Solve Q5(d to h) and Q2(d to g) of "Learning check 1.2" given at page 16 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 2 **Lesson Plan:** 5

Unit Name: Rational Numbers **Topic:** Estimation **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Estimate a calculation (addition and subtraction); to check the reasonableness of the solution.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 14, 15, 16.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Write a few numbers on the board and ask students to round off them to specified number of significant figures.
Check their work and appreciate for their correct answers.

Main Activities/Concept Building: (25 mins)

Explain that sometimes, we can use estimation to check if our answers are reasonable. Explain that estimation involves finding a rough approximation of the answer, rather than an exact solution. Have students open textbook at page 14. Read and explain the statement of worked example 1. Tell students that first we will estimate the capacity of both tanks and then add them. After that we will add the actual capacities and check if they are close or not. Step by step explain the example to demonstrate the method. Similarly, explain worked example 2 on page 15 involving estimation a subtracting question. Tell them that if the estimated answer of a calculation is not close to the accrual calculation, our estimation is not correct and we need to reconsider the estimation to different number of places or figures.

Activity:

Have students work in pairs. Ask them to solve Q 4(a, b) of Learning Check 1.2 at page 16. Walk around the classroom and monitor their work. Guide them if they face any problem solving the questions.

Sum Up: (3 min)

Sum up the lesson by repeating the method to estimate a calculation involving addition and subtraction.

Assessment: (5 min)

Ask students to solve Q3 of Learning Check 1.2 at page 16.

Homework: (2 min)

solve Q 4(c, e, g) of Learning Check 1.2 at page 16.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 2 **Lesson Plan:** 6

Unit Name: Rational Numbers **Topic:** Estimation **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Estimate a calculation (multiplication and division); to check the reasonableness of the solution.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 15, 16, worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Write down some sums on the board involving addition and subtraction. Ask students to estimate the sums and then perform actual calculation to check the reasonableness of their estimation. Check their work and appreciate for their correct answers.

Main Activities/Concept Building: (25 mins)

Have students open textbook at page 15. Read and explain the statement of worked example 3. Tell students that first we will estimate the multiplicand and the multiplier and then find the product. After that we will multiply the actual values and check if they are close or not. Step by step explain the example to demonstrate the method.

Similarly, explain worked example 4 on page 15 involving estimation a division question. Tell them that if the estimated answer of a calculation is not close to the accrual calculation, our estimation is not correct and we need to reconsider the estimation to different number of places or figures.

Activity:

Ask the students to open textbook page 16 and solve Q 4(d, f, h) of Learning Check 1.2 at page 16. Walk around the classroom and monitor their work. Guide them if they face any problem solving the questions.

Sum Up: (3 min)

Sum up the lesson by repeating the method to estimate a calculation involving multiplication and division.

Assessment: (5 min)

To assess students understanding, write the following sums on the board and ask students to estimate and then check the reasonableness of their estimation.

a) 345 x 121 b) 26568 ÷ 216

Homework: (2 min)

Complete the worksheet.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. Estimate the following by rounding off and then check to see if the estimated answer is closer to the actual answer.

a) 7212 x 56

b) 56303 x 6901

c) 460404 ÷ 3654

d) 782 ÷ 46

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 2 **Lesson Plan:** 7

Unit Name: Rational Numbers **Topic:** Properties of rational numbers **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Verify closure property, additive identity, and additive inverse for rational numbers under addition.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 17, 21.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about their previous day work. Begin the lesson by writing a few rational numbers on the board. Ask students to find the sum of these rational numbers. Check their answers and appreciate their effort.

Main Activities/Concept Building: (25 mins)

Tell students today we will learn about closure property, additive identity, and additive inverse for rational numbers under addition. Write an addition problem on the board (e.g. 1/2 + 3/4=?) and ask the students to solve it.

Have a volunteer come to the board to show their work and explain how they solved the problem.

Tell them that the result of addition of two given rational numbers is also a rational number. This property (or law) is known as closure law. Demonstrate the law by using example given on page 17. Add ¾ and 7/8 step by step and tell that as the answer 13/8 is also a rational number, so the property has been verified.

Next ask students what the sum of any rational number and 0 is. Tell them that we add 0 to any rational number; we get the same rational number as the answer. Emphasize that 0 called the additive identity. Explain the concept by using worked examples 1 on page 17 of textbook and explain how 0 is the additive identity in each case. Ask students to provide more examples of adding a rational number and 0 to reinforce the concept.

Introduce the concept of additive inverse and explain that two rational number that add up to 0 (the additive identity) are called additive inverses of each other. Show students the example of additive inverse page 17 of textbook. Explain the students how the sum of a rational number and its additive inverse is always 0.

Activity:

Activity:

Have students work in pairs. Write the following questions on the board and ask them to solve.

1. Prove closure property under addition for 5/6 and 2/3.
2. Prove that 0 is the additive identity for the following rational numbers:

a) 7/8 b) -7 c) 3.5

3. Find the additive inverse of each of the following rational numbers:

a) 4/5 b) 5.5 c) -9/10

Walk around and observe their working. Help them where they needed.

Sum Up: (3min)

Sum up the lecture by retelling about the closure property, additive inverse and identity.

Assessment: (5min)

To assess the understanding, ask them to solve 'Pause and Try' of page 17 of textbook.

Homework: (2 min)

Solve Q1 of Learning Check 1.3 on page 21.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 3 **Lesson Plan: 1**

Unit Name: Rational Numbers **Topic:** Properties of rational numbers **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Verify commutative and associative property for rational numbers under addition.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 18, 21.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.
Ask students: How are you? Encourage them to say, "Alhamdulillah".
Ask students about their previous day work. Begin the lesson by writing a few rational numbers on the board and ask the students to state and verify closure law. Also ask them to write the additive inverse of each rational number. Check their work and appreciate for their correct answers.

Main Activities/Concept Building: (25 mins)

Tell students today we will learn about commutative law and associative law of addition for rational numbers. Introduce the commutative law of addition, which states that changing the order of numbers in addition does not change the sum. Write an example on the board (e.g. 3/4 + 4/5 = 4/5 + 3/4). Solve both sides and tell them that the answer is same. So, the property is verified. Demonstrate the property by using example given on page 18. Solve RHS and LHS to verify the commutative property.
Similarly explain the associative law of addition, which states that the grouping of rational numbers does not affect the sum. Explain that this means that taking the sum of the first two rational numbers and then adding their sum to the third rational number is the same as taking the sum of the last two rational numbers and adding their sum to the first rational number. Demonstrate the property by using worked example given on page 18. Tell them that these properties are not applicable on subtraction, as the answer changes when order of subtrahend and minuend changes.

Activity:

Ask the students to open textbook page 21 and solve Q2(a, b, c) and Q3(a, b, c) of Learning Check 1.3. Walk around the classroom and monitor their work. Guide them if they face any problem solving the questions.

Sum Up: (3min)

Sum up the lecture by retelling the commutative and associative property for rational numbers under addition. Also tell students that Commutative and Associative properties of rational numbers with respect to subtraction are not valid.

Assessment: (5min)

To check their understanding, ask them to solve 'Pause and Try' of page 18.

Homework: (2 min)

Solve Q2(d to h) and Q3(d to h) of Learning Check 1.3 at page 21 of textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 3 **Lesson Plan:** 2

Unit Name: Rational Numbers **Topic:** Properties of rational numbers **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Verify closure property, multiplicative identity, and multiplicative inverse for rational numbers under multiplication.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 19, 21, 22.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about their previous day work. Begin the lesson by writing a few rational numbers on the board e.g. 1/2 x 7/8, 2.3 x 7.2 , etc. . Ask students to find the product of these rational numbers. Check their answers and appreciate their effort.

Main Activities/Concept Building: (25 mins)

Tell students today we will learn about closure property, multiplicative identity, and multiplicative inverse for rational numbers under addition. Write a multiplication problem on the board (e.g. 1/2 x 3/4 = ?) and ask the students to solve it.

Have a volunteer come to the board to show their work and explain how they solved the problem.

Tell them that the result of multiplication of two given rational numbers is also a rational number. This property (or law) is known as closure law. Demonstrate the law by using example given on page 19. Multiply 9/13 and -5/11 step by step and tell that as the answer -45/143 is also a rational number, so the property has been verified.

Next ask students what the product of any rational number and 1 is. Tell them that we multiply 1 by any rational number; we get the same rational number as the answer. Tell them that 1 is called the multiplicative identity.

Explain the concept by using worked examples on page 19 of textbook and explain how 1 is the multiplicative identity. Ask students to provide more examples of multiplying a rational number and 1 to reinforce the concept.

Introduce the concept of multiplicative inverse and explain that two rational number whose product is 1 (the multiplicative identity) are called multiplicative inverses of each other. Show students the example of multiplicative inverse page 19 of textbook. Explain the students how the product of a rational number and its multiplicative inverse is always 1. Tell them that the multiplicative inverse is also called the reciprocal of the rational number

Activity:

Have students work in pairs. Write the following questions on the board and ask them to solve.

4. Prove closure property under multiplication for 5/6 and 2/3.
5. Prove that 1 is the multiplicative identity for the following rational numbers:

b) 7/8 b) -7 c) 3.5

6. Find the multiplicative inverse of each of the following rational numbers:

b) 4/5 b) 5.5 c) -9/10

Walk around and observe their working. Help them where they needed.

Sum Up: (3min)

Sum up the lecture by retelling about the closure property, multiplicative inverse and multiplicative identity.

Assessment: (5min)

To assess the understanding, ask them to solve 'Pause and Try' of page 17 of textbook.

Homework: (2 min)

Solve Q4 of Learning Check 1.3 on page 21, 22.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 3 **Lesson Plan: 3**

Unit Name: Rational Numbers **Topic:** Properties of rational numbers **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Verify commutative, associative and distributive property for rational numbers under multiplication.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 20,21 and 22.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day work. Begin the lesson by writing a few rational numbers on the board and ask the students to state and verify closure law of multiplication. Also ask them to write the multiplicative inverse of each rational number. Check their work and appreciate for their correct answers.

Main Activities/Concept Building: (25 mins)

Tell students today we will learn about commutative law, associative and distributive law of multiplication for rational numbers.

Introduce the commutative law of multiplication, which states that changing the order of numbers in multiplication does not change the product. Write an example on the board (e.g. 3/4 x 4/5 = 4/5 x 3/4). Solve both sides and tell them that the answer is same. So, the property is verified. Demonstrate the property by using example given on page 20. Solve RHS and LHS to verify the commutative property.

Similarly explain the associative law of multiplication, which states that the grouping of rational numbers does not affect the product. Explain that this means that taking the product of the first two rational numbers and then multiplying their product by the third rational number is the same as taking the product of the last two rational numbers and multiplying their product to the first rational number. Demonstrate the property by using worked example given on page 20. Tell them that these properties are not applicable on division, as the answer changes when order of divisor and dividend changes.

Next introduce the distributive property of multiplication over addition and subtraction. The distributive property says that the multiplying a rational number by a group of rational numbers added (or subtracted) is the same as doing each multiplication separately and then adding(or subtracting) their products. Demonstrate the properties by explaining worked examples given on page 21 of their textbooks.

Activity:

Ask the students to open textbook page 22 and solve Q5(a), Q6(a) and Q7(a) of Learning Check 1.3. Walk around the classroom and monitor their work. Guide them if they face any problem solving the questions.

Sum Up: (3min)

Sum up the lecture by retelling the commutative, associative and distributive property for rational numbers under multiplication.

Assessment: (5min)

To check their understanding, ask them to solve ‘Pause and Try’ of page 20 and 21.

Homework: (2 min)

Solve Q5(b to d), Q6(b to d) and Q7(b to d) of Learning Check 1.3 at page 22 of textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 3 **Lesson Plan: 4**

Unit Name: Rational Numbers **Topic:** Real world problems of rational numbers **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Solve real-world word problems involving operations on rational numbers.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 22 & 23.

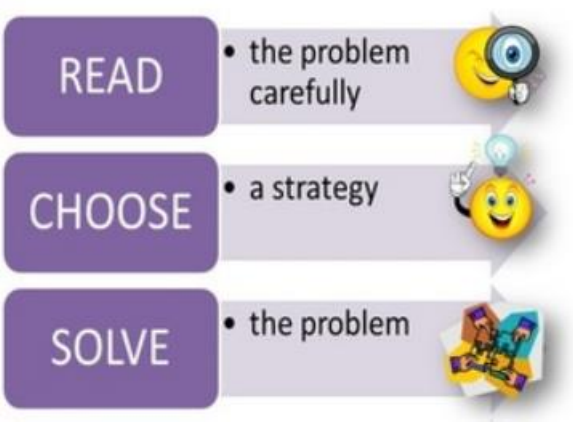
Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Begin the lesson by asking students about their homework. Ask them if anyone can create a real-life situation involving decimals, fractions or whole numbers. Take their responses and have them explain the real-life situation. Ask them how will they solve it? Take responses and appreciate their effort.

Main Activities/Concept Building: (25 mins)

Ask students to open textbook page 22. Begin the lesson by reviewing the definition of rational numbers, and the properties under addition and multiplication. Tell them that solving real word problems of rational numbers is same as real life problems of whole numbers, decimals , integers etc. Encourage students to read the problem carefully. Then ask them to underline or highlight key information in the problem, and then identify what they are being asked to solve. Ask them to look for keywords or phrases that indicate which operation is needed to solve the problem. Next ask them to look at the relationship between the numbers in the problem. Encourage students to draw a picture or diagram to help them visualize the problem and identify the operation. Demonstrate the method step by step(given above) by reading, explaining and solving the worked examples 1 and 2 given on page 22. Encourage the students to ask questions if they need more explanation.



Activity:

Ask students to open textbook page 23. Have them solve Q1 and 2 of learning check 1.4. Walk around the class and monitor their work. Guide them if necessary.

Sum Up: (3 min)

Sum up the lecture by repeating the step-by-step strategy to understand and solve the word problem related to rational numbers.

Assessment: (5min)

To check their understanding, ask them to solve Q3 and Q4 of learning check 1.4 at page 23 of textbook.

Homework: (2 min)

solve Q5 and Q8 of learning check 1.4 at page 23 of textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 3 **Lesson Plan: 5**

Unit Name: Rational Numbers **Topic:** Order of operations **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Recognize the order of operations to solve mathematical expressions.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 23 & 24, wall chart of order of operations

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 mins)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Write the following mathematical expressions on the board and ask them to tell which operation should be performed first: a) 5 + 3 x 12 b) 24 ÷ 6 + 7

Take their responses. Appreciate them for their effort.

Main Activities/Concept Building: **(25 mins)**

Begin by asking students if they have ever been confused about the order in which to solve a mathematical expression. Introduce the BODMAS rule and explain that it is a set of rules that dictate the order in which operations are to be performed in a mathematical expression. Show the BODMAS Rule wallchart and go over each operation, explaining what they mean. Describe to students that if there are multiple brackets and operations in an expression, the correct order to solve them is to start inside the vinculum, line, or bar bracket, solve the round bracket, curly bracket, square bracket, and order (which means roots and power) before solving division, multiplication, addition, and subtraction. Tell them that if we do not follow the BODMAS rule, we may get an incorrect answer for a mathematical expression. The BODMAS rule ensures that the operations are performed in a specific order, so that the answer obtained is accurate and consistent. Demonstrate the rule by step by step explaining the worked example 1.

Next ask students to open textbook page 24. Write Q1(a and b) on the board. Step by step solve it and explain the method to students. If possible, ask students to guide you through the process so that you may check their understanding as well.

a) $213 + 2[15 - 3\{13 + 25(35 - \overline{18 - 15})\}]$

$= 213 + 2[15 - 3\{13 + 25(35 - 3)\}]$

$= 213 + 2[15 - 3\{13 + 25(32)\}]$

$= 213 + 2[15 - 3\{13 + (800)\}]$

$= 213 + 2[15 - (2439)]$

$= 213 + [2(-2424)]$

$= 213 + (-4848)$

$= -4635$

b) $357 - 35[12 + 25\{(-27 + 18) \div 3(15 + 10)\}]$

$= 357 - 35[12 + 25\{(-9) \div 3(15 + 10)\}]$

$= 357 - 35[12 + 25\{-9 \div 3 \times 25\}]$

$= 357 - 35[12 + 25\{-3 \times 25\}]$

$= 357 - 35[12 + (25)(-75)]$

$= 357 - 35[12 + (-1875)]$

$= 357 - 35[-1863]$

$= 357 + 65205$

$= 65562$

Encourage them to ask questions to clarify the concept if needed.

Sum Up: **(3 min)**

Sum up the lecture by retelling the about the order of operations and its importance.

Assessment: **(5 min)**

To assess their understanding, ask them to verbally tell about the order of operations.

Homework: **(2 min)**

Solve Question 1(c and d)) of Leaning check 1.5 on page 24.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

_____

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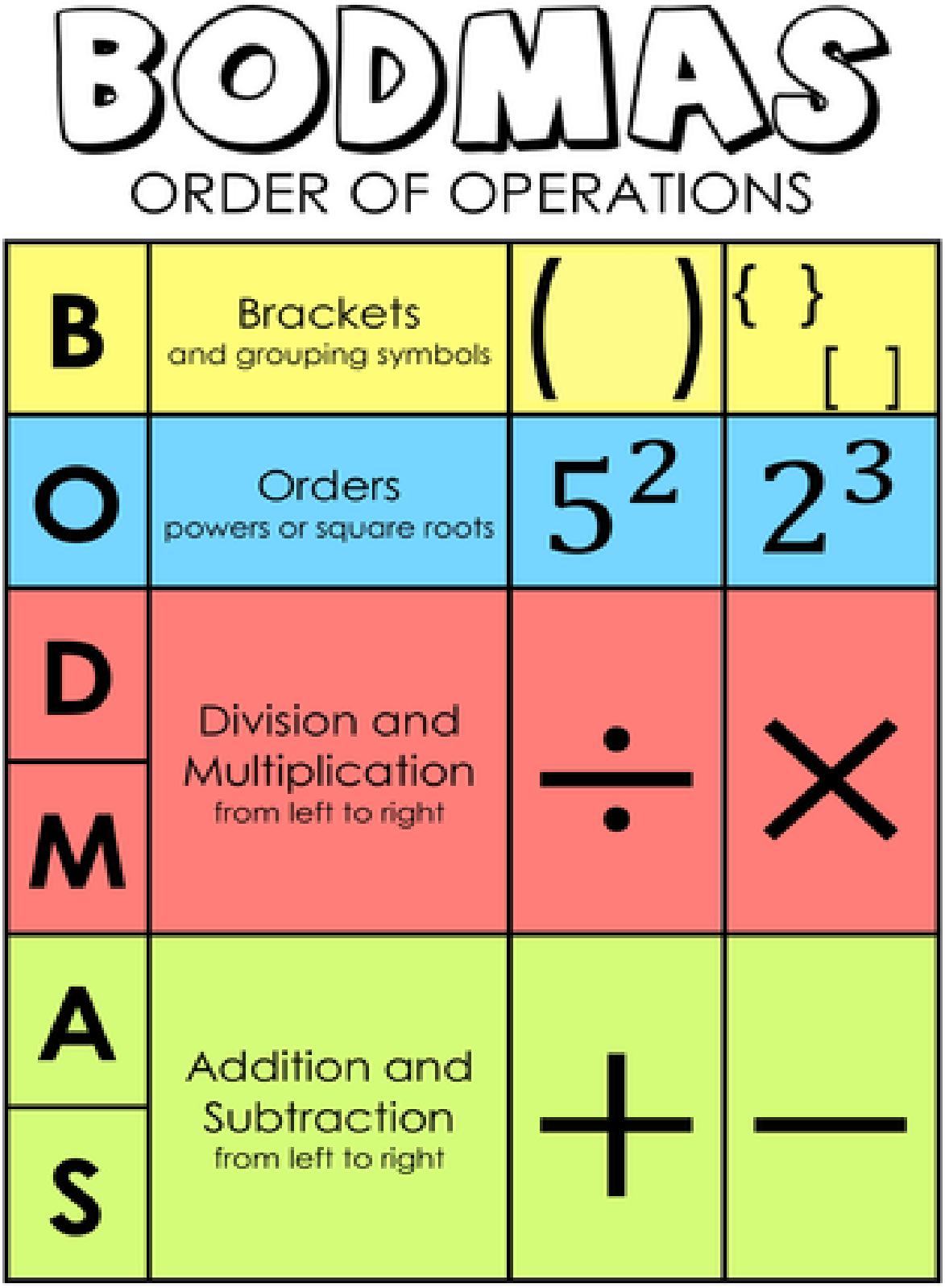
Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Wall Chart



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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 3 **Lesson Plan: 6**

Unit Name: Rational Numbers **Topic:** Order of operations **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Apply the order of operations to solve mathematical expressions.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 24, chart papers, markers

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask the students about their homework. Write the following mathematical expression on the board and ask students to tell the steps to solve it.

$20 – 3x(8 - 2) \div 2 + 5$

Take their responses. Appreciate them for their effort.

Main Activities/Concept Building: (25 mins)

Review the concept of BODMAS rule and remind students of the importance of following the correct order when solving mathematical expressions.

Activity:

Ask students to work in groups, say Group A, B and C (according to class strength). Distribute chart papers and markers among the groups. Assign each group two parts from Q1 given in Learning check 1.5 on page 24 of their textbook to solve using chart papers. For example:

Group A will solve Q1(e, f)

Group B will solve Q1(g, h)

Group C will solve Q1(i, j) and so on.

Roam around the class to monitor their work and guide them if required. After they are done, ask them to come forward as group and paste the chart paper having the solution of their assigned question. Ask them to explain the steps they followed to solve it. Clap for their correct answers.

Sum Up: (3 min)

Sum up the lecture by retelling the about the order of operations and its importance.

Assessment: (5min)

To assess their understanding, have them solve Question 1(k) of Leaning check 1.5 on page 24.

Homework: (2 min)

Solve Question 1(l, m, n, o)) of Leaning check 1.5 on page 24.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 3 **Lesson Plan: 7**

Unit Name: Rational Numbers **Topic:** Unit check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 1 by solving Q1-4 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 25 & 26.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit Rational numbers.

Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 25 of their textbooks. Ask them to solve Q1, Q2 and Q3 of “Unit check 1” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 25.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q4 of Unit check 1 given at page 26 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 4 **Lesson Plan: 1**

Unit Name: Rational Numbers **Topic:** Unit check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 1 by solving Q5-8 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 26.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Tell students that they are going to revise all the concepts of the Unit Rational numbers.
Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 26 of their textbooks. Ask them to solve Q5, Q6 of “Unit check 1” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points of unit.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q7-8 of Unit check 1 given at page 26 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 4 **Lesson Plan: 2**

Unit Name: Rational Numbers **Topic:** Unit check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 1 by solving Q9-11 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Chart paper, Multiple sets of rational numbers written on paper or cards, Textbook page 25 & 26.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Tell students that today we are going to recall all the concepts of the unit "Rational Numbers".

Ask them different questions that are related to basic concept of "Rational Numbers".

Main Activities/Concept Building: (25 mins)

Activity 1:

Have students open their textbook page 25, now ask them to solve Q 9 & 10 of unit check 1 on their notebooks.

Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students that now we are going to do an activity of 'work with math' on page 27.

Now instruct students to work in groups.

Give each group cards of different rational numbers.

Ask them to separate out, whole numbers, natural numbers, integers, fractions, etc.

Now assign different tasks to each group. For example:

- Enlist various real life examples where rational numbers are used in calculations.
- Arrange a set of various rational numbers in ascending or descending order
- Represent various numbers in standard, expanded and place value form.
- Round off various given numbers to specified significant digits.

After they are done, ask each group to present their work to the class

Sum Up: (3min)

Sum up the lecture by repeating the important points of unit 1.

Assessment: (5min)

N/A

Homework: (2 min)

Solve Q11 of Unit check 1 given at page 26 of their textbooks.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 4 **Lesson Plan:** 3

Unit Name: Squares and Square roots **Topic:** HCF and LCM **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Recall HCF and LCM.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 28, 29 and 30

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.
Ask students: How are you? Encourage them to say, "Alhamdulillah".
Have students open textbook at page 28. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.
(***Note for teachers****: The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners*.)

Main Activities/Concept Building: (25 mins)

Before the main concept, tell them briefly about the unit outline and its real life relevance.
Ask students to open textbook page 29. Introduce the concept of HCF as the greatest factor that divides the given numbers exactly without any remainder. Demonstrate how to find the H.C.F (highest common factor) of two or three numbers using the prime factorization method. Read the statement of worked example given on page 29. Explain that in this question, we need to find the length of longest measuring tape that can measure ropes of 3 different lengths. Tell them that here we will calculate HCF because when working with problems that involve finding a common factor of given values, we should use HCF. Explain the process to find the HCF by prime factorization method. Tell them that we need to find common prime factors of given numbers and the highest factor among them will be the HCF of the given numbers. After solving encourage them to ask questions if they need more explanation.
In the same way, introduce the concept of LCM. Tell them that the smallest number that is a multiple of two or more given numbers is called the least common multiple (LCM) of those numbers. Demonstrate how to find the LCM by explaining the worked example involving LCM given on page 29.

Activity:

Ask students to open their notebooks and solve Q1 (a-d) and Q2 (a-d) of learning check 2.1 on page 30.
Take rounds and guide students if required.

Sum Up: (2 min)

Sum up the lesson by re-telling students what is meant by HCF and LCM and the method to find them.

Assessment: (6 min)

Ask students to solve 'Pause and try' of page 29 and 30 on their notebooks. Take rounds and guide them if required.

Homework: (2 min)

Solve Q1 (e-l) and Q2 (e-l) of learning check 2.1 on page 30

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 4 **Lesson Plan:** 4

Unit Name: Squares and Square roots **Topic:** Square of a number **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Recognize squares of numbers up to 3-digits.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 30, 31 & 32.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about their previous day homework. Write 12 x 12 on the board and ask students to tell the answer. Take their responses. Ask them if they remember what is 12 x 12 showing? Take responses. If they say "it is showing square of 12", appreciate if they correctly respond.

Main Activities/Concept Building: (25 mins)

Ask the students open page 30. Reinforce the concept of squares of numbers. Tell them that when we multiply a number by itself, we can write that number to the power of 2. For example, when we multiply a number, say a, by itself, i.e., $a \times a = a^2$, we read it as a raised to the power of 2 or a to the power 2 or the square of a.

Explain that the **square** of a number is the result of multiplying that number by itself. If a number is a square of any number, it is called a **perfect square**. 1, 4, 9, 16, ⋯ etc. are perfect squares of 1, 2, 3, 4, ⋯ etc., and so on. Explain the examples given on page 30 of textbook and tell them that the square of any number, positive or negative, is always positive.

Next have them open textbook page 31. Tell them that to check if a number is a perfect square or not, we can find its prime factors and if those factors can be written in pairs, the number will be a perfect square. Explain this by using worked examples given on page 31.

After this, tell them about some basic properties of perfect square numbers. i.e.

i) The square of an even number is even.

ii) The square of an odd number is odd.

iii) The square of a proper fraction is less than itself.

iv) The square of a decimal less than 1 is smaller than the decimal.

By using the examples of each property in textbook page 31-32, have them understand and verify each of these properties.

Sum Up: (3min)

Sum up the lecture by recalling definitions of squares and perfect square. Also re-tell the method to find if a number is perfect square or not along with the properties of perfect squares.

Assessment: (5min)

Ask students to solve Q1 (a-b) of 'Learning check 2.2' at page 32 of textbook.

Homework: (2 min)

Solve Q1(c-d-e) and Q2 of 'Learning check 2.2' at page 32 of textbook

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 4 **Lesson Plan:** 5

Unit Name: Squares and Square roots **Topic:** Square of a number **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Calculate squares of numbers up to 3-digits

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 31, 32 & 33.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask them about squares of numbers. Write some numbers on the board including perfect squares. Ask students to identify perfect squares and then explain why they are perfect squares. Ask students to tell whether the squares of these numbers are odd or even. a) 90 b) 123

Take responses and appreciate their effort.

Main Activities/Concept Building: (25 mins)

Begin by reviewing what it means to square a number, i.e. multiplying a number by itself.

Ask the students to provide some examples of 3-digit numbers and write them on the board or display them on a screen. Work through a few examples together as a class, demonstrating how to calculate the square of each number. For example, the square of 120 is 120 x 120 = 14400.

Activity 1:

Divide the class into pairs. Give each pair a set of numbers (up to 3 -digits) written on index cards or pieces of paper. Each pair takes turns drawing a card from the stack and calculating the square of the number on the card. If the pair correctly calculates the square, they earn a point. If they are incorrect, the other pair has a chance to steal the point by correctly calculating the square. The game continues until all the cards have been used. The pair with the most points at the end of the game wins.

Activity 2:

Ask the students to open textbook page 32 and solve Q1(f-g-h) and Q3 of Learning check 2.2 on their notebooks. Walk around the class, monitor their working and guide them where required.

Sum Up: (3min)

Sum up the lecture by recalling definitions of squares and perfect square. Also re-tell the method to find square of numbers.

Assessment: (5min)

Ask them to solve Q1(i-j) of 'Learning check 2.2' at page 32 of textbook

Homework: (2 min)

Solve Q1(k to o) and Q4, 5 of 'Learning check 2.2' at page 32/33 of textbook

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 4 **Lesson Plan:** 6

Unit Name: Squares and Square roots **Topic:** Square root of a number **Date:** _____

Objective(s):

At the end of this period, the students will be able to:

Understand the concept of square roots.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 33

Teaching & Learning Activities:

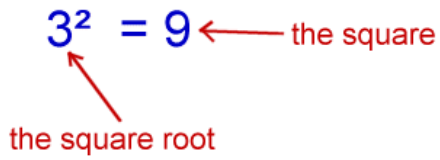
Opening Activities/Warm-up: **(3 mins)**

Say, "Assalaamu Alaikum" and start with the name of Allah.
Ask students: How are you? Encourage them to say, "Alhamdulillah". Write a few 2- or 3-digit numbers on the board. Ask students to find their square. Take responses and appreciate their effort.

Main Activities/Concept Building: **(25 mins)**

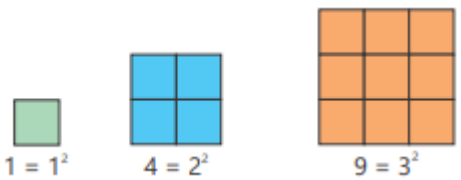
Activity 1:

Have students open textbook page 33. Tell them that we know that the **square** of a number is the result of multiplying that number by itself. Now we will learn about the concept of square roots. Tell them that finding a square root is opposite of squaring a number. For example, the square of 3 is 9 and the square root of 9 is 3.



Explain the concept of square roots by using shapes given in textbook page 33.

Ask students to count the number of small squares in each of the above. Explain that the product of rows and columns is equal to the total number of small squares in each shape. Explain by telling them that the first square has one column and one row. So, $1^2 = 1 \times 1 = 1$



Similarly, the second square has two columns and two rows. So, $2^2 = 2 \times 2 = 4$
And the third square has three columns and three rows. So, $3^2 = 3 \times 3 = 9$
Explain that the numbers 1, 4 and 9 are the squares of the numbers 1, 2 and 3, respectively. Tell them that the number of rows or columns is actually the square root of each number. Introduce the sign "$\sqrt{}$"of square root to them and tell them that it is called the radical sign. The number written inside the radical sign is known as radicand. Write a few examples on board and point out the radicand and radical sign in them. Tell them that we can say that if a and b are any positive numbers, then $a^2 = b$ implies that $\sqrt{b}$ =a and It is read as "square root of b is a". Tell them that in symbolic form, we write that:
If $1^2 = 1$, then $\sqrt{1}$ =1. Explain that this means "if square of 1 is 1, then square root of 1 is 1".
If $2^2 = 4$, then $\sqrt{4}$ =2. Explain that this means "if square of 2 is 4, then square root of 4 is 2".
If $3^2 = 9$, then $\sqrt{9}$ =3. Explain that this means "if square of 3 is 9, then square root of 9 is 3"….and so on.
Encourage the students to ask questions if they need more explanation.

Sum Up: **(3min)**

Sum up the lecture by recalling the definition of square roots and the relation between squares and square roots.

Assessment: **(7 min)**

To check students' learning, write 4 x 4 = 16, 5 x 5 = 25 or similar sentences on board and ask them to write it in the form of square root using symbol.

Homework: **(2 min)**

Revise classwork.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 4 **Lesson Plan:** 7

Unit Name: Squares and Square roots **Topic:** Square root by Factorization **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Find the square roots of perfect squares of natural numbers by factorization method.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 33, 34, 37 and 38

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Begin the lesson by reviewing the concept of square roots with the students. Ask them what they already know about finding square roots and how they have been taught in the past. Explain to them that today they will be learning how to find the square roots of perfect squares of natural numbers by factorization method.

Main Activities/Concept Building: (25 mins)

Activity 1:

Tell students that there are two ways of finding square roots.

Factorization method Division method

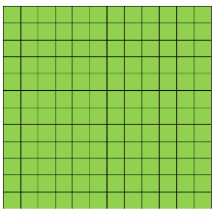
Have them open page 33. Tell them that today we are going to learn about the factorization method of finding square roots of natural numbers. Explain to students that to find the square root of the numbers using factorization method, we follow these steps.

Step 1: First, find the prime factors of the given numbers and write them in pairs.

Step 2: From each pair, take only one number and find their product.

This product will be the square root of the given number.

Ask them to open textbook page 34. Read the statement of worked example 1. Ask the students "What information is given in the question?". Take responses. Then tell them that the area of a square plot is given which is 144 square metres. Again ask " what do we need to find in the question?" Take responses. Then tell them that we need to find the length of the side of the plot. Ask: Can anyone tell how we can find the side length? Take responses. Then refer to previous day lesson and tell them that suppose the plot is a square with 144 small squares inside it.



Draw a figure to model it for students. Tell them that let's suppose the plot has 144 squares of same size i.e. 1 square metre. Have them visualize the question. Tell them that to find the length we need to find the square root of the total area i.e. 144 m^2. After they understand the concept, tell them the method to find square root using factorization. Step by step explain the solution as given in the book page 34. i.e. to find the prime factors first and then making pairs of factors. After this, taking one number from each pair and find its product. Tell them that this product will be the square root of area. Finally explain that this square root will be the side length of the plot. Ask them to open textbook page 38. Solve Q5 (using factorization method) on the board with maximum input of students for each step. Appreciate for their participation and encourage the students to ask questions if they need more explanation.

Activity:

Have students work in pairs. Ask them to solve Q1(a-b) of learning check 2.3 given on page 37/38 of textbook. Walk around the class, monitor their working and guide them where required.

Sum Up: (3min)

Sum up the lecture by retelling the steps of finding square roots by factorization method.

Assessment: (5min)

To assess students' learning, ask them solve Q3 of learning check 2.3 given on page 37/38 of textbook. Walk around the class, monitor their working and guide them where required.

Homework: (2 min)

Solve Q1(c to g) and Q4 and 6(using factorization method) of learning check 2.3 given on page 37/38 of textbook

Teacher's Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 5 **Lesson Plan:** 1

Unit Name: Squares and Square roots **Topic:** Square root by Factorization **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Find the square roots of fractions using factorization method.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 34 and 37

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Recall steps of finding square roots using factorization method. Next ask them to tell what a fraction is? Take responses and ask about the numerator and denominator of a fraction. Take their answers and appreciate their replies.

Main Activities/Concept Building: (25 mins)

Ask students to open textbook page 34. Tell them that today we are going to learn about finding square root of fractions using factorization method. Tell them that finding square root of fraction using factorization method, we follow the same steps as for natural numbers. The difference will be only that for fractions we find the square root of numerator and denominator separately and then write the square root of numerator and denominator in fraction form. In simple way we can write it as :

$\sqrt{Fraction} = \frac{\sqrt{Numerator}}{\sqrt{Denominator}}$

Demonstrate the method by explaining the worked example 2 given on page 34 of textbook.

$\frac{\sqrt{16}}{\sqrt{25}}$

Tell them that first we will find the prime factors of 16 and 25 separately.

Tell them that they can use any method to find prime factors.

16= 2 x 2 x2 x 2 and 25 = 5 x 5

Now tell them to write the prime factors in pairs.

16 = $\overline{2 \times 2} \times \overline{2 \times 2}$ 25 = $\overline{5 \times 5}$

2	16
2	8
2	4
2	2
	1

5	25
5	5
	1

Next tell them to take only one number from each pair and find their product. This will be the square root of the number.

$\sqrt{16}$ = 2 x 2 = 4 and $\sqrt{25}$ = 5

$\sqrt{16/25}$= $2 \times 2 / 5$ =4/5

Encourage the students to ask questions if they need more explanation

Activity:

Have students work in pairs. Ask them to solve Q1(l) of learning check 2.3 given on page 37 of textbook. Walk around the class, monitor their working and guide them where required.

Sum Up: (3min)

Sum up the lecture by retelling the steps of finding square roots of fractions by factorization method.

Assessment: (5min)

To assess students' learning, ask them solve pause and try page 34 part (c).

Homework: (2 min)

Solve pause and try page 35 part (a and b) and Q1 (m) of learning check 2.3 given on page 37 of textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 5 **Lesson Plan:** 2

Unit Name: Squares and Square roots **Topic:** Square root by Factorization **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Find the square roots of decimals using factorization method.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 34, 35 and 37

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 mins)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Recall steps of finding square roots using factorization method. Next ask them to tell what a decimal is? Take responses. Then write 3.4 on the board and ask students if they can convert it into a fraction. Take their answers and appreciate them.

Main Activities/Concept Building: **(25 mins)**

Ask students to open textbook page 34. Tell them that today we are going to learn about finding square root of decimals using factorization method. Tell them that finding square root of decimal using factorization method, we follow the same steps as for natural numbers. The difference will be only that for decimals, first we convert them into fractions and then find the square root of numerator and denominator separately. After this write the square root of numerator and denominator in fraction form.

Demonstrate the method by explaining the worked example 3 given on page 34 of textbook.

"Find square root of 0.81"

Tell them to tell how to convert it into fractions? Take responses. Then proceed step by step and explain each step.

0.81= 81/100. Now find square root of numerator 81 and denominator 100 separately.

$$\frac{\sqrt{81}}{\sqrt{100}}$$

2	100
2	50
5	25
5	5
	1

3	81
3	27
3	9
3	3
	1

Tell them that first we will find the prime factors of 81 and 100 separately. Tell them that they can use any method to find prime factors.

81= 3 x 3 x 3 x 3 and 100 = 2 x 2 x 5 x 5

Now tell them to write the prime factors in pairs.

81 = $\overline{3 \text{ x } 3}$ x $\overline{3 \text{ x } 3}$ 100 = $\overline{2 \text{ x } 2}$ x $\overline{5 \text{ x } 5}$

Next tell them to take only one number from each pair and find their product. This will be the square root of the number.

$\sqrt{81}$ = 3 x 3 = 9 and $\sqrt{100}$ = 2 x 5= 10

$\sqrt{81/100} =$ 3 x 3 / 2 x 5 =9/10

Tell them to express 9/10 in decimal form as the question is in decimal.

So, 9/10 = 0.9

Encourage the students to ask questions if they need more explanation

		0.	9
1	0	9.	0
	−	0	
		9	0
	−	9	0
			0

Activity:

Have students work in pairs. Ask them to solve Q1(h and i) of learning check 2.3 given on page 37 of textbook. Walk around the class, monitor their working and guide them where required.

Sum Up: **(3min)**

Sum up the lecture by retelling the steps of finding square roots of decimals by factorization method.

Assessment: **(5min)**

To assess students' learning, ask them solve pause and try page 35 part (c).

Homework: **(2 min)**

Solve pause and try page 35 part (d) and Q1(j-k) of learning check 2.3 given on page 37 of textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 5 **Lesson Plan:** 3

Unit Name: Squares and Square Roots **Topic:** Square root by Division **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Find the square roots of perfect squares of natural numbers by division method.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 35 to 38

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

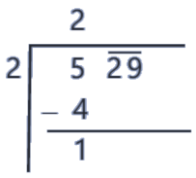
Ask students: How are you? Encourage them to say, "Alhamdulillah".

Begin the lesson by asking them about their homework. Ask them about the factorization method of finding square roots of natural numbers, fractions and decimals. Write a perfect square on the board and ask students to find its square root using factorization.

Main Activities/Concept Building: (25 mins)

Ask students to open textbook page 35. Read the statement of worked example 1 on page 35. Ask the students "What information is given in the question?". Take responses. Then tell them that the number of tiles required for tiling a masjid's floor is given. Again ask "What do we need to find in the question?" Take responses. Then tell them that we need to find the number of tiles in each row. Ask: Can anyone tell how we can find the number of tiles? Take responses. Then tell them that as the length and width of floor is same, so there will be equal number of tiles in rows and column. Tell them that we can find it by finding square root of total number of tiles i.e. 529. Tell them that in this question we will find square root of natural numbers using division method. Step by step explain the method to students.

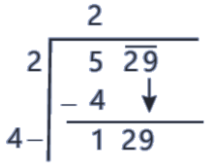
Step I: First, make pairs of the digits of the number 529 from right to left and write them inside the radical symbol. We have, 5 29.



Step II: Try to find the greatest number whose square is less than or equal to the number in the leftmost pair or number that is 5. $1 \times 1 = 1,\ 2 \times 2 = 4 < 5,\ 3 \times 3 = 9 > 5$

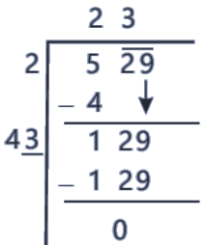
Here the number we need is 2.

Step III: Take this number 2 as the divisor and also write it in the quotient. Write the product 4 below the leftmost number 5. By subtraction, we get the remainder 1.



Step IV: Take down the pair 29. Add the divisor with the quotient (or double the quotient 2) 2 + 2 = 4 and enter it with a blank to its right.

Step V: Find the greatest possible digit to fill the blank that will also be the next digit in the quotient, so when the divisor (made up of 4 and the new digit) is multiplied by the new digit in the quotient, the product is less than or equal to the dividend 129. Here $43 \times 3 = 129,$ so 3 is the required digit here. The remainder will be 0. The quotient 23 is the square root of 529. Tell them that they can multiply the answer by itself to check if the answer they calculated is correct. Here as 23 x 23 = 529, hence our solution is correct.



Encourage the students to ask questions if they need more explanation

Activity:

Have students work in pairs. Ask them to solve Q2(a-b) of learning check 2.3 given on page 37/38 of textbook. Walk around the class, monitor their working and guide them where required.

Sum Up: (3min)

Sum up the lecture by retelling the steps of finding square roots of natural numbers by division method.

Assessment: (5min)

To assess students' learning, ask them solve Q2(c) of learning check 2.3 given on page 37/38 of textbook.

Homework: (2 min)

Solve Q2(d - e) and Q7 and 8 (using division method) of learning check 2.3 given on page 37/38 of textbook

Teacher's Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

_____

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 5 **Lesson Plan:** 4

Unit Name: Rational Numbers **Topic:** Revision **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Rational Numbers”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

_____

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. Represent the given numbers on the number line.

-1.5, -4.1, -1/2, -5, 0.7

2. Show the number 5402341 in a place value table and then write it in words. Also write the value of each digit.

3. Identify and separate the proper fractions, the improper fractions and the mixed numbers. Also convert improper to mixed fractions and vice versa.

a) $\frac{15}{7}$ **b)** $10\frac{2}{3}$ **c)** $\frac{7}{5}$ **d)** $\frac{38}{13}$

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 5 **Lesson Plan:** 5

Unit Name: Rational Numbers **Topic:** Revision **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Rational Numbers”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

_____

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. **Ahmed cycled 1.85 km from his house to the library, 0.535km from library to the post office and 2.7 km from the post office to his house. Find the total distance Ahmed cycled. First, estimate the total distance and then verify your answer.**

2. **Verify commutative property of addition for 7 and -2.**

3. **Verify associative property of addition for 1/2, 4/5 and 3/4.**

4. **Verify distributive property of multiplication over subtraction for 10, 12 and 20.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 5 **Lesson Plan:** 6

Unit Name: Rational Numbers **Topic:** Revision **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Rational Numbers”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. Ahmad used $3\frac{1}{2}$ litres of water on Saturday and $5\frac{1}{4}$ of water on Sunday to plant the flowers. How much more water did he use on Sunday than on Sunday?

2. Simplify the following.

$2\frac{1}{4} \div \{\frac{3}{7}(\frac{25}{4} - \frac{1}{3} + \frac{3}{4})\} \times \frac{1}{5}$

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit:** 1 **Week:** 5 **Lesson Plan:** 7

Unit Name: Squares and Square roots **Topic:** Revision **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Squares and Square roots”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

_____

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. **Find the square of the following.**

   a) 34 b) 200 c) 542

2. **Find the square root of the following using the factorization method.**

   a) 256 b) $\frac{64}{144}$ c) 0.36

3. **The area of a square field is 100 m^2. Find the perimeter of the field.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 1

Unit Name: Squares and Square Roots **Topic:** Square root by Division **Date:** _____

Objective(s):

At the end of this period, the students will be able to:

Find the square roots of fractions using division method.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 36 and 38

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Begin the lesson by asking students to recall the steps of finding square root of natural numbers by division method. Next ask them how to find the square root of fractions by factorization method. Take their answers and appreciate their replies.

Main Activities/Concept Building: **(25 min)**

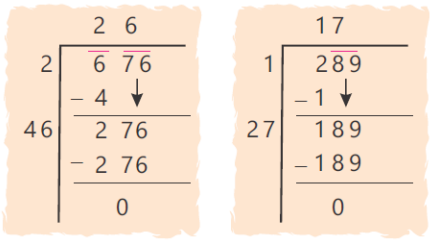
Ask students to open textbook page 36. Tell them that today we are going to learn about finding square root of fractions using division method. Tell them that finding square root of fraction using division method, we follow the same steps as for natural numbers. The difference will be only that for fractions we find the square root of numerator and denominator separately and then write the square root of numerator and denominator in fraction form. In simple way we can write it as:

$\sqrt{Fraction} = \frac{\sqrt{Numerator}}{\sqrt{Denominator}}$

Demonstrate the method by explaining the worked example 2 given on page 36 of textbook.

Tell them that first we make pairs of the digits of the numbers 676 and 289 from right to left and then write them inside the radical sign.

$676 = 6\overline{76}$ $289 = 2\overline{89}$



Then find the square root of both numerator and denominator by division method separately in the same way as we find for natural numbers and explain each step to them.

$\sqrt{\frac{676}{289}} = \frac{\sqrt{676}}{\sqrt{289}} = \frac{26}{17}$

Encourage the students to ask questions if they need more explanation.

Activity 1:

Have students work in pairs. Ask them to solve Q2(i) of learning check 2.3 given on page 38 of textbook. Walk around the class, monitor their working and guide them where required.

Sum Up: **(3min)**

Sum up the lecture by retelling the steps of finding square roots of fractions by factorization method.

Assessment: **(5min)**

To assess students' learning, ask them solve pause and try page 36 part (c).

Homework: **(2 min)**

Solve Q2 (j, k and l) of learning check 2.3 given on page 38 of textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

_____

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 2

Unit Name: Squares and square Roots **Topic:** Square root by Division **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Find the square roots of decimals using division method.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 36-38

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Begin the lesson by asking students about their previous day work. Recall with them the steps to find the square root of fractions by using division method. Ask students: How we can find the square root of decimals by using factorization method. Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: (25 min)

Ask students to open textbook page 36. Tell them that today we are going to learn about finding square root of decimals using division method. Tell them that finding square root of decimal using division method, we follow the same steps as for fractions. The difference will be only that for decimals, first we convert them into fractions and then find the square root of numerator and denominator separately. After this write the square root of numerator and denominator in fraction form.

Demonstrate the method by explaining the worked example 3 given on page 36 of textbook.

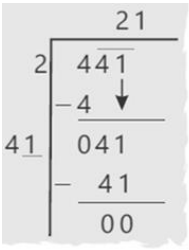
"Find square root of 4.41"

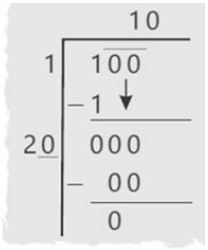
Tell them to tell how to convert it into fractions? Take responses. Then proceed step by step and explain each step. Tell them that first we convert 4.41 into fractions as: $4.41 = \frac{441}{100}$

Tell them that first we make pairs of the digits of the numbers 441 and 100 from right to left and then write them inside the radical sign.

$441 = 4\overline{41}$ $100 = 1\overline{00}$

Then find the square root of both numerator and denominator by division method separately in the same way as we find for natural numbers and explain each step to them.





$4.41 = \frac{441}{100} = \sqrt{\frac{441}{100}} = \frac{\sqrt{441}}{\sqrt{100}} = \frac{26}{17}$

Encourage the students to ask questions if they need more explanation. For more explanation solve worked example 4 step by step and explain each step to them.

Activity:

Have students work in pairs. Ask them to solve Q2 (f) of learning check 2.3 given on page 38 of textbook. Walk around the class, monitor their working and guide them where required.

Sum Up: (3min)

Sum up the lecture by retelling the steps of finding square roots of fractions by division method.

Assessment: (5min)

To assess students' learning, ask them solve "Pause and Try" page 36 part (a and b) and on page 37.

Homework: (2 min)

Solve Q2 (g, h) and Q9 of learning check 2.3 given on page 38 of textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 3

Unit Name: Squares and Square Roots **Topic:** Sum Up and Unit Check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 2 by solving Q1-6 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 38-40

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Tell students that they are going to revise all the concepts of the Unit “Square and Square Roots”.
Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 39 of their textbooks. Ask them to solve Q1, Q2, Q3 and Q4 of “Unit check 2” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3 min)

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 38.

Assessment: (0 min)

N/A

Homework: (2 min)

Solve Q5-Q6 of “Unit check 2” given at page 40 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 4

Unit Name: Squares and Square Roots **Topic:** Sum Up and Unit Check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 2 by solving Q7-12 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 38 and 40

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Square and Square Roots”.

Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 40 of their textbooks. Ask them to solve Q7-9 of “Unit check 2” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 38.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q10-12 of Unit check 2 given at page 40 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 5

Unit Name: Squares and Square Roots **Topic:** Sum Up and Unit Check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 2 by solving Q13-16 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 40-41, Chart papers, Ruler

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit "Squares and square Roots".

Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 40 and 41 of their textbooks. Ask them to solve Q13 and Q14 of "Unit check 2" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students that now we are going to do an activity of 'work with math' on page 41.

- Have students work in groups.
- A chart having images of various square-shaped objects will be created by each group.
- Ask them to measure the dimensions of the shapes and calculate their areas.
- Then ask them to mention only the areas of the shapes on chart paper.
- After that, they'll share their chart papers with the other groups to figure out the lengths of the shapes.
- After the activity is finished, each group will check the other groups' answers.
- The winner is the group with the most precise solutions.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points of unit 2.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q15 and Q16 of Unit check 2 given at page 41 of their textbooks.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 1 **Lesson Plan: 6**

Unit Name: Ratio Rate and Proportion **Topic:** Rate and Average Rate **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Define and recognize rate and average rate.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 42- 44

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about previous day homework. Have students open textbook at page 42. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers**: The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners*.)

Main Activities/Concept Building: (22 min)

Before the main concept, tell them briefly about the unit outline and its real life relevance. Tell students today we will learn about rate and average rate. Ask them: Do you know about rate and average rate? Take their responses and tell them that rate is the comparison of two quantities of different units. Ask them when we go for shopping have you noticed the price tags on the items? Those prices represent the rate at which you are paying for each item for example price of one pack of chips is Rs 25, price of one candy is Rs 5, Price of 1 kg rice is Rs 320 etc. Here we will compare the unit price of each item or in other word we compare price of things with their quantity. Tell them that there are many life situations where the change in unit time is not fixed. Have students to open their textbook page 44. Observe the worked example 1, here Haris learn 12 new words in 3 days. If we find the rate of his learning new words we have:

Rate of learning new words = $\frac{12\ words}{3\ days}$ = 4 words per day

Here we assume that the Haris learning rate is constant as he learns 4 words per day, but in actual situation may be he learns 3 words on first day, 5 words on 2nd day and 4 words on third day. The average rate is the rate in which something is done during a definite time interval. A constant rate assumes that the average rate of something being done is the same during the whole-time interval. We face many situations in our daily life where rate of objects or quantities is not fixed. So in those situations we calculate average rate.

Average rate of learning new words = $\frac{3+5+4}{3\ days}$ = $\frac{12\ words}{3\ days}$ = 4 words per day

Similarly there are many situations where we use average rate instead of rate for example the speed of the cars not remains the fixed over the specific period of time, working capacities of an employee, rain fall in a specific period of time, etc.

Activity 1:

Have students to work in group. Instruct them to write two real life examples where they use rate and average rate. Walk around and check their work and guide if required. After completing instruct them to share their working with each and teacher. Appreciate them for their good work.

Sum Up: (3 min)

Sum up the lesson by retelling the about rate and average rate by giving different examples. Also explain "Note to Remember" given at page 43 and 44 of their textbook.

Assessment: (5 min)

Ask students to solve 'Pause and Try' of page 44 on their notebooks and get that checked.

Homework: (2 min)

Revise the classwork.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 1 **Lesson Plan: 7**

Unit Name: Ratio Rate and Proportion **Topic:** Rate and Average Rate **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Calculate rate and average rate of quantities.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 43-45

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Start the lesson by asking students to define rate and average rate and give a few examples. Ask them to tell what is the difference between rate and average rate? Instruct to explain the difference with the help of real-life examples. Take their responses and appreciate them for their correct answers.

Main Activities/Concept Building: (26 min)

Tell students today we will learn how to calculate rate and average rate of quantities. Have students to open their textbook page 43. Instruct students to read the statement of the worked example and ask them to tell what is given and what we have to find. Take their responses that tell them that cost of 12 cupcakes is given and we have to find the cost of 20 cupcakes. Tell them that first we find the unit rate of each cupcake and after this we find the cost of 20 cupcakes. Solve the example step by step on the board and explain each step to them. For more demonstration of rate solve the worked example 2 on the board step by step for more clarification. Tell students in many of our life situation the rate of quantities remains the same, but in some situation it varies or the rate changes and doesn't remain the same throughout and the rate calculated is in fact the average rate To explain the concept of average rate ask students to read the statement of the worked example 2 on page 44. Ask them what is given and what we have to find. Take their responses and then solve it step by step on the board and explain each step to them. For more clarification solve worked example 3 given at page 45 of their textbook on the board. Instruct students to ask questions if they have any confusion.

Activity:

Have students open textbook page 45. Write Q1 (a) “54 pages read in 180 minutes” on the board. Solve it on the board by asking students to tell the steps of solving it. Appreciate them for their correct steps. Similarly solve part (b, c) and Q2 with the help of students. Then ask students to copy the solution on their notebook and ask questions if they are not clear about anything,

Sum Up: (3 min)

Sum up the lesson by briefly repeating how to calculate the rate and average rate of quantities.

Assessment: (5min)

To assess students ask them to solve pause and try on page 44, Q1 (d, e) and Q3 of Learning check 3.1 at textbook

page 45.s

Homework: (2 min)

Solve Q4-8 of “Learning Check 3.1” on Textbook page 45.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 1

Unit Name: Ratio, Rate and Proportion **Topic:** Ratio **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Recall ratio and identify how to find increase and decrease in a ratio based on change in quantities.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 46-49

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day work. Ask students: What is meant by rate? How we can calculate the rate of the given quantities? Take their responses and then write the statement “The cost of 7 kg of mangoes is Rs 4500. Find the unit rate of mangoes?” Call a student to the front of the class and ask him/her to find the unit rate of mangoes. Ask the rest of the class to check and correct if required. Appreciate him/her for their correct working.

Main Activities/Concept Building: (25 mins)

Ask students to open their textbook page 46. Tell students today we will learn about ratio. Ask them: Do you know about ratio? Take their responses and tell them that as we know that rate is the comparison of two quantities of different kinds but the ratio is the comparison of two quantities of same kind. Ask students to read the worked example 1 that is there are 3 blue buttons, 2 yellow buttons and 5 green buttons and we have to find the ratio between these buttons. We can write in ratio form as ratio of numbers of blue buttons to ratio of yellow button to the number of green button is 3: 2: 5. Explain the concept of ratio by demonstrating different real life examples. Explain to students that sometimes the quantities in a ratio change and it are important to know how to find the increase or decrease in the ratio. Tell them that there are two possibilities if the ratio of the quantities changes: either there is an increase or a decrease. This depends on the quantities involved. We can find the ratio of the increased or decreased quantities by simply writing and simplifying the quantities given. Demonstrate an example on the board, such as: “if the number of boys increases in class 6 from 48 to 56.” Find the ratio between increased numbers of boys to the boys that already in class.” Step by step explain students how we can find the increase in quantities of boys in ratio.

$56: 48 \Rightarrow 7 : 6$

Tell them that if the ratio of the new quantity to the old one is in the form of an improper fraction, then the new quantity is greater than the old quantity. If the ratio of the new quantity to an old quantity is in the form of a proper fraction, then the new amount will be smaller than the old quantity. Also give example where the quantities decrease and we have to find the ratio between the original quantity and the decreased quantities. Ask students to open their textbook page 46 and to recall the concept of ratio solve worked example 1 and 2 on the board and explain each step to them. Ask students learn about increase and decrease in ratio.

Sum Up: (3min)

Sum up the lesson by recalling the concept of ratio and explain the increase and decrease in quantities that are involved in ratio. Explain “Note to Remember” given at page 46 and 47.

Assessment: (5min)

Assess students’ understanding by asking to solve Q2 and Q3 of “Learning Check 3.2” given at textbook page 49.

Homework: (2 min)

Solve Q4 and Q5 of “Learning check 3.2” given at page 49 of their textbook..

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 2

Unit Name: Ratio, rate and Proportion **Topic:** Increase and Decrease in Ratio **Date**: ____

Objective(s):

At the end of this period, the students will be able to:

Calculate increase and decrease in a ratio based on change in quantities.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 46-49

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Begin the lesson by asking students about their previous day work. Ask students: what is meant by ratio? How we can find the ratio between two quantities? Ask students if they have ever experienced situations where quantities change and they need to calculate the increase or decrease. Introduce the concept of calculating increase and decrease in ratios based on changes in quantities. Present a scenario to the students, such as: "In a bag, there were 20 red balls. If 10 more red balls are added to the bag, find the ratio between increased red balls to original balls?" Ask students to work individually or in pairs to calculate the new ratio. Encourage them to discuss their approaches and reasoning.

Main Activities/Concept Building: (25 min)

Instruct students to open their textbook page 46. Tell students today we will learn to calculate increase and decrease in a ratio based on change in quantities. Instruct students to read the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that Mahad marks that he got in September is given and marks that he got in next month is given. We have to find the ratio between the marks in September and the increased marks in the next month.

October’s Marks: September Marks

$$48 : 36$$

$$\frac{48}{12} = \frac{36}{12}$$

$$4 : 3$$

Ask students to observe the ratio between new marks and the old marks it is in form of improper fraction if we write in form of fraction. As we know that when new quantity is greater than the old quantity then the Quantity is increasing quantity. Instruct students to ask question if they found any confusion. For more clarification solve worked example 2, 3 and 4 stepwise on the board and explain each step to them.

Activity 1:

Have students work in pairs. Ask them to solve Q1 of Learning Check 3.2 at page 49. Walk around the classroom and monitor their work. Guide them if they face any problem solving the questions.

Sum Up: (3min)

Sum up the lesson by retelling how to calculate the increase and decrease in ratio based on change in quantities.

Assessment: (5 min)

Assess students’ understanding by asking them to solve ‘pause and try’ given on page 47 and 48 of textbook.

Homework: (2 min)

Solve Q6-9 of “Learning check 3.2” given at textbook page 49.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 3

Unit Name: Ratio, Rate and Proportion **Topic:** Proportion **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify proportion as equality of two ratios.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 50, 51 and 53

Teaching & Learning Activities:

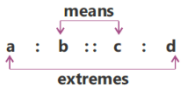
Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask students what they have learnt in previous class and about their homework. Review the concept of ratios with the students. Recall with students that a ratio compares two quantities or measures and is expressed as a fraction, using division. Provide examples of ratios in everyday life, such as the ratio of boys to girls in a class or the ratio of red balls to blue balls in a jar. Ask students if they to store for shopping, how you could decide which store offers a better deal on a particular product. Encourage them to think about comparing prices, quantities, or sizes. Discuss their responses and emphasize the need for a way to compare and relate quantities accurately.

Main Activities/Concept Building: (25 mins)

Activity 1:

Tell students today we will learn about proportion. Ask students to open their textbook page 50. Ask students: Do you know about proportion. Take their responses and explain the concept by giving example the cost of 10kg flour is Rs 400 and the cost of 15 kg flour is Rs 600. First we write them in from of ratio as:
The ratio between cost of the flour = 400 : 600 = 2 : 3
The ratio between weight of the flour = 10 : 15 = 2 : 3
Ask students to observe the two ratios as the ratio between cost and weight of the flour is equal; tell them that when the two ratios are equal then such equality of ratio is called proportion. We can say that 400 to 600 are proportional to 10 to 15. Explain about proportion and the symbol double colon “::” is used for proportion. By observing the example we came to know that there are four terms in a proportion as proportion is the equality of two ratios. Tell them that if in general a, b, c and d are four quantities then proportion can be written as: a : b:: c : d



Explain to them that first and fourth term is called extremes and the second and third term is called means. Tell them that three terms are given we can find the fourth term of the proportion and the rule for comparing ratios or to find the unknown term of a proportion is called the cross-product rule. It says that: If quantities are in proportion, then:
Product of means = Products of extremes

$$b \times c = a \times d$$

To explain the concept of proportion more deeply solve worked example 1 and 2 on the board step by step. Instruct students to ask questions where they find any difficulty or any confusion.

Sum Up: (3min)

Sum up the lesson by retelling students about proportion that is equality of two ratios. Also explain the “Note to Remember” given at page 50 of their textbook.

Assessment: (5 min)

Assess students’ understanding by asking them to solve ‘pause and try’ given on page 51 and Q1 (a, b) of Learning check 3.3” given at page 53 of their textbook.

Homework: (2 min)

Solve Q1(c-d) of “Learning check 3.3” given at page 53 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 2 **Lesson Plan: 4**

Unit Name: Ratio, Rate and Proportion **Topic:** Direct Proportion **Date**:

Objective(s):

At the end of this period, the students will be able to:

Explain and calculate direct proportion and solve real-world word problems related to it.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 51-54

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day. Begin the lesson by asking students what is meant by proportion. What is the difference between ratio and proportion? Take their responses and tell them that ratio is the comparison of two quantities whereas proportion is the equality of two ratios. Then ask students to give one real-life example where they use proportion. Take their responses and appreciate for their correct answers.

Main Activities/Concept Building: (27 mins)

Tell students today we will learn about type of proportion that is called direct proportion. Ask students: Do you know about direct proportion. Take their responses and appreciate if someone gives the right answer. Tell them that in our daily life we experience many situations when we compare the quantities that changes in the same directions and at constant ratio. Tell them that when we increase the speed of the car we covered more distance and when we slower the speed we cover less distance. Similarly we do more work in more time and less work in less time. This means that as one quantity increases, the other quantity also increases, and as one quantity decreases, the other quantity decreases by the same factor. This type of proportion is called direct proportion. Ask students to open their textbook page 51. Instruct students to learn about directly proportion and the examples of daily life where we use direct proportion. For more clarification solve worked example given at page 51 and 52. Explain to them if tailor stitches 5 dresses in 3 hours. Then if the number of hours increases it means the tailor stitches more dresses. So, here is the direct proportion between work and time. Explain each step to them and instruct to ask question where they find any confusion.

Ask students to open their textbook page 53. Write the statement of the Q3 on the board. Call a student to the front of the class and ask him/her to read the statement and tell what is given and what we have to find. Then instruct to solve it on the board step by step and ask the rest of the class to observe the solution of the question and correct if needed. After that ask students to solve Q4 of “Learning check 3.3’ given at page 53 of their textbook. Walk around and check their work and guide where required.

Sum Up: (3min)

Sum up the lesson by retelling students about the direct proportion and its use in our daily life by giving real-life examples.

Assessment: (3 min)

Assess students’ understanding by asking them to solve ‘pause and try’ given on page 52 of textbook.

Homework: (2 min)

Solve Q7 and Q9 of “Learning check 3.3” given at page 53 and 54 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 5

Unit Name: Ratio, rate and Proportion **Topic:** Inverse proportion **Date**:

Objective(s):

At the end of this period, the students will be able to:

Explain and calculate inverse proportion and solve real-world word problems related to it.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 52-54

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day. Begin the lesson by asking students what is meant by proportion. What is meant by direct proportion? Take their responses and ask from random students to tell the real-life examples where we use direct proportion. Take their responses and appreciate them for their correct answers.

Main Activities/Concept Building: (27 mins)

Tell students today we will learn about type of proportion that is called inverse proportion. Ask students: Do you know about inverse proportion. Take their responses and appreciate if someone gives the right answer. Tell them that in our daily life we experience many situations when we compare the quantities that changes in the opposite directions. Tell them that when the travelling time decrease speed of car increase and when speed is slower the travelling time increases. Similarly number of workers and work changes in opposite direction but the product is the same. This means that as one quantity increases, the other quantity decreases, and as one quantity decreases, the other quantity increases. This type of proportion is called inverse proportion. Ask students to open their textbook page 52. Instruct students to learn about inversely proportion and the examples of daily life where we use inverse proportion. For more clarification solve worked example 1 given at page 52. Explain to them if 5 workers construct a wall in 6 hours, tell them that if the worker decreases it means the number of hours to build a wall increases. So, here is the inverse proportion between time and worker. Explain each step to them and instruct to ask question where they find any confusion. Solve worked example 2 on the board step by step and explain each step to them for more clarification of inverse proportion.

Ask students to open their textbook page 53. Write the statement of the Q2 on the board. Call a student to the front of the class and ask him/her to read the statement and tell what is given and what we have to find. Then instruct to solve it on the board step by step and ask the rest of the class to observe the solution of the question and correct if needed. After that ask students to solve Q5 of “Learning check 3.3’ given at page 53 of their textbook. Walk around and check their work and guide where required.

Sum Up: (3min)

Sum up the lesson by retelling students about the inverse proportion and its use in our daily life by giving real-life examples.

Assessment: (3 min)

Assess students’ understanding by asking them to solve ‘pause and try’ given on page 53 of textbook.

Homework: (2 min)

Solve Q6 and Q8 of “Learning check 3.3” given at page 53 and 54 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 6

Unit Name: Ratio, Rate and Proportion **Topic:** Sum up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 3 by solving Q1-5 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 54-55

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Tell students that they are going to revise all the concepts of the Unit “Ratio, rate and Proportion”.
Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 54 and 55 of their textbooks. Ask them to solve Q1, Q2 and Q3 of “Unit check 3” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3 min)

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 54.

Assessment: (0 min)

N/A

Homework: (2 min)

Solve Q4 and Q5 of “Unit check 3” given at page 55 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 7

Unit Name: Ratio, rate and Proportion **Topic:** Sum up and Unit Check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 3 by solving Q6-9 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 54-55

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Tell students that they are going to revise all the concepts of the Unit “Ratio, Rate and Proportion”.
Ask them the different questions that are related to the unit.

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 55 of their textbooks. Ask them to solve Q6 and Q7 of “Unit check 3” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3 min)

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 54.

Assessment: (0 min)

N/A

Homework: (2 min)

Solve Q8-9 of “Unit check 3” given at page 55 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 3 **Lesson Plan: 1**

Unit Name: Ratio, rate and Proportion **Topic:** Sum up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 3 by solving Q10-11 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 55

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.
Ask students: How are you? Encourage them to say, "Alhamdulillah".
Tell students that they are going to revise all the concepts of the Unit "Ratio, Rate and Proportion".
Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 55 of their textbooks. Ask them to solve Q10 of "Unit check 3" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students that now we are going to do an activity of 'work with math' on page 55.

- Have students work in pairs.
- Each pair will be given 2 days to collect the following data from their surroundings (school/home).
  - Examples from daily life where a constant rate is used.
  - Examples from daily life where the average rate is used.
  - Examples of daily life quantities that are directly proportional to each other.
  - Examples of daily life quantities that are inversely proportional to each other.
- Each pair will present their data in their own way.
- They will explain the collected data to their classmates.
- The pair with the most accurate and logical explanations will win.

Sum Up: (3 min)

Sum up the lesson by repeating the important points of the whole unit "Ratio, Rate and Proportion".

Assessment: (0 min)

N/A

Homework: (2 min)

Solve Q11 of "Unit check 3" given at page 55 of their textbooks.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 2

Unit Name: Financial Arithmetic **Topic:** Profit, Loss and Discount **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and calculate selling price, cost price, percentage profit or loss.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 56-59

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 mins)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about previous day homework. Have students open textbook at page 56. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers****: The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners*.)

Main Activities/Concept Building: **(25 min)**

Before the main concept, tell them briefly about the unit outline and its real life relevance. Tell students today we will learn about cost price, selling price profit and loss. Ask students to open their textbook page 57. Ask students if they have ever bought or sold something, and if they are aware of the concepts of cost price and selling price. Explain that the cost price (CP) is the original price at which an item is purchased, while the selling price (SP) is the price at which the item is sold. Emphasize the importance of understanding these concepts in everyday life, as they are essential in determining profit or loss. Explain students when selling price an object is greater than its cost price then we gain profit, but if the cost price is greater than the selling price it means there is loss. We can calculate profit by subtracting cost price from selling price and we can calculate loss by subtracting selling price from cost price. Tell students the formula to find the percentage profit or loss. For more clarification solve worked example 1 given at page 57 of their textbook on board and explain each step to find the percentage profit or loss if the cost price is Rs 400 and selling price is Rs 450.

$$\text{Profit} = \text{selling price} - \text{cost price} = \text{Rs } 450 - \text{Rs } 400 = \text{Rs } 50$$

$$\text{Percentage profit} = \frac{\text{Profit}}{\text{cost price}} \times 100\% = \frac{50}{400} \times 100\% = \frac{1}{8} \times 100\% = 12.5\%$$

Activity:

Have students to work in pairs. Write Q1 parts of "Learning check 4.1" on paper slips and give them to each pair. Instruct to find percentage profit or loss. Walk around and check their working and help where needed. After completing instruct to show their working to the whole class.

Sum Up: **(3min)**

Sum up the lecture by retelling students about cost price, selling price, profit, loss, percentage profit or loss by giving real-life examples.

Assessment: **(5min)**

To assess the understanding, ask them to solve 'Pause and Try' of page 57, Q2 and Q3 of "Learning check 4.1" at page 59 of textbook.

Homework: **(2 min)**

Solve Q4-6 of "Learning Check 4.1" on page 59.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 3 **Lesson Plan: 3**

Unit Name: Financial Arithmetic **Topic:** Profit, Loss and Discount **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and calculate discount and discount percentage.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 58 and 59

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day work. Begin the lesson by recalling concepts of selling price, cost price, and percentage profit or loss. Ask students to tell the real-life example where profit and loss included. Write an example on the board and call a student to the front of the class and ask him/her to tell in the given example there is profit or loss then find the percentage profit or loss. Appreciate him/her for their correct work. Repeat this activity to some other students.

Main Activities/Concept Building: (25 mins)

Tell students today we will learn about discount and percentage discount. Ask students to open their textbook page 58. Ask if they have encountered discounts while shopping or have seen advertisements with discounted prices. Tell them that during holiday seasons or clearance events, stores often offer discounts on clothing, electronics, or home goods. For example, discounts on winter clothing at the end of winter. Tell students the original price of the item or object is called the marked price and the difference between selling price and marked price is called discount. Instruct students to read the statement of worked example 1 and ask them what is given and what we have to find. Take their responses and tell them that as the marked price and price at which box of colour pencils is given and we have to find discount and discounted percentage. Now find the discount price by subtracting selling price from the marked price and then find percentage discount. Solve the example step by step on the board and explain each step to them. Instruct students to ask questions if they found any confusion.

Activity:

Get students into three groups according to the class strength. Give each group three paper slips of three real-life situations

a) A clothing store having a sale on shirt; selling price is Rs 1500 with percentage discount 15%.

b) A smartphone is on sale for Rs 45300, marked down from its original price of Rs 54000.

c) A bookstore is offering a buy-one-get-one-free deal on all story books. If the marked price of one story book is Rs 400. Find discount and percentage discount.

Instruct students to observe and discuss with their group member all the situations and then solve. After completing each group interchange their working with other group. Each group checks the working of the other and then presents their work to teacher. Discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lecture by retelling students about marked price, selling price and discount by giving real-life examples.

Assessment: (5min)

To assess the understanding, ask them to solve Q7 of “Learning check 4.1” at page 59 of textbook.

Homework: (2 min)

Solve Q8 of “Learning Check 4.1” on page 59.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 3 **Lesson Plan: 4**

Unit Name: Financial Arithmetic **Topic:** Tax **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and calculate income tax and property tax.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 59, 60 and 62

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Begin the lesson by asking students about their homework. Tell students today we will learn about income tax and property tax. Ask students: you heard the word tax in their daily life. If they know about this word then instruct students to brainstorm and write down as many tax-related terms or concepts as they can think of. Encourage them to include terms related to income tax, property tax, and any other taxes they are familiar with. Discuss each term as it is shared, briefly explaining its meaning and relevance to taxation by ensuring that students have a basic understanding of the tax-related vocabulary.

Main Activities/Concept Building: (25 mins)

Ask students to open textbook page 59. Begin the lesson by explaining the term Tax to them. Tell them that tax is an amount of money that a government requires people to pay according to their income, the value of their property, etc. Tell them that the main purpose of the tax to collect funds to facilitate citizens by providing different public services. For example, education, security, health, defense, communication, transportation, entertainment, salaries of government workers, etc. Tell them that there are many types of taxes that we have to pay in our daily life, but today we will discuss income tax and property tax. Explain them about income tax that is the tax imposed by the Federal government or states on the income of individuals or corporations. The rate for different types of income may vary. Explain the amount of income which is not taxable and the taxable income and rebate. Ask students to open their textbook page 60 and explain the worked example to students and calculate the income tax step by step and explain each step to them.

Now explain the Property tax to students, tell them that the tax which is paid on a property (house, shop, land, etc.) by its owner is called property tax. In Pakistan property tax is a provincial tax imposed on the citizens from the government. Property tax is based on the annual value of a property. The rates of property tax can vary. Explain the property tax by solving worked example given at page 60 of their textbook. Ask students to ask questions related to income tax and property tax if they feel any confusion.

Sum Up: (3 min)

Sum up the lecture by repeating with students about the income tax, rebate, taxable income, property tax with different real-life examples.

Assessment: (5min)

To check their understanding, ask them to solve "Pause and Try" at page 60 and Q1 of learning check 4.2 at page 62 of textbook.

Homework: (2 min)

Solve Q2 and Q3 of learning check 4.2 at page 62 of textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 3 **Lesson Plan: 5**

Unit Name: Financial Arithmetic **Topic:** Tax **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and calculate general sales tax and value-added tax.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 60, 61 and 62

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Begin the lesson by asking students about their previous day work. Ask students:

What is meant by tax? What is meant by property tax?

What is meant by income tax? Define the term rebate? Take their responses and then ask them to give one example of each tax. Appreciate them for their correct response.

Main Activities/Concept Building: (25 mins)

Ask students to open textbook page 60. Begin the lesson by recalling the term tax. After recalling income tax and property tax, tell students today we will learn about the type of tax that is general sales tax and value added tax. Ask students do you know what is general sales tax? Take their responses and tell them that a tax which is imposed by the government on the sale of goods or services bought by people using money is called general sales tax. Tell them we pay general sales tax on all items but some items are not included such that rice, wheat, vegetables, meat, poultry etc. The general sales tax is decided by the government. Explain to them we use GST shortly for general sales tax. Solve the worked example given at textbook page 61 step by step and explain each step to them.

Now explain the value added tax to students. Tell them that this is the amount of money that must be paid and is collected by the government or other authority from initial production to the point of sale. In short form it is called VAT. Value added tax is the form of consumption tax that is charged at each level from production to distribution of items. For more clarification solve the worked example given at textbook page 61. Explain each step to students and instruct them to ask questions where they feel confusion.

Activity:

Have students to work in pair. Distribute each pair paper slips of different situation of tax paying. Instruct students to work on it and tell is it value added tax of general sales tax. Instruct students to discuss with each other each situation. After a few minutes, gather the students back together and discuss the correct answers as a class. Appreciate them for their good work.

Sum Up: (3 min)

Sum up the lecture by retelling the about general sales tax (GST) and value added tax (VAT) by giving examples. Also explain “Note to Remember” given at page 61.

Assessment: (5 min)

To assess their understanding, ask them to solve Q4 of “Learning check 4.2” given at page 62 of their textbook.

Homework: (2 min)

Solve Q5 and Q6 of “Leaning check 4.2” on page 62 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 3 **Lesson Plan: 6**

Unit Name: Financial Arithmetic **Topic:** Commission **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify and calculate commission.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 61-62

Teaching & Learning Activities:

Opening Activities/Warm-up: (10 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask the students about their homework. Recall with students different types of tax. Make 4 small groups of students and assign each group one type of tax and instruct them to write one real-life example of the type of tax that assign to them. Walk around and observe their working. After completing their work, each group share their example with other groups and discuss about it. Appreciate them for their effort.

Main Activities/Concept Building: (20 min)

Begin the lesson by asking students if they are familiar with the term "commission." Write the word "commission" on the board. Engage the students in a brief discussion about their understanding of commission. Encourage them to share any experiences or examples they might have encountered in their daily lives. Explain that commission is a form of payment or a percentage of a sale that is given to an individual or salesperson for selling a product or service. It serves as a way to incentivize sales and reward the efforts of the seller. Ask students to open their textbook page 61. Instruct them to read the statement of the worked example and tell what is given and what we have to find. Take their responses and then tell them that cost of a shop that is sold through an agent is given and the percentage amount of commission given to agent for his service is given and we have to find the amount of commission that agent get.

Solve the example step by step on the board and instruct them to ask questions where they find any confusion. For more clarification give more real-life example and solve them stepwise on the board.

Activity:

Ask students to work in pairs. Instruct them to make one real-life example on commission. Walk around and check their working and guide them where needed. After completing call one by one each pair to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: (3 min)

Sum up the lecture by retelling the about commission and its uses in our life by giving different examples.

Ask students to open textbook page 61 and learn about commission.

Assessment: (5min)

To assess their understanding, have them solve Q7 of “Leaning check 4.2” on page 62 of their textbook.

Homework: (2 min)

Solve Q8 of “Leaning check 4.2” on page 62 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 3 **Lesson Plan: 7**

Unit Name: Financial Arithmetic **Topic:** Zakat **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and calculate Zakat.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 63-64

Teaching & Learning Activities:

Opening Activities/Warm-up: (10 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask the students about their homework. Begin the lesson by engaging students in a discussion about the importance of helping others and being charitable. Ask questions such as: "Why is it important to help those in need?" or "Have you ever donated to a charity or seen someone do so?" Take their responses and tell them the importance of helping others. Tell them that today we will learn about Zakat which is the way to help poor and needy people.

Main Activities/Concept Building: (20 min)

Begin the lesson by briefly explaining to students that Zakat is an important pillar of Islam and a form of charitable giving and purification of wealth. Engage the students in a discussion about the significance of Zakat and its role in supporting the needy or poor people of society who don't have sufficient means to live their life. Explain to students that Zakat is obligatory on certain types of wealth, which include: Cash savings (money in the bank, cash at home, etc.), gold and silver (jewelry, coins, etc.), income from business or investments Agricultural produce Livestock (cattle, sheep, etc.). Write down the types of wealth on the board and briefly discuss each one, providing examples to help students understand. Ask students to open their textbook page 63 and learn more about Zakat. Tell them that the amount of wealth in the form of gold, silver, money or animals which makes one liable for Zakat is called Nisab. Explain to them that according to Islam every Muslim who has the wealth equivalent to the value of 7.5 tolas of gold or 52.5 tolas of silver for more than 1 year is liable to pay Zakat. For more explanation how to find the amount of zakat on a specific amount of wealth solve the worked example step by step on the board given at page 63 of their textbook. Explain each step to them and instruct to ask questions if they found any difficulty. For more clarification give different real-life examples to them.

Activity:

Instruct students to solve Q1 of “Leaning check 4.3” in their notebooks. Walk around and check their working and guide them where needed. After completing call one by one each pair to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: (3 min)

Sum up the lecture by retelling the about importance of Zakat. Also explain “Note to Remember” given at page 63 of their textbook.

Assessment: (5min)

To assess their understanding, have them solve “Pause and try” at page 63 and Q2 of “Leaning check 4.3” on page 64 of their textbook.

Homework: (2 min)

Solve Q3-4 of “Leaning check 4.3” on page 64 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 4 **Lesson Plan: 1**

Unit Name: Financial Arithmetic **Topic:** Ushr **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and calculate Ushr.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 63-64

Teaching & Learning Activities:

Opening Activities/Warm-up: (10 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask the students about their homework. Ask them about Zakat, rate of Zakat, Nisab and amount at which Zakat has to pay. Ask students have ever visited the villages and observe the farmers working in field, they grow and harvest the production. Tell students today we will learn about Ushr. Ask students do you know about what is Ushr. Take their responses and tell them that it is basically an Islamic tax that has to pay by the farmers on their agricultural production.

Main Activities/Concept Building: (20 min)

Ask students to open their textbook page 63. Begin the lesson by explaining to students that Ushr is an important concept in Islam related to agricultural produce. Engage the students in a brief discussion about the significance of agriculture and its role in society. Explain to students that Ushr is a form of religious taxation on certain types of agricultural produce. Discuss the types of agricultural production subject to Ushr, which may include crops such as grains, fruits, vegetables, and other harvestable products. Write down the types of agricultural production on the board and briefly discuss each one, providing examples to help students understand. Ask students to open their textbook page 63 and learn about Ushr. Tell them that Ushr is charged at the rate of 10% on agricultural production farmer irrigated their field by natural water sources like springs, rivers, rainfall, etc. and 5% if irrigated their fields by artificial means like tube wells, wells, canals, etc. For more explanation of Ushr solve worked example given at page 64 stepwise on the board and explain each step to them. Demonstrate more example of real-life related to agricultural product to students and instruct to ask question if they have any confusion.

Activity:

Instruct students to solve Q6 of "Leaning check 4.3" in their notebooks. Walk around and check their working and guide them where needed. After completing call one by one each pair to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: (3 min)

Sum up the lecture by retelling the about importance of Ushr. Also explain "Note to Remember" given at page 63 of their textbook.

Assessment: (5min)

To assess their understanding, have them solve Q7 of "Leaning check 4.3" on page 64 of their textbook.

Homework: (2 min)

Solve Q8 of "Leaning check 4.3" on page 64 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 4 **Lesson Plan: 2**

Unit Name: Financial Arithmetic **Topic:** Sum Up and Unit check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 4 by solving Q1-5 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 64-66

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Financial Arithmetic”.

Ask them the different questions that are related to the unit.

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 65 of their textbooks. Ask them to solve Q1, Q2 and Q3 of “Unit check 4” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points of Sum up at page 64 of their textbook.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q4-5 of Unit check 4 given at page 65 and 66 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 3

Unit Name: Financial Arithmetic **Topic:** Sum Up and Unit check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 4 by solving Q6-9 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 66

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Financial Arithmetic”.

Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 66 of their textbooks. Ask them to solve Q6, Q7 and Q8 of “Unit check 4” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3 min)

Sum up the lesson by repeating the important points of unit.

Assessment: (0 min)

N/A

Homework: (2 min)

Solve Q9 of Unit check 4 given at page 66 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 4

Unit Name: Financial Arithmetic **Topic:** Sum Up and Unit check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 4 by solving Q10-11 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 66, Tags of profit and loss on green and red chart paper, Paper sheets Glue or thumb tags

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit Financial Arithmetic.

Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 66 of their textbooks. Ask them to solve Q10 of "Unit check 4" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students that now we are going to do an activity of 'work with math' on page 66.

- Make groups of students according to the strength of the class.
- Instruct each group to use a cut out of paper. Then create and write at least 5 real life situations involving cost price and sale price on it.
- Ask them to paste the questions on the soft board.
- Instruct the other groups to try to solve the questions and pin a tag of "profit" or "loss" with each question.
- The group with the most accurate answers will be the winner.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points of unit.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q11 of Unit check 4 given at page 66 of their textbooks.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 5

Unit Name: Sets **Topic:** Set Representation **Date:** _____

Objective(s):

At the end of this period, the students will be able to:

Use language and notation to represent different sets and their elements.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 67, 68 and 73

Teaching & Learning Activities:

Opening Activities/Warm-up: (7 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

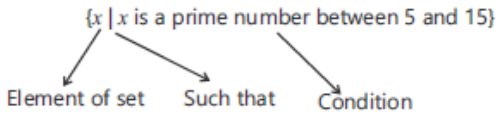
Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about their previous day homework. Begin the lesson by asking students: Do you know what is set and elements of a set? Take their responses and tell them that a set is the collection of objects that are well defined and distinct. Have students open textbook at page 67. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers:*** *The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners.)*

Main Activities/Concept Building: (20 min)

Before the main concept, tell them briefly about the unit outline and its real life relevance. Begin the lesson by telling students today we will learn about set and representation of sets. Ask students: Do you know the way to represent the sets. Take their responses and tell them that there are more than one ways to represent the sets. Tell them there are three ways to represent sets that are descriptive, tabular and set builder form. Ask students to open their textbook page 68. Tell them that in descriptive form a set is represented in the form of statements using well-defined words. Explain the descriptive from by the worked examples given in the textbook. For example "A = set of composite numbers between 10 and 30. Tell them that as the statement is well-defined and distinct. So this set is in descriptive form. Now tell them that when we write the elements of the sets in a curly brackets separated by commas. Then that form of a set is the tabular form. Explain it with the worked examples given in the textbook. Tell them that a statement or an expression is used to represent all of a set's components in the set builder form. We do not list the components; instead, we use a variable, a vertical line, or a colon to write the representative element along with the general property, common rule, characteristic, formula or condition of the same representative element. Explain the set builder form by writing an example on the board. For more demonstration solve worked example given at textbook page 69 of their textbook. For more clarification of these forms of sets write different examples of each form of set on the board and explain these forms. Instruct students to ask questions if they have any confusion.



Sum Up: (3min)

Sum up the lecture by recalling with students three forms of representing sets also explain "Note to remember" given at page 68 and 69 of their textbook.

Assessment: (8min)

Ask them to solve "Pause and Try" on page 69, Q1(a, b) and Q2(a, b) of "Learning check 5.1" at textbook page 73.

Homework: (2 min)

Solve Q1(c-h) and Q2(c-f) of "Learning check 5.1" at textbook page 73.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 6

Unit Name: Sets **Topic:** Types of sets **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and differentiate between subset and superset.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 69 and 70

Teaching & Learning Activities:

Opening Activities/Warm-up: **(8 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Begin the lesson by asking them about their homework. Ask students: Define set and give some examples of set? Take their responses and then write some sets in tabular form and ask them to write that sets in descriptive and set builder form. Walk around and check their work and guide them if required. Appreciate them for their good work. Tell students today we will learn about subset and superset of a set. Do you know about it. Take their responses and appreciate if someone gives the right answer.

Main Activities/Concept Building: **(25 mins)**

Tell students today we will learn about types of set that are subset and superset. Ask them: Do you know about subset and superset of a set? Take their responses and ask them to open their textbook page 69 and 70. Write the worked example 1 on the board.

X = {1, 4, 6} Y = {1, 2, 3, 4 , 6}

Tell students as two sets are given. Instruct them to observe the set X and set Y, by observing we notice that all the elements of set X are in set Y. Tell them that as all the element of a set X are in the set Y so the set X is called the subset of set X. The symbol that used to denote a subset is $\subseteq$. We can writ as X $\subseteq$Y. tell them that as set Y is not the subset of X because all the element of Y are not in X so Y is the superset of set X. The symbol that used to denote superset is $\supset$. As set Y is the superset of set X so we can write it as Y$\supset$ X. For more clarification of subset and superset solve the worked example 2 on the board and explain to them each step. Instruct students to ask questions if they have any confusion.

Activity 1:

Divide the students into small groups. Distribute small pieces of paper to each group. Instruct each group to create two sets, one subset and one superset. Once the groups have completed their sets, have them exchange with another group. Ask each group to examine the sets they received and determine which ones is subset and which one is superset. They should write their answers on the paper. Discuss the answers as a whole class, allowing each group to share their findings.

Sum Up: **(5 min)**

Sum up the lesson by emphasizing the definitions and characteristics of subset and superset.

Assessment: **(5 min)**

To assess students ask them to solve “Pause and Try” given at page 69 of their textbook. Also ask them to write five sets and then tell which one is the subset and which one the superset.

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 7

Unit Name: Sets **Topic:** Types of subsets **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify and differentiate between proper and improper subset.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 70, 71 and 73

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Begin the lesson by asking them about their homework. Ask students: Do you know about subset and superset? What is the difference between subset and super set? After taking their responses call a student to the front of the class and ask him/her to write an example of subset and superset. Ask the rest of the class check and correct if required.

Main Activities/Concept Building: (22 min)

Tell students today we will learn about types of subset that are proper and improper subsets. Ask them: Do you know about proper and improper subsets? Take their responses and ask them to open their textbook page 70 and 71. Write the worked example on the board. $F = \{1, 3, 5\}$ $G = \{1, 3, 5, 7, 9\}$

Tell students as two sets are given. Instruct them to observe the set F and Set G, by observing we notice that all the elements of set F are in set G. Tell them that as all the element of a set F are in the set G so the set F is called the proper subset of G. The symbol that used to denote a proper subset is $\subset$. We can writ as $F \subset G$. Tell students a set Y is called a proper subset of Z if all elements of Y are in Z, but Z contains at least one element that is not in Y. So, to be a proper subset of Z, Y must be a subset of Z but must not be equal to Z. For More clarification explain part ii of the worked example.

Now write two sets on the board as: $A = \{1, 2, 3, 4\}$ and $B = \{2, 3, 1, 4\}$

Tell students as two sets are given. Instruct them to observe the set A and set B, by observing we notice that all the elements of set A are in set B and All the elements of set B are in set A. Tell them that a set A is called an improper subset of B if all elements of A are in B and all the elements of B are in A. So, to be an improper subset of A, B must be a subset of A and it must also be equal to A. Both A and B are improper subsets of each other Symbolically, $A \subseteq B$ and $B \subseteq A$. For more clarification explain the worked example given at page 70 and 71. Instruct students to ask question if they have any confusion.

Activity 1:

Divide the students into small groups. Distribute small pieces of paper to each group. Instruct each group to create examples of sets, for proper and improper subsets. Once the groups have completed their work, have them exchange with another group. Ask each group to examine the sets they received and determine which one example for proper subset and which one is for improper subset. They should write their answers on the paper. Discuss the answers as a whole class, allowing each group to share their findings.

Sum Up: (3 min)

Sum up the lesson by emphasizing the definitions and characteristics of proper and improper subsets and also explain “Note to remember” given at page 71.

Assessment: (8 min)

To assess students ask them to solve the given worksheet. Walk around and check their work and guide if required. Discuss with them about their common mistakes.

Homework: (2 min)

Solve Q4 of Learning check 5.1” given at page 73 of their textbook.

Teacher’s Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. Which one is proper and improper subset also gives reason?

a) D = {a, b, c} E = [a, b, c, d, e}

b) X = {2, 4, 6, 8, 10, 12}, Y = {4, 6, 8, 2, 10, 12}

c) H = {1, 3, 5, 7, 9} I = {1, 3, 5, 7, 9, 11}

c) S = {f, g, h, i} T = {f, g, h, i} U = {g, h, i, j, f}

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 1

Unit Name: Sets **Topic:** Types of subsets **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Identify and differentiate between equal and equivalent sets.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 71, 72 and 73

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Begin the lesson by asking them about their homework. Ask students: Do you know about proper and improper subsets? What is the difference between proper and improper subsets? After taking their responses ask them to write two examples of each type. Walk around and check their work and guide if required. Appreciate them for their correct work.

Main Activities/Concept Building: (22 min)

Tell students today we will learn about types of sets that are equal and equivalent sets. Ask them: Do you know about equal and equivalent sets? Take their responses and ask them to open their textbook page 71.

Write the worked example on the board. E = {a, b, c, d, e, f} F = {a, f, d, c, e, b}

Tell students as two sets are given. Instruct them to observe the set E and Set F, by observing we notice that all the elements of set E are in set F and all the elements of set F are in set E. As all the elements in set E and set F are exactly the same so both sets are called equal sets. We can say that E = F. tell students in general we can say that if two sets have exactly the same elements, then they are said to be equal sets. Every element of one set must also be an element of the other. There must not be any extra elements in either of the two sets. For more clarification solve worked example on the board and explain it to students.

Now write two sets on the board. A = {2, 4, 6, 8, 10}, B = {1, 3, 5, 7, 9}

Tell students as two sets are given. Instruct them to observe the set A and set B, by observing we notice that both sets have only same number of elements but the elements in both sets are not same so these sets A and B are called equivalent set. In general we can say that if two sets contain the same number of elements then they are said to be equivalent sets. It's not necessary for all elements of equivalent sets to be the same. They just need to be equal in number. In other words, if any set A is equivalent to set B, then their cardinality is the same, i.e., n(A) = n(B). For more clarification explain the worked example given at page 71 and 72. Instruct students to ask question if they have any confusion.

Activity 1:

Have students to work in pairs. Distribute paper sheets to each pair. Instruct each pair to create examples of equal and equivalent sets. Once the pairs have completed their work, have them exchange with another group. Ask each pair to examine the sets they received and determine which one example for equal and equivalent sets. Discuss the answers as a whole class, allowing each pair to share their findings.

Sum Up: (3 min)

Sum up the lesson by emphasizing the definitions and characteristics of equal and equivalent sets and also explain “Note to remember” given at page 71 and 72.

Assessment: (8 min)

To assess students ask them to solve “Pause and Try” at page 72 and Q3 (a, b, c, d) of “Learning check 5.1” given at textbook page 73.

Homework: (2 min)

Solve Q3 (e, f) of Learning check 5.1” given at page 73 of their textbook.

Teacher’s Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 2

Unit Name: Sets **Topic:** Types of sets **Date**: ____

Objective(s):

At the end of this period, the students will be able to:

Identify and differentiate between disjoint and overlapping sets.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 72-74

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Begin the lesson by asking them about their homework. Ask students: What is meant by equal sets? What is meant by equivalent sets? What is the difference between equal and equivalent sets? After taking their responses ask them to write two examples of each type. Walk around and check their work and guide if required. Appreciate them for their correct work.

Main Activities/Concept Building: (22 min)

Tell students today we will learn about types of sets that are disjoint and overlapping. Ask them: Do you know about disjoint and overlapping sets? Take their responses and write the example on the board.

$E = \{a, b, c\}$ $F = \{d, e, f\}$

Tell students as two sets are given. Instruct them to observe the set E and Set F, by observing we notice that all the elements of set e and F are not same. Tell them that as the given sets have no common element or in other words we can say that the intersection of set E and F is an empty set so set E and F are disjoint sets. If two sets have one common element then that sets are not disjoint sets. Give more example for disjoints sets.

Now write two sets on the board. $A = \{1, 3, 5, 7, 9\}$, $B = \{9, 11, 13, 15, 17\}$

Tell students as two sets are given. Instruct them to observe the set A and set B, by observing we notice that there is only one element that are common in set A and set B. so set A and B are called overlapping sets. Tell them that two sets are said to be overlapping sets if they contain at least one element in common. Ask students to open their textbook page 72 and learn about disjoint and overlapping sets. For more clarification explain the worked example given at page 72 and 73. Instruct students to ask question if they have any confusion.

Activity 1:

Have students to work in pairs. Distribute paper sheets to each pair. Instruct each pair to create examples of disjoint and overlapping sets. Once the pairs have completed their work, have them exchange with another group. Ask each pair to examine the sets they received and determine which one example for disjoint and which one for overlapping sets. Discuss the answers as a whole class, allowing each pair to share their findings.

Sum Up: (3 min)

Sum up the lesson by emphasizing the definitions and characteristics of disjoint and overlapping sets by giving different examples.

Assessment: (8 min)

To assess students ask them to solve Q5 (a, b, c) of "Learning check 5.1" given at textbook page 74.

Homework: (2 min)

Solve Q5 (d, e) of Learning check 5.1" given at page 74 of their textbook.

Teacher's Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 3

Unit Name: Sets **Topic:** Universal Set **Date**: ____

Objective(s):

At the end of this period, the students will be able to:

Define universal set.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 73

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Begin the lesson by asking them about their homework. Ask students: define disjoint set? What is meant by overlapping sets? What is the difference between disjoint and overlapping sets? After taking their responses ask them to write two examples of each type. Walk around and check their work and guide if required. Appreciate them for their correct work.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about universal. Ask them: Do you know about universal set? Take their responses and write the example on the board.

$$W = \{0, 1, 2, 3, 4, ...\}, E = \{2, 4, 6, 8, 10, \ldots\} O = \{1, 3, 5, 7, 9, \ldots\}$$

Tell students as three sets are given. Instruct them to observe the set of whole numbers, set of even numbers and set of odd numbers, by observing we notice that set of even numbers and set of odd numbers is the subset of set of whole number. Tell them that set of whole numbers is the universal set. In general we can say that a universal set is the set of all elements of the sets which are under consideration in a particular context. The universal set is denoted by the capital letter “U”. In other words, we can say that all the sets which are under consideration are the subsets of the universal set. For more clarification solve different examples on the board.

Activity 1:

Have students to work in pairs. Distribute paper sheets to each pair. Instruct each pair to write different sets on the paper and point out the set. Once the pairs have completed their work, have them exchange with another group. Ask each pair to examine the sets they received and determine which one is the universal set from the given set. Discuss the answers as a whole class, allowing each pair to share their findings.

Sum Up: **(3 min)**

Sum up the lesson by emphasizing the definitions and characteristics of universal set by giving different examples.

Assessment: **(8 min)**

To assess students ask them to write five examples sets where one set is the universal set.

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 4

Unit Name: Sets **Topic:** Common Sets and Venn Diagrams **Date**:

Objective(s):

At the end of this period, the students will be able to:

Represent common sets through Venn diagram.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 74-75

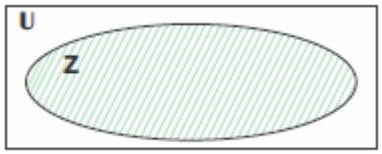
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Ask students about their previous day work. Write three sets on the board. Call a student to the front of the class and ask him/her to observe the sets and tell which one is the universal set? Take his/her response and appreciate them for their correct response.

Main Activities/Concept Building: **(22 min)**

Tell students today we will learn about how to represent sets through Venn diagram. Ask students to open their textbook page 74. Ask students to learn about some common set that are commonly used given at textbook page 74. Tell students we can show these sets using Venn diagram. Ask them: Do you know about Venn diagram? Take their responses and tell them that a Venn diagram usually represents the relationship between two or more sets. In Venn diagram circles present the sets and the rectangle shows the universal set. Write the set of integers and set of rational numbers on the board as given in the worked example 1. Tell them that as the set of integers is the subset of set of rational numbers. So rational numbers set is the universal set and the set of integers is represented by a circle inside the rectangle. For more clarification solve the worked example 2 on the board and explain it to students. Instruct students to ask questions if they have any confusion.



Z is a subset of U

Activity 1:
Have students to work in pairs. Distribute paper sheets to each pair. Instruct each pair to write different sets on the paper and then identify which one is the universal set. Instruct them to show that sets using Venn diagram. Once the pairs have completed their work, have them exchange with another group. Ask each pair to examine the Venn diagram. Appreciate they pair that work correctly and in short time. Discuss with them about their common mistakes.

Sum Up: **(3 min)**

Sum up the lesson by emphasizing by re-telling students how to represent different sets using Venn diagram by demonstrating different examples on the board.

Assessment: **(8 min)**

To assess students ask them solve Q1 (a-d) of “Learning check 5.2” given at page 75 of their textbook.

Homework: **(2 min)**

Solve Q1 (e-h) of “Learning check 5.2” given at page 75 of their textbook.

Teacher’s Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 5

Unit Name: Ratio, Rate and Proportion **Topic:** Revision **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Ask them a few questions related to the concept of unit “Ratio, Rate and Proportion”.
Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **Ahmad work on project and he works 18 hours in 3 days. How many hours he work in a day?**

2. **The price of the laptop increased from Rs 70000 to 75000. At what percentage the ratio of the laptop increased?**

3. **Wali paid Rs 784 for 8 packets of dates. How many packets he bought in Rs 1470?**

4. **There was enough food for 15 days in an army camp for 230 people. How many days the same food is enough if 45 people leave the camp?**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 6

Unit Name: Financial Arithmetic **Topic:** Revision **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Financial Arithmetic”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

_____

_____

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. Find the percentage of loss or profit if Cost price is Rs 4500 and the selling price is Rs 5700?

2. Find the discount and percentage discount on washing machine if the marked price is Rs 67450 and the selling price is Rs 62000.

3. Fawaz paid property tax of Rs 54000 at the rate of 15%. What is the worth of his property?

4. A farmer irrigated his field by natural resource. How much did his wheat sell if he paid Rs 7200 as Ushr on it?

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 1 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 7

Unit Name: Sets **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Sets”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Ask them a few questions related to the concept of unit “Sets”.
Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:
Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐
Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. **Write the given sets in descriptive and set builder form.**
   a) D = {2, 4, 6, 8, 10} b) Z ={-3, -2, -1, 0, 1, 2, 3, 4, 5}

2. **Separate out proper and improper subsets.**
   a) W = {0, 1, 2, 3, 4,5, …} G = {6, 12, 18, 24, 30}
   b) C = {Months of year starts with letter J} D = {January, June, July}

3. **Define subset and super set and give example for this.**

4. **Is the give sets are disjoint or overlapping sets. Give reason to your answer.**
   A = {Friday, Saturday, Sunday} B = {Monday, Tuesday, Wednesday}

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

5. Define universal set and also give example for it.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 1

Unit Name: Sets **Topic:** Union of sets **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Describe and perform operation of union on sets.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 75

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Begin the lesson by recalling with students type of sets as finite, infinite, disjoint, overlapping and universal set. Discuss with students we know about arithmetic operations that perform on whole numbers, integers, fractions and decimals. Tell them that today we will learn about operations that we perform on sets. Tell them that today we are going to learn about the operation of union on sets.

Main Activities/Concept Building: (25 min)

Instruct students to open their textbook page 75. Tell students today we will perform operations of union on sets. Ask Them: Do you know about what is meant by union of sets? Encourage students to share their ideas and explanations. After taking their responses tell them that if we have two or more sets then union of two or more sets is a set which consists of all the elements of both sets. Tell them that when we find the union of two sets we do not write an element more than once. Tell them that symbol that is used for union of sets is "$\cup$" and we write the union of two sets A and B as $A \cup B$ and read it as 'A union B'. Ask students open their textbook page 75 and write the worked example 1 "Find $A \cup B$ if $A = \{1, 2, 4, 5\}$ and $B = \{2, 3, 4, 6\}$." Instruct students to observe the elements of both sets. Tell them that as 2 and 4 are element that are in both sets A and B. Now we find the union of both sets A and B by taking every element of both sets without repeating any element.

$A \cup B = \{1, 2, 4, 5\} \cup \{2, 3, 4, 6\} = \{1, 2, 3, 4, 5, 6\}$

Explain each step in detail to students and encourage them to ask questions if they have any confusion. For more clarification of the concept of union of two or more sets solve the worked example 2 on the board and explain it to them.

Activity:

Have students work in pairs. Ask them to solve Q1 (a, b, c) of "Learning Check 5.3" given on page 78 of textbook. Walk around the class, monitor their working and guide them where required. Discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lecture by retelling about union of two or more sets and also explain "Note to Remember" given at page 75 of their textbook.

Assessment: (5min)

To assess students' learning, ask them solve "Pause and Try" given at page 75 of their textbook.

Homework: (2 min)

Solve Q1 (d, e) of "Learning check 5.3" given on page 78 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 2

Unit Name: Sets **Topic:** Intersection of sets **Date**:

Objective(s):

At the end of this period, the students will be able to:

Describe and perform operation of intersection on sets.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 76 and 78

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about their previous day homework. Ask them: What is meant by union of two sets? Take their responses and then write any two sets on the board and instruct them to find the union of the given sets. Walk around and check their work and correct them if needed.

Main Activities/Concept Building: (25 min)

Tell students today we will perform operations of union on sets. Ask Them: Do you know about what is meant by intersection of sets? Encourage students to share their ideas and explanations. After taking their responses tell them that if we have two or more sets then intersection of two or more sets is a set which consist of all the common elements of the given sets. Tell them that symbol that is used for intersection of sets is "$\cap$" and we write the intersection of two sets A and B as $A \cap B$ and read it as 'A intersection B'. Ask students open their textbook page 76 and write the worked example 1 "Find $P \cap Q$ if $P = \{2, 3, 4, 5, 6\}$ and $Q = \{3, 5, 7, 9\}$." Instruct students to observe the elements of both sets. Tell them that as 3 and 5 are element that are common in both sets P and Q. Now we find the intersection of both sets P and Q by taking only elements that are present in both sets or common in both sets.

$$A \cap B = \{2, 3, 4, 5, 6\} \cap \{3, 5, 7, 9\} = \{3, 5\}$$

Explain each step in detail to students and encourage them to ask questions if they have any confusion. For more clarification of the concept of intersection of two or more sets solve the worked example 2 on the board and explain it to them.

Activity:

Have students work in pairs. Ask them to solve Q2 (a, b, c) of "Learning Check 5.3" given on page 78 of textbook in their notebooks. Walk around the class, monitor their working and guide them where required. Instruct them to share their working with each other. Discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lecture by retelling about intersection of two or more sets and also explain "Note to Remember" given at page 76 of their textbook.

Assessment: (5min)

To assess students' learning, ask them solve "Pause and Try" given at page 76 and Q3 of "Learning Check 5.3" given at page 78 of their textbook.

Homework: (2 min)

Solve Q2 (d, e) and Q5 of "Learning check 5.3" given on page 78 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 3

Unit Name: Sets **Topic:** Difference of two sets **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Describe and perform operation of difference on sets.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 76 and 78

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about their previous day homework. Ask them: What is meant by intersection of sets? Take their responses and call a student to the front of the class and ask him/her to write two sets of your own choice and then find intersection of that sets. Instruct the rest of the class to observe his/her working and correct if needed. Repeat this activity to some random students of the class.

Main Activities/Concept Building: (22 min)

Tell students today we will learn how to find the different of two sets. Ask them: Do you know about what is meant by difference of two sets? Encourage students to share their ideas and explanations. After taking their responses tell them that if we have two sets A and B then the difference of A – B is the set of all those element s of set A which are not the elements of set B and the difference of B - A is the set of all those elements of set B which are not the element of the set A. Tell them students that A–B is not equal to B – A. Instruct students to open their textbook page 76 and learn more about different of two sets. Now write the worked example on the board and find the difference of A – B and B – A.

$$A - B = \{1, 5, 7\} - \{3, 5, 8\} = \{1, 7\}$$

Explain to students the elements 1 and 7 in a set A which are not present in set B. Now find the difference of B – A.

$$B - A = \{3, 5, 8\} - \{1, 5, 7\} = \{3, 8\}$$

Point towards the set of B – A and tell them that 3 and 8 are the elements which are present in B but not in A.

Explain each step in detail to students and encourage them to ask questions if they have any confusion. For more clarification of the concept of difference of two sets solve the different examples on the board and explain it to them.

Activity:

Have students work in pairs. Ask them to solve Q4 (a, b, c) of "Learning Check 5.3" given on page 78 of textbook in their notebooks. Walk around the class, monitor their working and guide them where required. Instruct them to share their working with each other. Discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lecture by retelling students about the difference of two sets by explaining through different examples on the board.

Assessment: (5min)

To assess students' learning, ask them solve Q4 (d, e) of "learning check5.3" given at page 78 of their textbook.

Homework: (2 min)

Solve Q6 (a, b) of "Learning check 5.3" given on page 78 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 4

Unit Name: Sets **Topic:** Complements of a set **Date**:

Objective(s):

At the end of this period, the students will be able to:

Describe and perform operation of compliment on sets.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 76, 77 and 78

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about their previous day homework. Ask them: How we can find the different of two sets? Take their responses and place paper slips of different sets on the table and call one by one each student to the front of the class and ask them to choose two sets of your own choice and then find the difference of those sets. Walk around and check their work and appreciate them for their good work.

Main Activities/Concept Building: (22 min)

Tell students today we will learn about complement of a set. Ask them: Do you know about what is meant by complement of a set? Encourage students to share their ideas and explanations. After taking their responses instruct them to open their textbook page 76. Write the universal U and a set A that is the subset of the universal set on the board. That is:

$$\mathbf{U} = \{ 1, 2, 3, 4, \ldots., 10 \} \text{ and } A = \{2, 4, 6, 8, 10\}$$

Instruct students to observe the elements of both sets. Tell them that the complement of a set A is the set that contains all the elements of set U which are not in set A. to find the complement of set A find the difference of U – A.

$$U - A = \{ 1, 2, 3, 4, \ldots., 10 \} - \{2, 4, 6, 8, 10\} = \{1, 3, 5, 7, 9\}$$

Explain to students the elements 1, 3, 5, 7 and 9 in a set U which are not present in set A. Tell them that the complement of A is denoted by A' or A^c.

Explain each step in detail to students and encourage them to ask questions if they have any confusion. For more clarification of the concept of complement of a set solve different examples on the board related to the complement of sets and explain it to them.

Activity:

Have students work in pairs. Ask them to solve Q6 (c, d, e, f) of "Learning Check 5.3" given on page 78 of textbook in their notebooks. Walk around the class, monitor their working and guide them where required. Instruct them to share their working with each other. Discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lecture by retelling students about the complement of a set through solving different examples on the board.

Assessment: (5min)

To assess students' learning, ask them solve "Pause and Try" given at page 77 of their textbook in their notebooks.

Homework: (2 min)

Solve Q7 of "Learning check 5.3" given on page 78 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 5

Unit Name: Sets **Topic:** Properties of set Operations **Date**: ____

Objective(s):

At the end of this period, the students will be able to:

Verify the following:

$A \cap A^c = \emptyset$ $A \cup A^c = U$ $(A \cup B)^c = A^c \cap B^c$ $(A \cap B)^c = A^c \cup B^c$.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 77 and 78

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Ask them: What is meant by complement of a set and how we find it? Take their responses and place paper slips of different sets on the table and call one by one each student to the front of the class and ask them to choose two sets of your own choice such that one is the universal set and one is the subset of universal set and then find the complement of that set. Walk around and check their work and appreciate them for their good work.

Main Activities/Concept Building: (22 min)

Tell students today we will verify different properties on sets such that $A \cap A^c = \emptyset$, $A \cup A^c = U$, $(A \cup B)^c = A^c \cap B^c$ and $(A \cap B)^c = A^c \cup B^c$. Recall with students different operation like union, intersection, difference of sets and complement of a set. Instruct students to open their textbook page 77 and read the statement of the worked example 1 where we have to prove that $A \cap A^c = \emptyset$ and $A \cup A^c = U$. Write the sets given on the board.

U = {1, 2, 4, 6, 7, 8, 10} and A = {1, 2, 4, 6, 7}

Now prove the given properties step by step on the board and explain it students. Tell them that first we find the complement of A or A^c.

$A^c = U - A = \{1, 2, 4, 6, 7, 8, 10\} - \{1, 2, 4, 6, 7\} = \{8, 10\}$

Now we have to find the union and intersection of A^c with A.

$A \cup A^c = \{1, 2, 4, 6, 7\} \cup \{8, 10\} = \{1, 2,, 4, 6, 7, 8, 10\} = U$ $A \cap A^c = \{1, 2, 4, 6, 7\} \cap \{8, 10\} = \{\ \} = \varnothing$

Explain each step to them and encourage them to ask questions if they have any confusion. Now tell students we have to worked example 2 where we have to find: $(A \cup B)^c = A^c \cap B^c$ and $(A \cap B)^c = A^c \cup B^c$

Tell them that first we find the A^c and B^c that is used in both a and b parts. To verify part a first we find the $A \cup B$ then we find the complement of $A \cup B$ that is: $A \cup B = \{1, 2, 3, 4, 5\} \cup \{2, 4, 5, 6, 7\} = \{1, 2, 3, 4, 5, 6, 7\}$

LHS= $(A \cup B)^c = U - (A \cup B) = \{1, 2, 3, 4, ...,10\} - \{1, 2, 3, 4, 5, 6, 7\} = \{8, 9, 10\}$

In RHS first we have to find A^c and B^c and then we find $A^c \cap B^c$.

$A^c = U - A = \{1, 2, 3, 4,..., 10\} - \{1, 2, 3, 4, 5\} = \{6, 7, 8, 9, 10\}$,

$B^c = U - B = \{1, 2, 3, 4,..., 10 - \{2, 4, 5, 6, 7\} = \{1, 3, 8, 9, 10\}$

RHS = $A^c \cap B^c = \{6, 7, 8, 9,10\} \cap \{1, 3, 8, 9, 10\} = \{8, 9, 10\}$

Explain each step to them and encourage them to ask question if they have any confusion. After this instruct them to solve part b in their notebook. Walk around and check their work and guide them where required. Discuss with them about their common mistakes.

Sum Up: (3min)

Summarize the lesson by reviewing the properties of set operations.

Assessment: (5min)

To assess students' learning, ask them solve Q8 (a) of "Learning Check 5.3" given at page 78 of their textbook in their notebooks.

Homework: (2 min)

Solve Q8 (b) of "Learning check 5.3" given on page 78 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 1 **Lesson Plan: 6**

Unit Name: Sets **Topic:** Sum up and Unit Check **Date**: _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 5 by solving Q1-4 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 78 and 79

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Tell students that they are going to revise all the concepts of the Unit “Sets”.
Ask them the different questions that are related to the unit

Main Activities/Concept Building: **(30 min)**

Activity:

Have students open page 79 of their textbooks. Ask them to solve Q1-3 of “Unit check 5” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 78.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q4 of Unit check 5 given at page 79 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 1 **Lesson Plan: 7**

Unit Name: Sets **Topic:** Sum up and Unit Check **Date**: __ _____

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 5 by solving Q5-8 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 78, 79 and 80

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Tell students that they are going to revise all the concepts of the Unit “Sets”.
Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 79 and 80 of their textbooks. Ask them to solve Q5-7 of “Unit check 5” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 78.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q8 of Unit check 5 given at page 80 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 1

Unit Name: Sets **Topic:** Sum up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 5 by solving Q9-10 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 80, multiple number cards (including different sets), Chart papers, Glue, different colour markers

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.
Ask students: How are you? Encourage them to say, "Alhamdulillah".
Tell students that they are going to revise all the concepts of the Unit "Sets".
Ask them the different questions that are related to the unit

Main Activities/Concept Building: **(30 min)**

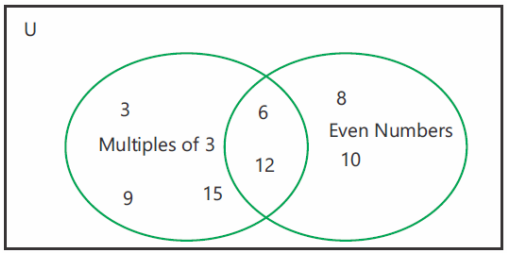
Activity:

Have students open page 80 of their textbooks. Ask them to solve Q9 of "Unit check 5" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students that now we are going to do an activity of 'work with math' on page 80.

- Make groups of students.
- Give each group number cards including different sets.
- Ask them to draw Venn diagrams on their respective chart papers and label two sets (with some overlapping elements).
- Ask them to paste the number cards in the correct part of the diagram.
- Try this with other factors of numbers, multiples, odd numbers, prime numbers, etc.



Sum Up: **(3 min)**

Sum up the lesson by repeating the important points of unit 5.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q10 of Unit check 6 given at page 80 of their textbooks.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 2

Unit Name: Algebraic Expressions **Topic:** Number Patterns **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recall how to continue a given number sequence and find term-to-term rule.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 81, 82, 83 and 84

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about previous day homework. Have students open textbook at page 81. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers**: The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners*.)

Main Activities/Concept Building: (22 min)

Before the main concept, tell them briefly about the unit outline and its real life relevance. Tell students today we will recall how to continue a given number sequence and find the term to term rule. Ask them: What is meant by number pattern and term to term rule? Take their responses and tell them that the number patterns are the set of numbers that follow a pattern or a rule and term-to-term rule of a pattern describes how to get the next term in that specific pattern. Instruct students to open their textbook page 82 and read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that plants planted in first, second and third day is given and we have to find how many plants will he plant on the 4th, 5th and 6th day respectively if he continues the same patterns of planting plants. Tell them first we arrange the number of plants in sequence that is:

100, 89, 78, _____, _____, _____

After arranging numbers in sequence we have to find the difference between the terms that is 11. It means that each next term we get after subtracting 11 from the previous term. So the next three terms of the given sequence is : 100, 89, 78, 67, 56, 45 solve the example step by step on the board and explain each step to them. Encourage them to ask question if they have any confusion. For more clarification solve examples related to term-to-term rule on the board and explain it to them.

Activity:

Have students to work in pairs. Write Q1 parts of "Learning check 6.1" on paper slips and give them to each pair. Instruct to find the missing terms of the given sequences by using term-to-term rule. Walk around and check their working and help where needed. After completing instruct to show their working to the whole class.

Sum Up: (3 min)

Sum up the lesson by retelling the about what is number sequence and each number in sequence is called term and tell them about term-to-term rule. Explain to them the 'Note to Remember' given at page 82 of their textbook.

Assessment: (5 min)

Ask students to solve Q3 of "Learning Check 6.1" given at page 83 of their textbook. Walk around and check their work and guide them where required.

Homework: (2 min)

Solve Q4 of "Learning check 6.1" given at page 84 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 3

Unit Name: Algebraic Expressions **Topic:** Number Patterns **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recall how to continue a given number sequence and find position-to-term rule.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 82, 83 and 84, larger paper sheets, markers

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 mins)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students what they have learnt in previous class and about their homework. Recall with students what term-to-term rule is. Write a number sequence with missing terms on the board. Call a student to the front of the class and ask him/her to find the missing terms of the given sequence and rule of the pattern. Ask the rest of the class to check and correct him/her. Repeat this activity to some other students of the class.

Main Activities/Concept Building: **(25 mins)**

Tell students today we will recall how to continue a given number sequence and find the position-to-term rule. Ask them: What is meant by number pattern and position-to-term rule? Take their responses and tell them that the number patterns are the set of numbers that follow a pattern or a rule and each term of the pattern is the term of that sequence. Position-to-term rule of a pattern help us to find out the numbers in a pattern if its position in the pattern is given. Instruct students to open their textbook page 82 and read the statement of the worked example 2 and tell what is given and what we have to find. Take their responses and tell them that number pattern is given and we have to find the position-to-term rule to find the 20th position of the given term. Tell students first we write the terms and position of the terms in the form of table and then we find the rule for the terms. Explain it students that each term of the pattern is obtained by adding 9 to the position of the term. So the 20^{th} term of the sequence is obtained by adding 9 to 20 that is 20 + 9 = 29. Explain each step to students and encourage them to ask question if they have any confusion. For more clarification solve examples related to position-to-term rule on the board and explain it to them.

Position	1st	2nd	3rd	4th	5th	6th
Term	10	11	12	13	14	15
Rule	1+9	2+9	3+9	4+9	5+9	6+9

Activity:

Divide the class into small groups of 3-4 students each. Assign each group a unique number sequence to work on. Provide each group with large sheets of paper and markers. Instruct the groups to create a visual representation of their number sequence using table. Encourage them to discuss and identify the position-to-term rule governing their sequence. Ask each group to present their work to the class, explaining the sequence and the rule they discovered. Facilitate a class discussion, allowing students to ask questions and correct each other. Appreciate them for their active participation in class.

Sum Up: **(3 min)**

Sum up the lesson by retelling the about what is number sequence and each number in sequence is called term and tell them about position-to-term rule.

Assessment: **(5 min)**

Ask students to solve Q2 (a, b, c) of "Learning Check 6.1" given at page 84 of their textbook. Walk around and check their work and guide them where required.

Homework: **(2 min)**

Solve Q2 (d, e) of "Learning check 6.1" given at page 84 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 2 **Lesson Plan: 4**

Unit Name: Algebraic Expressions **Topic:** Number Patterns **Date**:

Objective(s):

At the end of this period, the students will be able to:

Find terms of a sequence when the general term (nth term) is given.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 83 and 84, Paper slips

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 mins)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day work. Begin the lesson by asking students: What is meant by position-to-term rule? Take their responses and write a number sequence on the board for example 3, 6, 9, 12, … Ask students to observe the pattern and show the terms of the given sequence in the table and find the position-to-term rule. Instruct them after finding the position-to-term rule find the 34th and 58th term of the given sequence. Take their responses and appreciate them where required.

Main Activities/Concept Building: (27 mins)

Tell students today we will learn to find the terms of the sequence when the general term or nth term of the sequence is given. Ask students: Do you know what is meant by nth term or general term of the given sequence. After taking their responses and tell them that the nth term of a sequence is the general term that can help us to find any term of the sequence. We can find any term by putting the value in the nth term. Instruct students to open their textbook page 83 and read the statement of the worked example 1 where the nth term “2n + 1” is given. Tell students if we want to find the first term of the sequence then we put n = 1 in the given nth term: 2n + 1 = 2(1) + 1 = 2 + 1 = 3. Similarly to find the 2nd term of the sequence we put n = 2 in the given sequence that is 2n + 1 = 2 (2) + 1 = 4 + 1 = 5. Explain students the example step by step by finding different terms of the given general term or nth term “2n + 1”.Encourage students to ask questions if they have any confusion. For more clarification solve worked example 2 and 3 on the board and explain each step to find the given terms of the nth term of the sequence.

Activity:

Make pairs of students. Place paper slips of different nth terms of sequences on the table. Instruct each pair to select two paper slips of their own choice and then assign each pairs some specific terms to find. walk around and check their work and correct where needed. After completing their task instruct them to share their working with other pairs. Appreciate them for their good work.

Sum Up: (3min)

Sum up the lesson by retelling students about what is meant by general term or nth term of the sequence and how we find the specific terms of the sequence by putting the value of n in the given nth term.

Assessment: (3 min)

Assess students’ understanding by asking them to solve Q5 and Q6 of “Learning Check 6.1” given at page 84 of their textbook..

Homework: (2 min)

Solve Q7 and Q8 of “Learning check 6.1” given at page 84 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 5

Unit Name: Algebraic Expressions **Topic:** Algebraic Expressions **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recall variables and recognize open and close sentences, constant, expression, equation and inequality.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 84, 85 and 86

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day homework. Begin the lesson by asking students what is meant by nth term of the sequence? Write the nth term for example ‘3n – 2’ on the board and call a student the front of the class and ask him/her to find the 20th term of the given sequence. Instruct the rest of the class to check their work and correct if needed. Repeat this activity to some other students of the class.

Main Activities/Concept Building: **(27 min)**

Tell students today we will recall variables, open and closed sentences, expressions, equations and inequalities. Ask students: Do you know what is meant by variable? Take their responses and tell them that in arithmetic we use numbers 1, 2, 3, … and operations (+, -, ÷, ×) but in algebra we use letters as variables. The word variable means a quantity that can vary. The value of a variable is not fixed. It can take different values. Usually, we use letters x, y and z to represent variables. For more explanation solve the worked example given at page 84 of their textbook on the board step by step. Now ask students: Do you know about open and closed sentence? Take their responses and appreciate if someone gives the right answer. Then write 4 + □ = 7 on the board and explain to students we cannot say about the given statement are true or false as we do not know the value of □. Tell them that if a statement or sentence that does not include enough information required to decide whether it is true or false is known as an open sentence. Tell them that if we replace □ by 3 then the given statement is true. Explain the concept of open and closed sentence by explaining the example given in the textbook page 85. Now recall with students what is the algebraic expressions, equations and inequalities. Tell them that an algebraic expression is a combination of variables, constants, coefficients, exponents and symbols of operations whereas the equation is equality of two algebraic expressions and inequality shows that and expression is less than or more than the other. Give examples of expression, equation and inequalities for more explanation. Also explain constant, coefficient and exponent to students.

Activity:

Ask students to open their textbook page 86 and solve the Q1 of “learning check 6.2’ in their notebook. Walk around and check their work and correct them where required. Discuss with them about their common mistakes.

Sum Up: **(3min)**

Sum up the lesson by retelling students about the variables, open and closed sentences, expression, equation and inequalities. Also explain “Note to remember” given at page 84 of their textbook.

Assessment: **(3 min)**

Assess students’ understanding by asking them to solve ‘pause and try’ given on page 85 of textbook.

Homework: **(2 min)**

Solve Q4 of “Learning check 6.2” given at page 86 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 6

Unit Name: Algebraic Expressions **Topic:** Algebraic Expressions **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recall terms of an expression and like and unlike terms.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 85 and 86

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students what is meant by expression, equation and inequalities. Write examples of expression, equation and inequalities on the board and instruct students to identify which one is the example of expression. Take their responses and appreciate them for their correct answer. Call a student to the front of the class and ask him/her to label the parts of the expression. Ask the rest of the class to check and correct if required.

Main Activities/Concept Building: (27 min)

Tell students today we will recall what is meant by terms of an expression and like and unlike terms. Ask students: Do you know about terms of an expression? Take their responses and then write an expression for example $4x - 5y + 4$ on the board and tell them that in this expression 4x, 5y and 4 are three terms of the expression that are separated by the operators + or −. Explain to them when variables or numbers which are separated by the operators are called terms of the expression. Write an expression $3x + 4y + 9x$ on the board and explain to students as 3x and 9x have same variable ‘x’ with same exponent 1 so, 3x and 9x are like terms, but if observe the terms 3x and 4y the both terms of the expression have different variables so these are unlike terms. Ask students to open their textbook page 86 and learn more about like and unlike terms. For more clarification solve worked example on the board and explain the like and unlike terms. Instruct students to ask questions if they have any confusion.

Activity:

Divide the class into small groups of 3-4 students each. Give each group a set of expressions written on sticky notes. The expressions should include a mix of like and unlike terms. Instruct the groups to examine each expression and sort them into two categories: "Like Terms" and "Unlike Terms." Encourage them to discuss within their groups, identify the terms in each expression, and categorize them accordingly. Once they completed, have each group share their working with the rest of the class. Facilitate a class discussion by asking questions such as: How did you determine which expressions were like terms or unlike terms? Can you identify any patterns or similarities among the like terms? How did you handle expressions with multiple terms or variable powers? Clarify any misconceptions or provide further explanations as needed.

Sum Up: (3min)

Sum up the lesson by retelling students about the terms of the expression and differentiate between like and unlike terms.

Assessment: (3 min)

Assess students’ understanding by asking them solve Q2 of “Learning check 6.2” given at page 86 of their textbook.

Homework: (2 min)

Solve Q3 of “Learning check 6.2” given at page 86 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 7

Unit Name: Algebraic Expressions **Topic:** Algebraic Expressions **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recognize polynomials as algebraic expressions in which the powers of variables are whole numbers.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 86 and 87, index cards of algebraic expressions

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students what is meant by like and unlike terms of the expression. After taking their responses instruct students to write some algebraic expression that have only like terms, some algebraic expression that only unlike terms and some that have both like and unlike terms. Walk around the class and monitor their working and appreciate them for their good work.

Main Activities/Concept Building: (27 min)

Tell students today we will learn about polynomial. Ask students: Do you know what is polynomial? Encourage students to share their ideas and explanations. After taking their responses write an algebraic expression $a^2 + 3b + 4$ as given in the worked example 1 at page 87. Instruct students to observe the given expression and their terms. Tell them that in the given expression the variable involved have exponent 2 and 1 which are positive and whole numbers. Tell students the algebraic expression in which powers of the variable are whole numbers are called polynomial so, the expression $a^2 + 3b + 4$ is the polynomial. Now write the expression $(u^7 + 5v^{-4} - 5) + \sqrt{w}$. Tell students by observing the variables and their exponents in the given expression we have the variable 'u' has positive exponent but the variable 'v' has negative exponent and variable 'w' has fractional exponent. As the exponent involved in the given expression have exponent other than whole numbers so the given expression is not a polynomial. For more clarification solve worked example 3 on the board and explain it to students. Instruct students to open their textbook page 86 and learn more about polynomials.

Activity:

Divide the students into pairs or small groups. Provide each group with a set of algebraic expressions (5-6 per group) on index cards. Instruct the students to identify the polynomials from the given set. Ask the groups to discuss and explain their reasoning for each expression, focusing on the powers of variables being whole numbers. Monitor the groups and provide assistance if needed. After the discussion, ask each group to present their findings and explain why they identified certain expressions as polynomials. Encourage students to ask questions and clarify any misconceptions.

Sum Up: (3min)

Sum up the lesson by retelling students an algebraic expression which consists of one or more terms where all the exponents of the variable are positive whole numbers are called polynomials.

Assessment: (3 min)

Assess students' understanding by asking them solve "Pause and Try" given at page 87 of their textbook.

Homework: (2 min)

Solve Q1 of "Learning check 6.3" given at page 87 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 3 **Lesson Plan: 1**

Unit Name: Algebraic Expressions **Topic:** Polynomials **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify types of polynomials and degree of polynomials.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 87, index card of set of polynomials

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: What is polynomial? Take their responses and then call a student to the front of the class and instruct to write an algebraic expression that is polynomial. Take his/her responses and appreciate for good work. Call another student to the front of the class and ask him/her to write an algebraic expression that is not polynomial. Take his/her responses and ask the rest of the class to observe the both expression and correct both students if needed. Repeat this activity to some other students.

Main Activities/Concept Building: (27 min)

Tell students today we will learn about types of polynomials and degree of polynomials. Ask students: Do you know about types of polynomials and degree of polynomials. Encourage students to share their ideas and explanations. After taking their responses instruct students to open their textbook page 87. Tell them that we can categories the polynomials according to their terms. Write the polynomials for example $3x$ and $5y^2$ on the board and tell students as the given polynomials have only one term then these polynomials are called monomials. Now write the polynomials $3x + 4$ and $5y – 3y^2$ on the board and explain to students as the given polynomial have two terms so these are called binomials. Similarly explain to students a polynomial that has three terms is called trinomial. Explain the types of polynomials by giving different examples and instruct students to ask questions if they have any confusion.

Now write the polynomial $3x2 + 4y – 2$ on the board. Instruct students to observe the given algebraic expression and tell what is the highest exponent of the variable given in the expression? Take their responses and tell them that as the variable x has the highest exponent 2. Explain that the degree of a polynomial is the highest exponent of the variable in the polynomial. So the degree of the given polynomial is 2. Explain the concept of degree of polynomials by giving different examples.

Activity:

Divide the students into pairs or small groups. Provide each group with a set of polynomials (5-6 per group) written on index cards. Instruct the students to identify the type and degree of each polynomial in their set. Ask the groups to discuss and explain their reasoning for each classification. Monitor the groups and provide assistance if needed. After the discussion, ask each group to present their findings and explain why they identified certain polynomials as specific types with their respective degrees. Lead a class discussion based on the presentations. Encourage students to ask questions and clarify any misconceptions.

Sum Up: (3min)

Sum up the lesson by retelling students about the types of polynomial and degree of the polynomials. Also explain “Note to Remember” given at page 87 of their textbook.

Assessment: (3 min)

Assess students’ understanding by asking them solve “Pause and Try” given at page 87 of their textbook.

Homework: (2 min)

Solve Q2 of “Learning check 6.3” given at page 87 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 3 **Lesson Plan:** 2

Unit Name: Algebraic Expressions **Topic:** Addition of Polynomials **Date**:

Objective(s):

At the end of this period, the students will be able to:

Add two or more polynomials.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 88 and 89

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 mins)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask students about previous day homework. Begin the lesson by asking students:

What is meant by polynomials? How many types of the polynomials? What is meant by trinomials? What is meant by degree of polynomials? What is meant by like and unlike terms of the polynomials? Take their responses and then recall with them the term polynomial and the types of polynomials.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn how to add the two or more polynomials. Ask students do you know how we can add the polynomials? Take their responses and tell them that we can add the polynomials horizontally and vertically in the same way as we add the algebraic expressions. To add the polynomials, first group the like terms together and then add the co-efficient of the like terms and the variables and their exponent remains the same. Write the two polynomials like 3x + 5y and 2x + 3y on the board and tell students to add two polynomials horizontally first we arrange the given polynomial in such a way that like terms are place together. Tell students as 3x and 2x are like terms so we add 3x and 2x that is 3x + 2x = 5x. 5y and 3y are like terms so add their co-efficient 5y + 3y = 8y.

So 3x + 5y + (2x + 3y) = 3x + 5y + 2x + 3y = 3x + 2x + 5y + 3y = 5x + 8y

Explain each steps of addition of polynomials to students and encourage them to ask questions if they have any confusion. Instruct students to open their textbook page 88. Solve the worked example 2 on the board where three polynomials"$3a^3 - 5a^2 + 8a + 1$, $5a^3 - 3a - 2$ and $9a^2 - 4a + 7$" are added vertically and explain each step of addition of polynomials to them. Instruct them to ask question if they have any confusion.

$$\begin{array}{r} 3a^3 - 5a^2 + 8a + 1 \\ 5a^3 \quad\quad - 3a - 2 \\ +9a^2 - 4a + 7 \\ \hline 8a^3 + 4a^2 + a + 6 \end{array}$$

Activity:

Ask the students to open textbook page 89. Write Q1 (a) on the board. Call a student and ask him/her to add the given polynomials. Ask the rest of the class to check and correct if required. Then instruct them to Q1 (b, c, d) of "Learning Check 6.4" in their notebooks. Walk around the class, monitor their working and guide them where required.

Sum Up: **(3min)**

Sum up the lecture by retelling students to add the two or more polynomials just add the coefficients of the variables of the like terms. The variables and powers of the variables remains the same.

Assessment: **(5min)**

To assess the understanding, ask them to solve 'Pause and Try part a' of page 88 and Q1 (e, f) of "Learning check 6.4" at page 89 of textbook.

Homework: **(2 min)**

Solve Q1 (g, h) of "Learning Check 6.4" on textbook page 89.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 3 **Lesson Plan: 3**

Unit Name: Algebraic Expressions **Topic:** Subtraction of Polynomials **Date**:

Objective(s):

At the end of this period, the students will be able to:

Subtract two or more polynomials.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 88 and 89

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about previous day homework. Begin the lesson by asking students: How we can add the two or more polynomials horizontally and vertically? Write two polynomials on the board. Call a student to the front of the class and ask him/her to add the given polynomials vertically and horizontally. Ask the rest of the class to check their work and correct if needed. Repeat this activity to some random students of class.

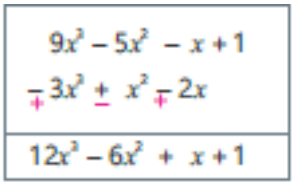
Main Activities/Concept Building: **(25 min)**

Tell students today we will learn how to subtract the two polynomials. Ask students do you know how we can subtract the polynomials? Take their responses and tell them that we can subtract the polynomials horizontally and vertically in the same way as we subtract the algebraic expressions. To subtract the polynomials, first group the like terms together and then subtract the co-efficient of the like terms and the variables and their exponent remains the same. Instruct students to open their textbook page 88 and read the statement of the worked example 1 "Solve $(5a^3 + 3a^2 – 4a + 5) – (a^3 – 2a^2 + a – 4)$". Write the write the example on the board and tell students to subtract the second polynomial from the first polynomial first remove the brackets and change the sign of the terms which are to be subtracted.

$(5a^3 + 3a^2 – 4a + 5) – (a^3 – 2a^2 + a – 4) = 5a^3 + 3a^2 – 4a + 5 – a^3 + 2a^2 – a + 4$

$= 5a^3 – a^3 + 3a^2 + 2a^2 – 4a – a + 5 + 4 = 4a^3 + 5a^2 – 5a + 9$

Explain each steps of subtraction of polynomials to students and encourage them to ask questions if they have any confusion. To subtract the polynomials vertically solve the worked example 3 "Subtract $–3x^3 + x^2 – 2x$ from $9x^3 – 5x^2 – x + 1$ on the board and explain each step of subtraction of polynomials to them. For more clarification solve worked example 4 on the board and explain it to them. Instruct to ask questions where they find any difficulty.



Activity:

Ask the students to open textbook page 89. Write Q2 (a) on the board. Call a student and ask him/her to subtract the given polynomials. Ask the rest of the class to check and correct if required. Then instruct them to Q2 (b, c, d) and Q3 of "Learning Check 6.4" in their notebooks. Walk around the class, monitor their working and guide them where required.

Sum Up: **(3min)**

Sum up the lecture by retelling students to subtract the two or more polynomials just subtract the coefficients of the variables of the like terms. Also explain the "Note to Remember" given at page 88 of their textbook.

Assessment: **(5min)**

To assess the understanding of students, ask them to solve 'Pause and Try part b' of page 88 and Q2 (e, f) of "Learning check 6.4" at page 89 of textbook.

Homework: **(2 min)**

Solve Q2 (g, h), Q4 and Q5 of "Learning Check 6.4" on textbook page 89.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 3 **Lesson Plan: 4**

Unit Name: Algebraic Expressions **Topic:** Multiplication of Polynomials **Date**:

Objective(s):

At the end of this period, the students will be able to:

Find the product of monomial with monomial and monomial with binomial/trinomial.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 89, 90 and 91

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about previous day homework. Begin the lesson by asking students: How we can add and subtract the two or more polynomials horizontally and vertically? Write two polynomials on the board. Call a student to the front of the class and ask him/her to add and subtract the given polynomials vertically and horizontally. Ask the rest of the class to check their work and correct if needed. Repeat this activity to some random students of class.

Main Activities/Concept Building: (25 min)

Tell students today we will learn how to find the product of monomial with monomial, binomial and trinomials. Recall with students the types of polynomials that are monomial, binomial and trinomial. Tell them that the polynomial with one term is called monomial, the polynomial with two terms is called binomial and the polynomials that have three terms are called trinomial. To find the product of monomial with monomials instruct students to open their textbook page 89 and read the statement of the worked example 1 that is "Multiply -6 by $3x$" tell them that when we multiply two polynomials we get a single polynomial as a result. Tell students when we multiply -6 by $3x$, find the product of the coefficients of the involved variable and add the exponents of the same variables.

$$-6 \text{ by } 3x = (-6 \times 3)x = -18x$$

For more clarification solve the worked example 2 that is "Find the product of $5a^2$, $4ab$ and $7a^2b$"

Tell them that here we multiply coefficients of the variables involved and add the exponents of the same variables.

$5a^2 \times 4ab \times 7a^2b = (5 \times 4 \times 7)\ (a^2 \times ab \times a^2b) = 140\ (a^{2+1+2})\ (b^{1+1}) = 140a^5b^2$

Tell students now we multiply monomials with binomials and trinomials. Write the worked example 1 "Multiply $3a^2$ and $4a + 2b$" given at page 90 of their textbook. Explain students when we multiply monomial with binomials, multiply monomials with each term of the binomial. We first multiply $3a^2$ with $4a$ and then with $2b$.

$3a^2 \times (4a + 2b) = (3a^2 \times 4a) + (3a^2 \times 2b) = (3 \times 4)\ a^{2+1} + (3 \times 2)\ a^2b = 12a^3 + 6a^2b$

Similarly explain the multiplication of monomial with trinomial by solving worked example 2 on the board. Encourage students to ask questions if they have any confusion.

Sum Up: (3min)

Sum up the lecture by retelling students to multiply monomial with monomials and monomials with binomials and trinomials. Also explain the "Note to Remember" given at page 89 of their textbook.

Assessment: (5min)

To assess the understanding of students, ask them to solve Q1 (a, b) of "Learning check 6.5" at page 91 of textbook.

Homework: (2 min)

Solve Q1 (c, d, h, n) of "Learning Check 6.5" on textbook page 91.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 3 **Lesson Plan: 5**

Unit Name: Algebraic Expressions **Topic:** Multiplication of Polynomials **Date**:

Objective(s):

At the end of this period, the students will be able to:

Find the product of: binomials with binomial/trinomial.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 89, 90 and 91

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about previous day homework. Begin the lesson by asking students: how we can multiply a monomial with monomial? How we multiply the monomials with binomials and trinomials? Take their responses and then call a student to the front of the class and instruct him/her write a monomial and binomial on the board and find their product. Ask the rest of the class to check their work and correct if required. Repeat this activity to some other students of the class.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn to multiply binomials with binomials and binomials with trinomials. Instruct students to open their textbook page 90. Write the worked example 1 "(3x + 1) and (2x – 3) on the board. Recall with students the term binomial and trinomials. Tell students to multiply binomial with binomial we multiply each term of the first binomial with each term of the second binomial and then simplify by adding and subtracting the like terms. Solve the example step by step on the board and explain each step to them. Encourage students to ask questions where they found any difficulty.

$$= (3x + 1)(2x - 3)$$
$$= 3x(2x - 3) + 1(2x - 3)$$
$$= 6x^2 - 9x + 2x - 3$$
$$= 6x^2 - 7x - 3$$

Explain to students when we multiply a binomial with binomial or trinomial we use the distributive property of multiplication. Now explain how to multiply a binomial with trinomial by solving worked example 2 given at page 91 of their textbook. Tell students to multiply a binomial with trinomial first multiply first term of the binomial with each term of the trinomial and the second term of the binomial with each term of the trinomial. Solve the example on the board step by step and explain each step to them. Encourage students to ask questions if they have any confusion.

Activity:

Ask the students to open textbook page 91. Write Q1 (e) on the board. Call a student and ask him/her to multiply the given polynomials. Ask the rest of the class to check and correct if required. Then instruct them to Q1 (f, g, I, j, k) of "Learning Check 6.5" in their notebooks. Walk around the class, monitor their working and guide them where required.

Sum Up: **(3min)**

Sum up the lecture by explaining that when multiplying binomials with binomials/trinomials, we use the distributive property to multiply each term of the binomial with each term of the binomial/trinomials.

Assessment: **(5min)**

To assess the understanding of students, ask them to solve "Pause and Try" given at page 90 of textbook.

Homework: **(2 min)**

Solve Q1 (l, m, o) of "Learning Check 6.5" on textbook page 91.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 3 **Lesson Plan: 6**

Unit Name: Algebraic Expressions **Topic:** Simplification of Algebraic Expression **Date**:

Objective(s):

At the end of this period, the students will be able to:

Simplify algebraic expressions.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 91 and 92

Teaching & Learning Activities:

Opening Activities/Warm-up: **(10 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask the students about their homework. To recall with students the multiplication of polynomials get students into 4 groups and provide each group paper slips of monomial, binomials and trinomials and instruct them to find the product of monomial with monomial, monomial with binomial, binomial with binomial and binomial with trinomial. Walk around and monitor their working. The group with quick and accurate working is the winner.

Main Activities/Concept Building: **(20 min)**

Begin the lesson by telling students today we will learn about simplification of algebraic expressions. Tell students to simplify the algebraic expression we use the same order of preference as we do in whole numbers by using BODMAS rule. Instruct students to open their textbook page 91. Write the worked example 1 on the board that is "Simplify $a^2\{(a - b) - (a + b)\}$" According to BODMAS rule first we solve the expression inside the parenthesis:

$a^2\{(a - b) - (a + b)\} = a^2\{a - b - a - b\} = a^2\{-2b\} = -2a^2b$

Solve the example step by step on the board and explain each step to them. Encourage them to ask questions if they have any confusion. For more clarification solve the worked example 2 and 3 on the board given at page 91 and 92 of their textbook. Explain each step in detail to students and discuss with them where they found any difficulties.

Activity:

Ask the students to open textbook page 92. Write Q1 (a) on the board. Call a student and ask him/her to subtract the given polynomials. Ask the rest of the class to check and correct if required. Then instruct them to Q1 (b, c, d, e, f) of "Learning Check 6.6" in their notebooks. Walk around the class, monitor their working and guide them where required.

Sum Up: **(3 min)**

Sum up the lecture by retelling students we can simplify the algebraic expression by using BODMAS rule as we use in the whole numbers.

Assessment: **(5min)**

To assess students' understanding, have them solve "Pause and Try" and Q 1(g, h) given at textbook page 92 in their notebooks. Walk around and check their work and guide them where required.

Homework: **(2 min)**

Solve Q1 (i - n) of "Learning Check 6.6" on page 92 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 3 **Lesson Plan: 7**

Unit Name: Algebraic Expressions **Topic:** Algebraic Identities **Date**:

Objective(s):

At the end of this period, the students will be able to:

Explore the algebraic identity $(a + b)^2 = a^2 + b^2 + 2ab$ and use it to expand expressions.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 92 and 93

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask the students about their homework. Ask students how we can simplify the algebraic expressions. Write an algebraic expression on the board. Call a student to the front of the class and ask him/her to simplify the given expression. Ask the rest of the class to check and correct if required. Repeat this activity to some random students of the class. Appreciate them for their correct work.

Main Activities/Concept Building: (22 min)

Begin the lesson by telling students today we will learn about the algebraic identity $(a + b)^2 = a^2 + b^2 + 2ab$. Ask students: Do you know what is meant by algebraic identity? Encourage students to share their ideas and explanations. After taking their responses tell them that as we know that about equation which is true for some values of variable, for example 2y + 7 = 11 is an equation. This equation is true for the value of y = 2 only. This equation is not true for other values of y. but the algebraic identity is true for all values of the variable involved. Now we will first prove the algebraic identify $(a + b)^2 = a^2 + b^2 + 2ab$. Explain students first take the LHS and prove that it is equal to the right hand side.

As we know that $(a + b)^2 = (a + b)(a + b)$, now we multiply it in the same way as we multiply binomial with binomials. $(a + b)^2 = (a + b)(a + b) = a^2 + ab + ba + b^2 = a^2 + ab + ab + b^2 = a^2 + 2ab + b^2$

So LHS is equal to the right hand side. Instruct students to open their textbook page 92 and prove the identity in their notebooks again. For more clarification solve the worked example "Find the square of a + 5b by using identity." Solve the given example step by step on the board and explain each step to them.

$(a + b)^2 = a^2 + 2ab + b^2$

$(a + 5b)^2 = a^2 + 2\ (a)\ (5b) + (5b)^2 = a^2 + 10ab + 25b$

For more explanation solve different examples on the board and encourage students to ask questions if they have any confusion.

Activity:

Instruct students to solve Q1 (b, d, f) of "Learning check 6.7" in their notebooks. Walk around and check their working and guide them where needed. After completing call one by one each pair to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: (3 min)

Sum up the lecture by retelling students about algebraic identity $(a + b)^2 = a^2 + b^2 + 2ab$ and demonstrate how it can be used to expand expressions.

Assessment: (5min)

To assess students' learning, have them solve Q1 (h, j) of "Learning check 6.7" on page 93 of their textbook.

Homework: (2 min)

Solve Q3 of "Learning check 6.7" on page 93 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 1**

Unit Name: Algebraic Expressions **Topic:** Algebraic Identities **Date**:

Objective(s):

At the end of this period, the students will be able to:

Explore the algebraic identity $(a - b)^2 = a^2 + b^2 - 2ab$ use it to expand expressions.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 92 and 93

Teaching & Learning Activities:

Opening Activities/Warm-up: (7 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask the students about their homework. Write (2x + 5y)(2x + 5y) on the board and ask students how we can solve this. Take their responses that must be the identity $(a + b)^2 = a^2 + 2ab + b^2$. Then call a student to the front of the class and ask him/her to solve it. Ask the rest of the class to check and correct if required. Repeat this activity for some other students of the class.

Main Activities/Concept Building: (23 min)

Begin the lesson by telling students today we will learn about the algebraic identity $(a - b)^2 = a^2 + b^2 - 2ab$.

Ask students: Do you know what is meant by algebraic identity? Encourage students to share their ideas and explanations. After taking their responses tell them we know that about equation which is true for some values of variable, for example 4x – 5 = 11 is an equation. This equation is true for the value of x = 4 only. This equation is not true for other values of x. but the algebraic identity is true for all values of the variable involved. Now we will first prove the algebraic identify $(a - b)^2 = a^2 + b^2 - 2ab$. Explain students first take the LHS and prove that it is equal to the right hand side.

As we know that $(a - b)^2 = (a - b)(a - b)$, now we multiply it in the same way as we multiply binomial with binomials. $(a - b)^2 = (a - b)(a - b) = a^2 - ab - ba + b^2 = a^2 - ab - ab + b^2 = a^2 - 2ab + b^2$

So left hand side is equal to the right hand side. Explain to them ab = ba. Instruct students to open their textbook page 93 and prove the identity in their notebooks again. For more clarification solve the worked example "Find the square of a + 5b by using identity." Solve the given example step by step on the board and explain each step to them.

$(a - b)^2 = a^2 - 2ab + b^2$

$(3a - 4b)^2 = (3a)^2 - 2\ (3a)\ (4b) + (4b)^2 = 9a^2 - 24ab + 16b^2$

For more explanation solve different examples on the board and encourage students to ask questions if they have any confusion.

Activity:

Instruct students to solve Q1 (a, c, e, g, i) of "Learning check 6.7" in their notebooks. Walk around and check their working and guide them where needed. After completing call one by one each pair to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: (3 min)

Sum up the lecture by retelling students about algebraic identity $(a - b)^2 = a^2 + b^2 - 2ab$ and demonstrate how it can be used to expand expressions.

Assessment: (5min)

To assess students' learning, have them solve Q1 (k, l) of "Learning check 6.7" on page 93 of their textbook.

Homework: (2 min)

Solve Q4, Q5 and Q6 of "Learning check 6.7" on page 93 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 2**

Unit Name: Algebraic Expressions **Topic:** Algebraic Identities **Date**:

Objective(s):

At the end of this period, the students will be able to:

Explore the algebraic identity $(a + b)(a - b) = a^2 - b^2$ and use it to expand expressions.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 92 and 93

Teaching & Learning Activities:

Opening Activities/Warm-up: **(7 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask the students about their homework. Write find the square of $(3t - 4)$ on the board and ask students how we can solve this. Take their responses that must be by using identity $(a - b)^2 = a^2 - 2ab + b^2$ we can solve it. Then call a student to the front of the class and ask him/her to solve it. Ask the rest of the class to check and correct if required. Repeat this activity for some other students of the class.

Main Activities/Concept Building: **(23 min)**

Begin the lesson by telling students today we will learn about the algebraic identity $(a + b)(a - b) = a^2 - b^2$. Ask students: Do you know what is meant by algebraic identity? Encourage students to share their ideas and explanations. After taking their responses tell them we know that about equation which is true for specific value of variable, for example $2a + 3 = 15$ is an equation. This equation is true for the value of $a = 6$ only. This equation is not true for other values of a. but the algebraic identity is true for all values of the variable involved. Now we will first prove the algebraic identify $(a + b)(a - b) = a^2 - b^2$. Explain students first take the LHS and prove that it is equal to the right hand side.

Take the left hand side and multiply it in the same way as we multiply binomial with binomials.

$(a + b)(a - b) = a^2 - ab + ba - b^2 = a^2 - ab + ab + b^2 = a^2 - b^2$

So left hand side is equal to the right hand side. Explain to them $ab = ba$. Instruct students to open their textbook page 93 and prove the identity in their notebooks again. For more clarification solve the worked example "Find the product of $(4x - 2y)(4x + 2y)$ by using identity." Solve the given example step by step on the board and explain each step to them by using identify $(a + b)(a - b) = a^2 - b^2$.

$(4x - 2y)(4x + 2y) = (4x)^2 - (2y)^2 = 16x^2 - 4y^2$

For more explanation solve different examples on the board and encourage students to ask questions if they have any confusion.

Activity:

Instruct students to solve Q2 (a-e) of "Learning check 6.7" in their notebooks. Walk around and check their working and guide them where needed. After completing call one by one each student to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: **(3 min)**

Sum up the lecture by retelling students about algebraic identity $(a + b)(a - b)$ and demonstrate how it can be used to expand expressions.

Assessment: **(5min)**

To assess students' learning, have them solve Q2 (f, g) of "Learning check 6.7" on page 93 of their textbook.

Homework: **(2 min)**

Solve Q2 (h, i) of "Learning check 6.7" on page 93 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 4 **Lesson Plan:** 3

Unit Name: Algebraic Expressions **Topic:** Factorization **of** Algebraic Expressions **Date**:

Objective(s):

At the end of this period, the students will be able to:

Factorize algebraic expressions (by taking out common terms).

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 94 and 95

Teaching & Learning Activities:

Opening Activities/Warm-up: (10 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask the students about their homework. Write find the product of (3x + 6)(3x – 6) on the board and ask students how we can solve this. Take their responses that must be by using identity $(a - b)^2 = (a + b)(a - b)$ we can solve it. Then call a student to the front of the class and ask him/her to solve it. Ask the rest of the class to check and correct if required. Repeat this activity for some other students of the class.

Main Activities/Concept Building: (20 min)

Begin the lesson by telling students today we will learn about factorization of algebraic expressions. Ask students: what is meant by factorization? Encourage students to share their ideas and explanations. After taking their responses recall with them the concept of factorization of whole numbers. Remind students that factorization means expressing a number as a product of its prime factors or breaking a number into numbers that can be multiplied together to get the original number for example, $2 \times 4 = 8$, so the factors of 8 are 2 and 4. . Explain that just as we can factorize whole numbers, we can also factorize algebraic expressions to simplify them. For example in algebraic expressions the product of y and y + a is $y^2 + ay$. Here, y and y + a are the factors of $y^2 + ay$. Algebraic expression can be factorized by common factors, as well as by making groups. Today we will learn the factorization of algebraic expression by common factors. Instruct students to open their textbook page 94 and factorize "4x – 2xy" in worked example 1. Ask students to observe the both terms of the algebraic expression and find out the common factor. Take their responses and tell them that as 2 and x are common in both terms so we take 2x as common factor.

$4x - 2xy = 2x(2 - y)$

So 2x and 2 – y are the factors of algebraic expression 4x – 2xy. Encourage students to ask questions if they have any confusion. For more clarification solve worked example 2 on the board and explain each step to them.

Activity:

Instruct students to solve Q1 (a-c) of "Learning check 6.8" in their notebooks. Walk around and check their working and guide them where needed. After completing call one by one each student to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: (3 min)

Sum up the lecture by retelling students how to factorize the algebraic expression by taking common factors and also explain "Note to remember" given at page 94 of their textbook.

Assessment: (5min)

To assess students' learning, have them solve Q1 (d-e) of "Learning check 6.8" on page 95 of their textbook.

Homework: (2 min)

Solve Q1 (f, g, h, i) of "Learning check 6.8" on page 95 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 4 **Lesson Plan:** 4

Unit Name: Algebraic Expressions **Topic:** Factorization **of** Algebraic Expressions **Date**:

Objective(s):

At the end of this period, the students will be able to:

Factorize algebraic expressions (by regrouping).

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 94 and 95

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask the students about their homework. Ask students: What is meant by factorization? How we can factorize algebraic expressions? Take their responses and appreciate them for their correct answers. Now write an algebraic expression for example $3x^2 + 9$ on the board and call a student to the front of the class and ask him/her to find the factors of the given algebraic expressions. Ask the rest of the class to check whether he/she correct or not. Appreciate them for their correct work. Repeat this activity for some other random students of the class.

Main Activities/Concept Building: (22 min)

Begin the lesson by telling students today we will learn about factorization of algebraic expressions. Ask students: what is meant by factorization of algebraic expression by taking common factors? Encourage students to share their ideas and explanations. Remind the students that in the previous lesson, they learned to factorize the algebraic expression by taking common factor and simplify the expressions. Tell students that in some cases, the expression may not have an obvious common factor to factor out, but we can still factorize it by rearranging or regrouping the terms. Instruct students to open their textbook page 94 and factorize "$x^3 - x^2 - 3x + 3$" in worked example 1. Ask students to observe the terms of the algebraic expression and regroup the expressions that have common factors. Take their responses and explain to them that the first two terms has common factor x^2 and the last two terms has common factor 3. Solve the example step by step on the board and explain it to students.

$x^3 – x^2 – 3x + 3 = x^2(x – 1) – 3(x – 1) = (x – 1)(x^2 – 3)$ as $(x – 1)$ is the common factor in both term.

So $(x – 1)$ and $(x^2 – 3)$ are the factors of algebraic expression $x^3 – x^2 – 3x + 3$. Encourage students to ask questions if they have any confusion. For more clarification solve worked example 2 on the board and explain each step to them.

Activity:

Instruct students to solve Q2 (a-c) of "Learning check 6.8" in their notebooks. Walk around and check their working and guide them where needed. After completing call one by one each student to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: (3 min)

Sum up the lecture by retelling students how to factorize the algebraic expression by regrouping by solving different examples on the board.

Assessment: (5min)

To assess students' learning, have them solve Q2 (d, e) of "Learning check 6.8" on page 95 of their textbook.

Homework: (2 min)

Solve Q2 (f, g, h, i) of "Learning check 6.8" on page 95 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 4 **Lesson Plan:** 5

Unit Name: Algebraic Expressions **Topic:** Factorization of Quadratic Expressions **Date**

Objective(s):

At the end of this period, the students will be able to:

Factorize quadratic expressions (by middle term breaking method).

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 95 and 96

Teaching & Learning Activities:

Opening Activities/Warm-up: (10 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask the students about their homework. Ask students: What is meant by factorization? How we can factorize algebraic expressions by using common factor method and regrouping method? Take their responses and then get students into groups and give each group paper slips of algebraic expressions and instruct them to identify the expression that can factorize by using common factor method and which one is factorize by using regrouping method, then factorize and find the factors. Walk around and check their work and discuss with them about their common mistakes.

Main Activities/Concept Building: (20 min)

Begin the lesson by telling students today we will learn about factorization of quadratic expressions by middle term breaking method. Ask students: What are the quadratic expressions? Take their responses and discuss with them a quadratic expression is an expression where the highest power of the involved variable is 2. It must not be higher than 2 or lower than 2. The standard form of a quadratic expression is $ax^2 + bx + c$; where a, b and c are numbers, x is the variable and 'a' must not be equal to 0. Give students different examples of quadratic expressions. Tell students we can factorize a quadratic expression by breaking the middle term. Ask students to open their textbook page 95 and factorize "$x^2 – 5x + 4$" by middle term breaking in worked example 1. Tell students to factorize $x^2 - 5x + 4$, we have to find two numbers such that their sum is –5 and their product is 4, as $(+1) \times (+4) = + 4$. Explain to them 1 is the co-efficient of x^2 and 4 is the constant. Clearly, $(–4) + (–1) = –5$ and $(–4) \times (–1) = + 4$

Explain to students now split the middle term 5x of $x^2 – 5x + 4$ as $–4x – x$.

$x^2 – 5x + 4 = x^2 – 4x – x + 4 = x(x – 4) – 1(x – 4) = (x – 4)(x – 1)$

So, the factors of $x^2 – 5x + 4$ are $(x – 1)$ and $(x – 4)$.

Solve the worked example 1 step by step on the board and explain each step to them. Encourage students to ask questions if they have any confusion. For more clarification solve worked example 2 on the board and explain each step to them.

Activity:

Instruct students to solve Q1 (a-d) of "Learning check 6.9" in their notebooks. Walk around and check their working and guide them where needed. After completing call one by one each student to the front and ask to present their work to the whole class and explain each step of solution to the whole. Appreciate them for their best effort and discuss with them their common mistakes.

Sum Up: (3 min)

Sum up the lecture by retelling students how to factorize the quadratic expression by middle term breaking and also explain "Note to remember" given at page 95 of their textbook.

Assessment: (5min)

To assess students' learning, have them solve Q1 (e, f) of "Learning check 6.9" on page 95 of their textbook.

Homework: (2 min)

Solve Q1 (g, h, i) of "Learning check 6.9" on page 95 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 4 **Lesson Plan:** 6

Unit Name: Algebraic Expressions **Topic:** Sum up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 6 by solving Q1-4 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 96 and 97

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Algebraic Expressions”.

Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 96 and 97 of their textbooks. Ask them to solve Q1, Q2 and Q3 of “Unit check 6” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 96.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve Q4 of Unit check 6 given at page 97 of their textbooks.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 4 **Lesson Plan:** 7

Unit Name: Algebraic Expressions **Topic:** Sum up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 6 by solving Q5-8 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 96 and 97

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Algebraic Expressions”.

Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 97 of their textbooks. Ask them to solve Q5, Q6 and Q7 of “Unit check 6” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3 min)

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 96.

Assessment: (0 min)

N/A

Homework: (2 min)

Solve Q8 of Unit check 6 given at page 97of their textbooks.

Teacher’s Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 1

Unit Name: Algebraic Expressions **Topic:** Sum up and Unit Check **Date:**

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 6 by solving Q9-10 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 97, shape cards, scoring sheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit "Algebraic Expressions".

Ask them the different questions that are related to the unit

Main Activities/Concept Building: (30 min)

Activity:

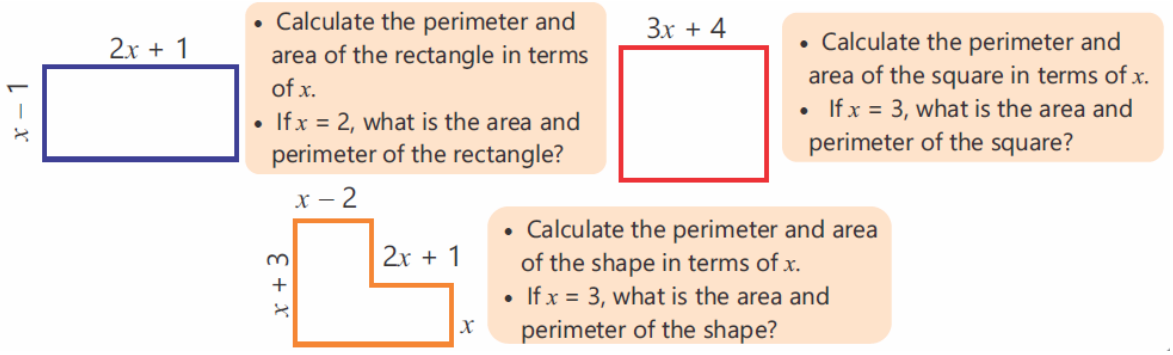
Have students open page 97 of their textbooks. Ask them to solve Q9 of "Unit check 6" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students that now we are going to do an activity of 'work with math' on page 97.

Note: The teacher will create the shape cards in sufficient quantity for the groups (according to the class strength).

- Make groups of students.
- Instruct them randomly choose at least 3 shape cards (like the ones given below; teacher can make more like this).
- Then instruct each group to solve the challenge and then get it checked by other groups.
- Record the result in a scoring sheet.



Sum Up: (3 min)

Sum up the lesson by repeating the important points of unit.

Assessment: (0 min)

N/A

Homework: (2 min)

Solve Q10 of Unit check 6 given at page 97 of their textbooks.

Teacher's Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 2

Unit Name: Sets **Topic:** Revision **Date**: ___ ____

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit "Sets".

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask them a few questions related to the concept of unit "Sets".

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher's Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐
Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. **Find the Union of the given sets.**
   S = {3, 6, 9, 12, 15, 18} T = {6, 12, 18, 24} U = {9, 18, 27}

2. **Find the intersection of the given sets:**
   L = {4, 5, 6, …,12} M = {2, 4, 6, 8, 10, 12}

3. **If A = {2, 3, 5, 7, 11, 13, 17} and B = {1, 3, 5, 7, 9, 11, 13, 15, 17} then find A – B and B – A.**

4. **If X = {set of even numbers less than 20} and U = {set of whole numbers less than 25} then find X^c.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 3

Unit Name: Sets **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit "Sets".

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask them a few questions related to the concept of unit "Sets".

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher's Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. **Prove the given properties for the given sets.**
   U = {1, 2, 3, 4, 5, …, 20} A = {3, 4, 5, 6} B = {7, 9, 11} C = { 12, 14, 16}

   a) $A^c \cup A = U$

   b) $A^c \cap A = \varphi$

   c) $(A \cup C)^c = A^c \cap C^c$

   d) $B^c - A^c$

   e) $B^c \cup A$

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 4

Unit Name: Algebraic Expressions **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit "Algebraic Expressions".

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Ask them a few questions related to the concept of unit "Algebraic Expressions".

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher's Self-Evaluation: **Target:** Achieved ☐Not Achieved ☐ Partially Achieved ☐
Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **Find the term-to-term rule in the following pattern. Also find the next 3 terms of the given patterns.**
   12, 37, 62, 87, …

2. **Identify the position-to-term rules for the following pattern and find the 20th and 33th terms.**
   6, 7, 8, 9, …

3. **If the nth term of the sequence is 3n +7, find the 11th, 19th and 45th term of this sequence.**

4. **Define polynomial with examples.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 5

Unit Name: Algebraic Expressions **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Algebraic Expressions”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Algebraic Expressions”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. **Solve the following.**

$(5x^2 + 5x + 9) + (-7x + 8)$	$(x^3 - 4x^2 - 7x + 5y) - (5x^3 - 11x^2 - 8)$
$6x^2y(9x + 7y + 5x^2y)$	$(a - 3a^2)(5a + 9 - 2a^2)$

2. **Simplify the given algebraic expression.**

   $4x\,[x - 2y\{5x^4 + 4(2xy - 2y + 7x^2)\}]$

3. **What should be added to $3x^2 - 5y + 7$ to get $9x^2 + 5x - 7$**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 6

Unit Name: Algebraic Expressions **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Algebraic Expressions”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Algebraic Expressions”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. Find the square of the following binomials by using identity.

a) $6x - 7y$	b) $14a + 3b$

2. Find the product of the following binomials by using identity.

a) $(2x + y)(2x - y)$	b) $(x + 1/x)(1 - 1/x)$

3. Find the value of $a^2 + b^2$ if $a - b = 5$ and $ab = 9$

4. Find the value of $(a + b)^2$ if $a^2 + b^2 = 15$ and $ab = 14$

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 7

Unit Name: Algebraic Expressions **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Algebraic Expressions”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(3 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Ask them a few questions related to the concept of unit “Algebraic Expressions”.
Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(30 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(5 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:
Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐
Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date:** _____

1. **Factorize the following by common factor method.**

$18p^2q + 12pq^2 - 15p^3q^2$

$20a^3 + 15a^2$

2. **Factorize the following by regrouping method.**

$15xy + 15 + 9y + 25x$

$7a^2b - 14ab + 9bc - 18c$

3. **Factorize the following by breaking middle term.**

$x^2 + 13x + 72$

$4x^2 - 4x + 1$

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 1

Unit Name: Linear Equations and Coordinate System Topic**:** Solving Linear Equations in One Variable Date: ____

Objective(s):

At the end of this period, the students will be able to:

Recall solving linear equations in one variable.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 99 -102

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about previous day homework. Have students open textbook at page 99. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers****: The sections “Think out of the box”, “Talk over and write” and “Technology corner” are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners*.)

Main Activities/Concept Building: (25 min)

Before the main concept, tell them briefly about the unit outline and its real-life relevance. Tell the students today we will recall solving linear equations in one variable. Tell the students about the Muslim mathematician Muhammad Ibn Musa Al-Khwarzi, who gave the systematic solution of linear equations in his book entitled "Kitab Al-Jabr wa'l-Muqabala. Ask them: What is meant by a linear equation in one variable and the solution of the linear equation? Take their responses and tell them that a linear equation in one variable is an open sentence in the form of ax +b = c and the value of the variable which satisfies the equation is known as the root or solution of the equation. Tell the students we can use the balancing method or transposition method to solve the linear equation in one variable. Tell them in the balancing method, the same operation is performed on both sides of the equation in such a way, that the variable is left on one side of the equation and in the transposition method, the terms are transferred from one side to the other side with the change of sign. Tell them to verify the accuracy of the solution, we substitute the value of the variable in the given equation. If the answer of two sides comes equal, it means the solution is correct. Also tell them that when solving real-life problems related to linear equations, we need to translate them into mathematical equations. Instruct students to open their textbook page 100. Read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that Iqra is 4 times as older as her daughter. After 12 years the sum of their ages will be 69 years. We have to find their present age. Solve the example step by step on the board and explain each step to them. For more explanation solve the worked example 2, 3 and 4 on the board step by step and explain each step in detail to students. Encourage students to ask questions if they have any confusion.

Sum Up: (3min)

Sum up the lecture by retelling about solving the linear equation in one variable and also explain “Note to Remember” given at pages 101 and 102 of their textbook.

Assessment: (5min)

To assess students’ learning, ask them solve “Pause and Try” given at page 102 of their textbook.

Homework: (2 min)

Solve Q1 to Q7 of “Learning check 7.1” given on page 102 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 2

Unit Name: Linear Equations and Coordinate System **Topic:** Linear Equations in Two Variables **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify linear equations in two variables identify how to construct them.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 103 and 104

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: What is meant by linear equation in one variable and how we construct it from given statement or phrases. Take their responses and then write a statement “The sum of two times a number and 6 equals 10.” Call a student to front of the class and ask him/her to write the linear equation for the given statement. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: (25 min)

Tell students that today we will learn about linear equations with two variables. Ask Them: Do you know what is meant by a linear equation with two variables? Encourage students to share their ideas and explanations. After taking their responses, tell them as we know that in linear equation with one variable has only one variable so the linear equation in two variables has two variables. Tell them that the equation of the form ax + by = c is known as a linear equation in two variables where x and y are the two variables in this equation and a, b and c are the constant. Write different linear equations in two variables on the board and explain to them that these are the linear equations in two variables by pointing towards their variables. Instruct students to open their text book page 103 and learn more about linear equation in two variables. Write a simple statement or phrase on the board, such as "the sum of two times a number and three times another number is equal to 5." Ask students to think about what this linear equation might represent in a real-life context: Once they suggest an idea (e.g., "2x + 3y = 5"), write the corresponding linear equation in two variables on the board, explaining how the statement or phrase is converted into a simple linear equation in two variables. Instruct students to open their textbook page 103. Read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that the price of 5 candies and 3 chocolates is Rs.80. We have to construct a linear equation in two variables for this situation. Solve the example step by step on the board and explain each step to them. For more explanation solve the worked example 2 on the board step by step and explain each step in detail to students. Encourage students to ask questions if they have any confusion.

Sum Up: (3min)

Sum up the lecture by retelling how to identify the linear equation in two variables and how to construct a linear equation in two variables from a given statement or phrase.

Assessment: (5min)

To assess students’ learning, ask them solve “Pause and Try” given at page 103 of their textbook.

Homework: (2 min)

Solve Q1 and Q2 of “Learning check 7.2” given on page 104 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 3

Unit Name: Linear Equations and Coordinate System **Topic:** Linear Equations in Two Variables **Date**:

Objective(s):

At the end of this period, the students will be able to:

Construct linear equations in two variables.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 104

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students how we identify the linear equation in two variables. Take their responses and then write different equations in one and two variables. Call a student to front of the class and ask him/her to identify the linear equation in two variables. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students. Appreciate them for their correct work.

Main Activities/Concept Building: **(25 min)**

Tell students that today we will learn about constructing linear equations with two variables. Instruct students to open their textbook page 104. Read the statement of the Q3 of the “Learning Check 7.2” and tell what is given and what we have to find. Take their responses and tell them that the total price of 5 prayer caps and 3 prayer mats is Rs. 3550. We have to construct the linear equation in two variables from this statement. If we assign variable x for prayer caps and y for 3 prayer mats. As there are 5 prayer caps it means 5x and 3 prayer mats means 3y. As we know that the total price of the 5prayer caps and 3 prayer mates is Rs 3550 so the linear equation for the given statement is 5x + 3y = Rs 3550. Solve this question step by step on the board and explain each step to them. For more explanation solve the Q4 and Q5 on the board step by step and explain each step in detail to students. Encourage students to ask questions if they have any confusion.

Activity:

Get students into pairs. Instruct each pair to create real-life situation where we use linear equation in two variables and then construct linear equation for the statement. Walk around and monitor their work and guide them where required. After completing the work, call one by one each pair to show their working to the whole class. When one pair shares their working to the whole class, instruct the class to observe their working and correct if required. Appreciate them for their good work and discuss with them about their common mistakes.

Sum Up: **(3min)**

Sum up the lecture by retelling about constructing the linear equation in two variables.

Assessment: **(5min)**

Assess students' understanding ask them to solve “Pause and Try” given at textbook page 104.

Homework: **(2 min)**

Solve Q6, Q7, Q8 of “Learning check 7.2” given on page 104 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 4

Unit Name: Linear Equations and Coordinate System **Topic:** Cartesian Coordinate system **Date**:

Objective(s):

At the end of this period, the students will be able to:

Describe the cartesian coordinate system.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 104, 105 and 107, Wallchart of Cartesian coordinate system

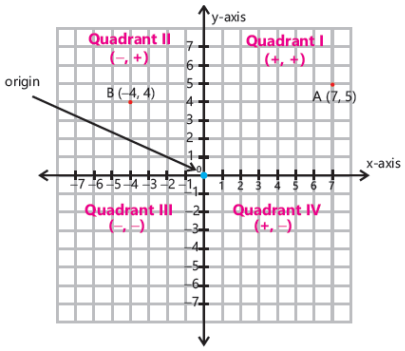
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students how we construct linear equation in two variables from the given statement or phrases. Take their responses and then write a statement “The sum of two times a number and five times another number equals 3.” Call a student to front of the class and ask him/her to write the linear equation for the given statement. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell students that today we will learn about Cartesian coordinate system. Ask students if they have heard the term "cartesian plane" before. Encourage them to share their understanding of what a cartesian plane might be. Instruct students to open their textbook page 104. Explain to students that the Cartesian coordinate system is a two-dimensional plane, is known as Cartesian plane. Paste a wallchart of Cartesian coordinate system and point out the two lines that are perpendicular to each other. Tell students that horizontal line is known as x-coordinate or abscissa and perpendicular line or vertical line is known as y-coordinate or ordinate. The cartesian plane is also known as a rectangular plane or XY-plane. Tell the students that the point where the two axes intersect is called origin. The numbers that are used to represent the points are called coordinates. Tell them that an ordered pair consists of the x-coordinate and y-coordinate that are written in sequence within the parentheses as (x, y). Point out towards the points A and B on the Cartesian plane and explain it to them. Also, tell them that there are four regions in the xy-plane called quadrants as follows: Quadrant I: Contains points with both positive x and positive y coordinates. Quadrant II: Contains points with negative x and positive y coordinates. Quadrant III: Contains points with negative x and negative y coordinates. Quadrant IV: Contains points with positive x and negative y coordinates. Ask students to open their textbook page 104 and 105 and learn more about Cartesian coordinate system.



Activity:

Ask the students to open textbook page 107. Instruct students to write 5 ordered pairs for each of the quadrants as given in Q1 of “Learning check 7.3”. Walk around and check their work and guide them where required. Discuss with them about their common mistakes.

Sum Up: **(3min)**

Sum up the lecture by retelling students about Cartesian coordinate plane. Also explain “Note to remember” given at page 105.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Assessment: **(5min)**

Assess students' understanding ask them to solve Q2 (a-d) of “Learning check 7.3” given on page 107 of their textbook

Homework: **(2 min)**

Solve Q2 (e-h) of “Learning check 7.3” given on page 107 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 5

Unit Name: Linear Equations and Coordinate System **Topic:** Identifying the unknown points on a coordinate plane **Date:**

Objective(s):

At the end of this period, the students will be able to:

Identify the coordinates of the given points on a coordinate plane.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 105 and 107

Teaching & Learning Activities:

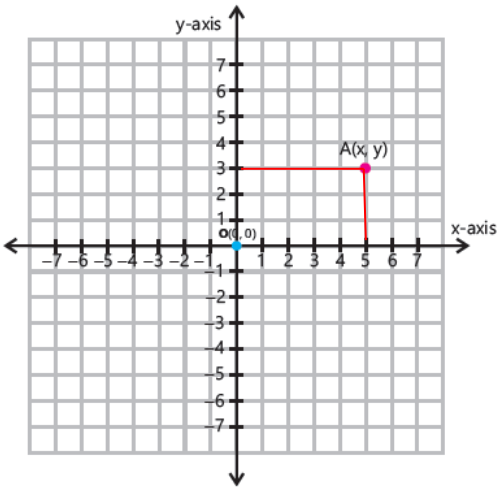
Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: what is meant by Cartesian coordinate plane? Differentiate between abscissa and ordinate. Take their responses and then write four ordered pair for each of the quadrant on the board and call a student to front of the class and ask him/her to write the in which quadrant each ordered pair lie. Ask the rest of the class to check and tell whether he/she correct or not. Repeat this activity to some other students by writing different ordered pairs on the board.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about identifying the coordinates of the given points on a coordinate plane. Ask Them: Do you know how can we identify the coordinates of the given points on a coordinate plane? Encourage students to share their ideas and explanations. Explain that a point on the coordinate plane is represented by an ordered pair (x, y), where "x" is the value along the x-axis and "y" is the value along the y-axis.



Instruct students to open their textbook page 105 and look at the graph that is given in the worked example 1 where we have to find the ordered pair. Instruct to observe the coordinate plane where point A(x, y) is given. Ask them to tell in which quadrant the point A lies? Take their responses and tell them that the point lie in the first quadrant so both x and y are positive. Tell them to find the value of x starts from the origin and move along x-axis until we are exactly under point A. We can see that the x-coordinate here is 5. Here 5 indicate that you have moved five units to the right (positive) along the x-axis. This is the x-coordinate, (the first number in the ordered pair).

Now to find the y-coordinate the second number in the ordered pair, starts from the origin and move along y-axis upward until we are front of the point A. Here 3 indicate that you have moved three units upward (positive) along the y-axis. So, the x-coordinate 5 and y-coordinate 3 make the ordered pair (5, 3). Explain each step with detail to them and encourage them to ask question if they have any confusion.

Activity:

Have students open page 107 of their textbooks. Ask them to find the coordinates of the points (A, B, C, D, E, F) of Q4 of “Learning Check 7.3” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3min)**

Sum up the lesson by recalling with students how to find the coordinates of the point on coordinate plane and also explain “Note to Remember” given at pages 105 and 106 of their textbook.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Assessment: **(5min)**

To asses' students understanding ask them to tell the steps to find the coordinates of the points on the coordinate plane.

Homework: **(2 min)**

Solve Q4 (G, H, J, K, M, N, O, P, Q) and draw table to show all the order pairs.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 6

Unit Name: Linear Equations and Coordinate System **Topic:** Plotting the ordered pairs in the coordinate plane **Date:** _____

Objective(s):

At the end of this period, the students will be able to:

Plot the given points on a coordinate plane.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 106 and 107, Coordinate plane or graph paper

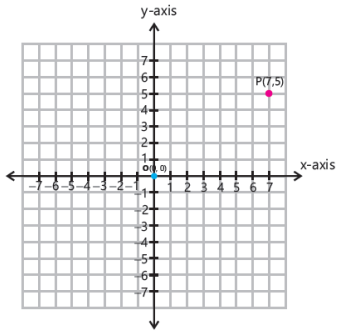
Teaching & Learning Activities:

Opening Activities/Warm-up: **(8 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: how can we identify the coordinates of the given points on a coordinate plane? Take their responses and paste a coordinate plane on the board and draw a point on the coordinate plane. Call a student to front of the class and ask him/her to find the coordinates of the point. Ask the rest of the class to check and tell he/she correct or not. Appreciate him/her for doing correct work. Repeat this activity to some other students by drawing different points on the coordinate plane.

Main Activities/Concept Building: **(22 min)**

Tell students that today we will learn to plot the given points on a coordinate plane. Ask them: Do you know how we can plot the any point on the coordinate plane? Encourage students to share their ideas and explanations. After taking their responses, tell them that we plot the ordered pairs by using the following some steps. Instruct students to open their textbook page 106 and read the statement of the worked example 1 part a where we have to plot point P(7, 5) on the coordinate plane. Ask students to observe the coordinates of the point and tell in which quadrant the given point lie. Take their responses and tell them that as the coordinates of the point are positive so it lies in the first quadrant. Paste the coordinate plane on the board and draw its coordinates x-axis, y-axis and also mention its origin. As the x-coordinate is 7 so starts from the origin move 7 steps along the x-axis and then count 5 units along the y-axis in the positive direction and mention the ordered pair. Explain each step to them and encourage them to ask question if they have any confusion. For more explanation plot the point S(8, -6) as given in the part b of the worked example 1 on the coordinate plane. Tell students if one the x-coordinate is zero then the point lie on the y-axis and if the y-coordinate is zero then the point lie on the x-axis. Tell students in point (0, 2) as x- coordinate is zero and y-coordinate is positive so it lies on the y-axis. The Point (-5, 0) the y-coordinate is zero and the x-coordinate is negative so the given point lies in the quadrant II on the x-axis.



Activity:

Have students open page 107 of their textbooks. Ask them to solve Q3 (a-c) of “Learning Check 7.3”. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3min)**

Sum up the lesson by re-telling students the steps to plot points on the coordinate plane.

Assessment: **(5min)**

To asses students' understanding ask them to solve Q3 (d, e) of “Learning check 7.3” given at page 107.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Homework: **(2 min)**

Solve Q3 (f-j) of "Learning check 7.3" given on page 107 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

Term: 2 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 7

Unit Name: Linear Equations and Coordinate System **Topic:** Graphs of Linear Equations in one variable

Date: _____

Objective(s):

At the end of this period, the students will be able to:

Identify how to plot the graph of linear equation in one variable.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 108, 109 and 111

Teaching & Learning Activities:

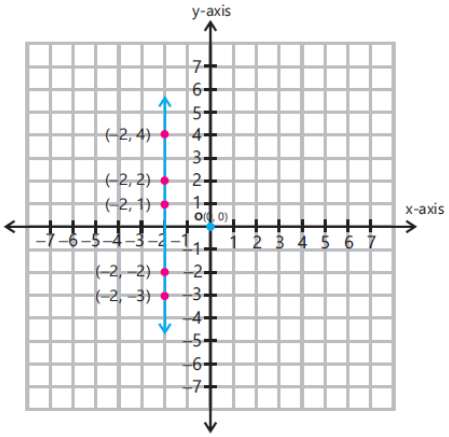
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: how can we plot the coordinate of the points on the coordinate plane? Take their responses and then write two different coordinates on the board and call a student to front of the class and ask him/her to plot these two points on the coordinate plane. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by asking them to plot the given points on the coordinate plane.

Main Activities/Concept Building: **(25 min)**

Tell students that today we will learn how to plot the graph of the linear equation in one variable. Ask students what is meant by linear equation in one variable. Take their response and tell them that the equation with one variable is called the linear equation in one variable. Write the equation ax + b = 0 on the board and explain to them this is the general form of the linear equation in one variable. Ask them: Do you know how can we plot the graphs of linear equation in one variable? Encourage students to share their ideas and explanations. After taking their responses, tell them that the graph of a linear equation in one variable is always a straight vertical line or a straight horizontal line as there is only one variable. Tell them that we can draw graphs of linear equations by using the coordinate plane. Ask students to open their textbook page 108 and observe the worked example 1 where we plot a graph for the linear equation in one variable 2x + 4 = 0. Tell students first we find the value of x.



$2x + 4 = 0$ $2x = -4$ or $x = -\frac{4}{2} = -2$

Now for the required graph, the value of x will always be -2. As x is always -2, y can take any value and it will never affect the value of x. Let's put some values for y.

x	-2	-2	-2	-2	-2
y	1	2	-2	-3	4

Plot the given points on the graph paper step by step and explain each step to them and then draw a vertical line that passes through x = -2 and different values of y that does not affect the value of x. Instruct

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students to ask question if they have any confusion. For more explanation solve the worked example 2 on the board and explain each step to them.

Sum Up: **(3min)**

Sum up the lesson by re-telling students how to plot the graph of the linear equation in one variable. And also explain “Note to remember” given at page 108 and 109 of their textbook.

Assessment: **(5min)**

To assess students' understanding ask them to tell the step to plot the graph of the linear equation in one variable.

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 1

Unit Name: Linear Equations and Coordinate System **Topic:** Graphs of Linear Equation in one variable

Date: _____

Objective(s):

At the end of this period, the students will be able to:

Plot the graph of linear equation in one variable.

Resource Material:

Chalk/Marker, White/Blackboard, Paper slips of linear equation in one variable, textbook page 111, graph papers,

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: What is meant by linear equation in one variable? How we can plot the graph of the linear equation in one variable? Take their responses and show flash cards of different graphs of linear equation in one variable and ask students to tell which one is the straight vertical and straight horizontal graph and also give reason to it. Appreciate them for their correct answer.

Main Activities/Concept Building: **(25 min)**

Activity 1:

Tell students today we will learn about plotting graph of linear equation in one variable. Ask students to tell the steps to plot the graph of the linear equation in one variable. Take their responses and ask students to open their textbook page 108 and recall how to plot the graph of linear equation in one variable. Now Instruct students to work in pairs and give each pair a graph paper and one paper slip of linear equation of one variable. Instruct them to find the value of the variable and then plot the graph. Walk around and check their work and guide them where they needed. Instruct to raise hand when finished. Then call one by one each pair to the front of the class and ask them to show their working to the whole class and explain the steps to draw the graph. Encourage students to ask questions where they feel confusion. Discuss with them about their common mistakes.

Activity 2:

Instruct students to open their textbook page 111 and solve Q1(a, b, c) in their notebook. Walk around and check their work and correct them where needed. Appreciate them for their good work.

Sum Up: **(3min)**

Sum up the lesson by re-telling students how to plot the graph of the linear equation in one variable by giving different examples.

Assessment: **(5min)**

To assess students understanding, write a simple linear equation in one variable and ask them to tell how to draw a graph of this equation.

Homework: **(2 min)**

Solve Q1 (d, e, f) of “Learning Check 7.4” given at page 111 of their textbook in their notebook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 2

Unit Name: Linear Equations and Coordinate System **Topic:** Graphs of Linear Equation in two variables

Date:

Objective(s):

At the end of this period, the students will be able to:

Identify how to plot the graph of linear equation in two variables.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 109

Teaching & Learning Activities:

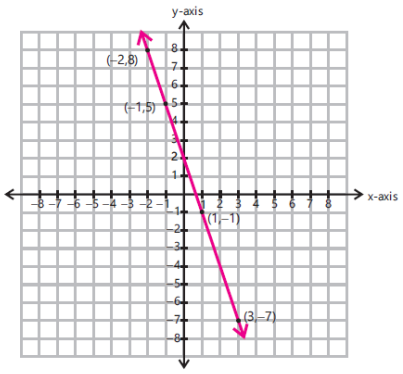
Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: how can we plot the graph of linear equation in one variable? Take their responses and then write a linear equation in one variable on the board and call a student to front of the class and ask him/her to draw a graph from the given linear equation in one variable. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell students that today we will learn how to plot the graph of the linear equation in two variables. Ask students what is meant by linear equation in two variables. Take their response and tell them that the equation with two variables is called the linear equation in two variables. Write the equation ax + by = c on the board and explain to them this is the general form of the linear equation in two variables. Ask them: Do you know how can we plot the graphs of linear equation in two variables? Encourage students to share their ideas and explanations. After taking their responses, tell them that we can draw graphs of linear equations by using the coordinate plane.



Ask students to open their textbook page 109 and observe the worked example 1 where we plot a graph for the linear equation in two variables 3x + y = 2.

Tell students to plot the graph of linear equation in two variables we will find the few pairs of numbers for x and y which satisfy the equation 3x + y = 2. Tell them that as the equation is one and the variables are two so, we can find the points by choosing a few values for x and putting those in the equation to find the respective y values. Find values of y for some values of x as given in textbook. Plot the given points on the graph paper step by step and explain each step to them and then draw a line that passes through the points or ordered pairs. Instruct students to ask question if they have any confusion. For more explanation solve the worked example 2 on the board and explain each step to them.

Sum Up: **(3min)**

Sum up the lesson by re-telling students how to plot the graph of the linear equation in two variables.

Assessment: **(5min)**

To assess students' understanding ask them to tell the steps to plot the graph of the linear equation in two variables.

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

Term: 2 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 3

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Unit Name: Linear Equations and Coordinate System **Topic:** Graphs of Linear Equation in two variables

Date:

Objective(s):

At the end of this period, the students will be able to:

Plot the graph of linear equation in two variables.

Resource Material:

Chalk/Marker, White/Blackboard, Paper slips, Textbook page 110 and 111.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: how can we identify the linear equation in two variables to plot on the graph? Take their responses and then write a linear equation in two variables on the board and call a student to front of the class and ask him/her to draw on the graph paper. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: (25 min)

Tell students that today we will learn about to plot the graph of linear equation in two variables. Ask Them: Do you know how can we plot the graph of linear equation in two variables? Encourage students to share their ideas and explanations. After taking their responses, instruct students to open their textbook page 110. Read the statement of worked example 3 and tell them to observe the graph where we have to find the value of x when y is given in part a and also find the value of y when x is given in part b. Solve the example step by step on the board and explain each step to them. Encourage students to ask questions if they have any confusion.

Activity 1:

Tell students today we will learn about plotting graph of linear equation in two variables. Ask students to tell the steps to plot the graph of the linear equation in two variables. Take their responses and ask students to open their textbook page 109 and recall how to plot the graph of linear equation in two variables. Now Instruct students to work in pairs and give each pair a graph paper. Instruct students to open their textbook page 111 and assign each pair one part of the question 2. Instruct them to find the value of the variables and then plot the graph. Walk around and check their work and guide them where they needed. Instruct to raise hand when finished. Then call one by one each pair to the front of the class and ask them to show their working to the whole class and explain the steps to draw the graph. Encourage students to ask questions where they feel confusion. Discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lecture with different examples to plot the graph of linear equation in two variables.

Assessment: (5min)

To assess students' learning, ask them solve "Pause and Try" given at page 111 of their textbook.

Homework: (2 min)

Solve Q3 of "Learning check 7.4" given on page 111 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 4

Unit Name: Linear Equations and Coordinate System **Topic:** Sum Up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 7 by solving Q1-4 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, textbook pages 111 and 112.

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Linear Equations and Coordinate System”. Ask them the different questions that are related to “Linear Equations and Coordinate System”.

Main Activities/Concept Building: **(30 min)**

Activity:

Have students open pages 112 of their textbooks. Ask them to solve Q1 to Q3 of “Unit Check 7”. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 111.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q4 of “Unit Check 7” given at page 112 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 5

Unit Name: Linear Equations and Coordinate System **Topic:** Sum Up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 7 by solving Q5-8 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, textbook pages 111, 112 and 113

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Linear Equations and Coordinate System”. Ask them the different questions that are related to “Linear Equations and Coordinate System”.

Main Activities/Concept Building: **(30 min)**

Activity:

Have students open pages 112 and 113 of their textbooks. Ask them to solve Q5 to Q7 of “Unit Check 7”. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 111.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q8 of “Unit Check 7” given at page 113 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 6

Unit Name: Linear Equations and Coordinate System **Topic:** Sum Up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 7 by solving Q9-11 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, textbook pages 113 and 114, Scoring sheet, Glue stick, Stickers or symbols for different places (park, hospital, school, bank, masjid, toy shop, fabric store, etc.), Large Cartesian plane sheets for each group

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit "Linear Equations and Coordinate System". Ask them the different questions that are related to "Linear Equations and Coordinate System".

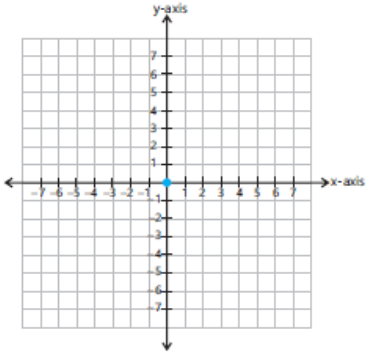
Main Activities/Concept Building: **(30 min)**

Activity1:

Have students open page 113 of their textbooks. Ask them to solve Q9 of "Unit Check 7". Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students today, we will be performing a math project (work with math) give at page 114 of their textbook.



- Get students into groups
- Give each group a large Cartesian plane sheet and instruct them to prepare or arrange symbols/small pictures/tags of various places around them.
- Then ask them to paste these stickers or pictures on specific points on the cartesian plane.
- Then challenge other groups to find the ordered pair related to the place.
- Alternatively, challenge the other groups to paste any sticker at a specific point (by mentioning the ordered pair related to it).
- Then give a point on each correct response and a negative point for each wrong one.
- At the end, the group with the greatest score will be announced as the winner.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points of the whole unit "Linear Equations and Coordinate System".

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q9 and Q10 of "Unit Check 7" given at page 113 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 7

Unit Name: Polygons and Circles **Topic:** Quadrilaterals and their Properties **Date:**

Objective(s):

At the end of this period, the students will be able to:

Recognize the properties (including lines of symmetry) of squares and rectangles and use them to find unknown angles.

Resource Material:

Chalk/Marker, White/Blackboard, Paper Slips, Textbook page 115, 116 and 119

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about previous day homework. Have students open textbook at page 115. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Walk around and check their work. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers***: *The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners.*)

Main Activities/Concept Building: **(27 min)**

Before the main concept, tell them briefly about the unit outline and its real-life relevance. Tell students today we will recognize the properties (including lines of symmetry) of squares and rectangles and use them to find unknown angles. Ask students: Do you know about the quadrilaterals. Instruct students to open their textbook page 116 and tell them that quadrilateral is the four-sided figure with fur angles and four vertices. Tell students the sum of all the interior angles of a quadrilateral is 360^{o}. Tell students to look at the square ABCD that is given in the textbook page 116 and observe its sides and vertices. Tell them that it has four sides and four angles, and all four sides are equal in length. All four angles in a square shape is 90^{0}. The opposite sides are parallel and the sides adjacent to each other are perpendicular each other. Tell them that the sum of any two adjacent interior angles of a square equals 180^{0}. Now Point out towards the rectangle shape given in the textbook and tell them that in rectangle opposite sides are equal and each angle is of 90^{o}. In a rectangle, the adjacent sides are perpendicular to each other. The sum of any two adjacent interior angles of a rectangle equals 180°. Ask students what is meant by line of symmetry? Take their responses and tell them that as square have four equal sides so it has four lines of symmetry and the rectangle has opposite sides equal in length so it has two lines of symmetry. Encourage students to ask questions if they have any confusion.

Activity:

Make pairs of students. Instruct to discuss with each other the properties such as sides, angles, adjacent sides and their angles and lines of symmetry. Walk around and observe their working and correct them where needed. After completing their task instruct them to share their working with other pairs. Appreciate them for their good work.

Sum Up: **(3min)**

Sum up the lesson by recalling with students about the properties of square and rectangle.

Assessment: **(5min)**

To assess students' understanding ask them about properties of square and rectangle.

Homework: **(2 min)**

Revise the classwork.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 1

Unit Name: Polygons and Circles **Topic:** Parallelogram **Date:**

Objective(s):

At the end of this period, the students will be able to:

Recognize the properties (including lines of symmetry) of parallelogram use them to find unknown angles.

Resource Material:

Chalk/Marker, White/Blackboard, Paper Slips, Textbook page 116, 117, 119 and 120

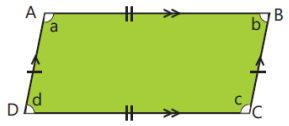
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: How many sides and sum of angles in a square or rectangle. How many lines of symmetry are there in a square or rectangle? Take their responses then draw a square and rectangle on the board. Call a student to the front of the class and ask him/her to write their sides, angles, and draw lines of symmetry. Ask the rest of the class to check and tell whether he/she correct or not. Repeat this activity to some other students of the class and appreciate them for their active participation.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will recognize the properties (including lines of symmetry) of parallelogram use them to find unknown angles. Ask them: Do you know about parallelogram shape? Take their responses and tell them that parallelogram is a quadrilateral that has four sides and four vertices. Draw a parallelogram on the board and instruct them to observe the shape and tell them that the side AD = BC and DC = AB, side AD is parallel to BC and AB is parallel to DC. Point out towards the angles of the parallelogram and tell students that opposite angles in a parallelogram are equal i.e., $\angle a = \angle c$ and $\angle b = \angle d$. Explain them each pair of angles between any two parallel sides in a parallelogram add up to 180^0. Ask students to open their textbook page 116 and 117 and learn more about parallelogram and ask question if they have any confusion. Tell students we can find unknown angles of the parallelogram if one of the angles is given. Instruct students to read the statement of the worked example where EFGH is a parallelogram and $\angle EHG = 82^0$ and we have to find the other 3 angles. Tell students as opposite angles are equal so $\angle EFG = 82^o$. Now $\angle EHG$ and $\angle HGF$ make a pair of angles between parallel lines EH and FG.



$\angle EHG + \angle HGF = 180°$ $\angle HGF = 180° - \angle EHG = 180° - 82° = 98°$

Again, $\angle HGF$ and $\angle HEF$ are equal because they are opposite each other that is $\angle HEF = 98°$. Explain each step to them and instruct to ask question where they feel confusion. Instruct students to look at the parallelogram on the board and draw line in the mid of the parallelogram. Tell them that when we fold the parallelogram it is two parts not match with each other so it has no line of symmetry.

Activity:

Have students open page 119 of their textbooks. Ask them to solve Q2 (a, b) of “Learning Check 8.1” of their textbooks. Walk around the class, check their work and appreciate them for the correct solutions.

Sum Up: **(3min)**

Sum up the lesson by recalling with students about the properties of parallelogram and how we find unknown angles.

Assessment: **(5min)**

To asses students' understanding asks them to solve Q2(c) in their notebooks.

Homework: **(2 min)**

Solve Q2 (d) and Q6 (a) of “Learning check 8.1” given on page 119 and 120 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 2

Unit Name: Polygons and Circles **Topic:** Rhombus **Date:**

Objective(s):

At the end of this period, the students will be able to:

Recognize the properties (including lines of symmetry) of rhombus use them to find unknown angles.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 117-120

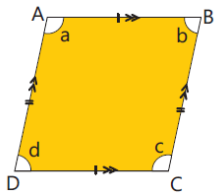
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: Are the opposite sides of a parallelogram parallel? Are the opposite angles in a parallelogram equal in measure? What is the sum of two consecutive angles in a parallelogram? Take their responses and draw a parallelogram ABCD on the board, then call a student to the front of the class and ask him/her to write their parallel sides, angles, and lines of symmetry. Ask the rest of the class to check and tell whether he/she correct or not. Repeat this activity to some other students.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will recognize the properties (including lines of symmetry) of rhombus use them to find unknown angles. Ask them: Do you know about rhombus shape? Take their responses and tell them that rhombus is a quadrilateral that has four sides and four vertices. Draw a rhombus on the board and instruct them to observe the shape and tell them that the side AD is parallel to BC and AB is parallel to DC. All the sides are equal in length and opposite angles are equal. Each pair of angles between any two parallel sides of a rhombus add up to 180°. Ask students to open their textbook page 117 and learn more about rhombus and ask question if they have any confusion. Tell students we can find unknown angles of the rhombus if one of the angles is given. Instruct students to read the statement of the worked example where PQRS is a rhombus and $\angle QRS = 110^0$ and we have to find the other 3 angles. Tell students as opposite angles are equal so $\angle QPS = 110^o$. Each pair of angles between any two parallel sides adds up to 180°.



$\angle PSR = 180° - \angle QRS = 180° - 110° = 70°$ $\angle PSR = \angle PQR$, so $\angle PQR = 70^\circ$

Explain each step to them and instruct to ask question where they feel confusion. Instruct students to look at the rhombus on the board and draw line in the mid of the rhombus. Tell them that when we fold the rhombus it is two parts not match with each other so it has no line of symmetry.

Activity:

Have students open page 119 of their textbooks. Ask them to solve Q3 (a, b) of “Learning Check 8.1” of their textbooks. Walk around the class, check their work and appreciate them for the correct solutions.

Sum Up: **(3min)**

Sum up the lesson by recalling with students about the properties of rhombus and how we find unknown angles.

Assessment: **(5min)**

To asses students' understanding asks them to solve Q3(c) in their notebooks.

Homework: **(2 min)**

Solve Q3 (d) and Q6 (d) of “Learning check 8.1” given on page 119 and 120 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 3

Unit Name: Polygons and Circles **Topic:** Trapezium **Date:**

Objective(s):

At the end of this period, the students will be able to:

Recognize the properties (including lines of symmetry) of trapezium use them to find unknown angles.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 118- 120

Teaching & Learning Activities:

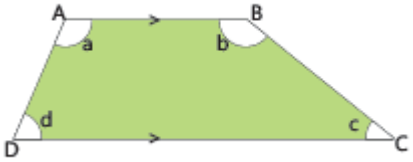
Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: How many sides and vertices of the rhombus? What is the sum of the angles between any two parallel sides of the rhombus? Take their responses and draw a rhombus ABCD on the board, call a student to the front of the class and ask him/her to write their parallel sides, angles, and lines of symmetry. Ask the rest of the class to check and tell whether he/she correct or not. Repeat this activity to some other students and appreciate them for their correct work.

Main Activities/Concept Building: **(25 min)**

Tell students today we will recognize the properties (including lines of symmetry) of trapezium use them to find unknown angles. Ask them: Do you know about trapezium shape? Take their responses and tell them that trapezium is a quadrilateral that has four sides and four vertices.



Draw a trapezium on the board and instruct them to observe the shape and tell them that it has only one pair of parallel sides. All the sides are not equal in length. Each pair of angles between the two parallel sides adds up to 180°. Ask students to open their textbook page 118 and learn more about trapezium and ask question if they have any confusion. Instruct students to read the statement of the worked example where EFGH is a trapezium and one of the angle that is 55^o is given and we have to find the angle h or $\angle h$. Tell students as each pair of angles between the two parallel sides add up to 180°.

$\angle h + 55^o = 180°$ $\angle h = 180° - 55° = 125°$

Explain each step to them and instruct to ask question where they feel confusion. Instruct students to look at the trapezium on the textbook page 120 and then draw it on the board. Draw a line in the mid of the trapezium. Tell them that when we fold the trapezium its two parts match with each other so it has one line of symmetry. Tell students in isosceles trapezium are the trapezium in which non-parallel sides are equal in length and have line of symmetry.

Activity:

Have students open page 120 of their textbooks. Ask them to solve Q4 (a, b) of “Learning Check 8.1” of their textbooks. Walk around the class, check their work and appreciate them for the correct solutions.

Sum Up: **(3min)**

Sum up the lecture by retelling about the key points of the lesson, emphasizing the properties of trapezium, lines of symmetry, and how this knowledge can be used to find unknown angles.

Assessment: **(5min)**

To asses students' understanding asks them to solve Q4(c) of “Learning Check 8.1” of their textbooks in their notebooks.

Homework: **(2 min)**

Solve Q4 (d) and Q6 (c) of “Learning check 8.1” given on page 120 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 4

Unit Name: Polygons and Circles **Topic:** Kite **Date:**

Objective(s):

At the end of this period, the students will be able to:

Recognize the properties (including lines of symmetry) of kite use them to find unknown angles.

Resource Material:

Chalk/Marker, White/Blackboard, Paper Slips, Textbook page 118-120

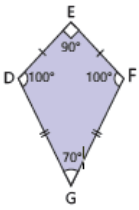
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: What are the properties of a trapezium? How many lines of symmetry are there in a scalene trapezium? Take their responses and draw a trapezium on the board, then call a student to the front of the class and ask him/her to find the unknown angle in the given figure. Ask the rest of the class to check and tell whether he/she correct or not. Repeat this activity to some other students.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about kite and its properties. Ask them: Do you know about kite shape? Take their responses and tell them that kite is a quadrilateral that has four sides and four vertices. Draw a kite on the board and instruct them to observe the shape and tell them that in kite both pairs of distinct adjacent sides are equal in length. Tell them that opposite sides are not equal in length and only one pair of opposite angles is equal. The sum of the interior angles of the kite is equal to 360°. Ask students to open their textbook page 118 and learn more about kite and ask question if they have any confusion. Instruct students to read the statement of the worked example where a kite is given and two angles are given and we have to find the angles ∠A and ∠C. Tell students as we know that the sum of all the angles in a kite equal 360° and one pair of opposite angles is equal. As angle A and Angle C are opposite to each other so, ∠A = ∠C.

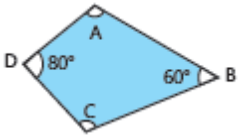


As the sum of angles of the kite is equal to 360° So, ∠A + ∠C + ∠B + ∠D = 360°.

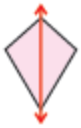
As ∠A = ∠C

∠A + ∠A + ∠B + ∠D = 360° 2(∠A) + 80° + 60° = 360°

2(∠A) = 360° − 140° or A = ∠110° So, ∠A = ∠C = 110°.



Explain each step and instruct to ask question where they feel confusion. Instruct students to look at the kite on the textbook page 120 and then draw it on the board. Draw a line in the mid of the kite. Tell them that when we fold the kite its two parts match with each other so it has one line of symmetry. Ask students to draw kite in their notebooks and draw line of symmetry.



Activity:

Have students open page 120 of their textbooks. Ask them to solve Q5 (a, b) of “Learning Check 8.1” of their textbooks. Walk around the class, check their work and appreciate them for the correct solutions.

Sum Up: **(3min)**

Sum up the lecture by retelling about the key points of the lesson, emphasizing the properties of a kite, lines of symmetry, and how this knowledge can be used to find unknown angles.

Assessment: **(5min)**

To asses students' understanding asks them to solve Q5(c) of “Learning Check 8.1” of their textbooks in their notebooks.

Homework: **(2 min)**

Solve Q1, Q5 (d) and Q6 (b) of “Learning check 8.1” given on page 119 and 120 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 5

Unit Name: Polygons and Circles **Topic:** Polygons **Date:**

Objective(s):

At the end of this period, the students will be able to:

Define polygons and differentiate convex and concave polygons, regular and irregular polygons.

Resource Material:

Chalk/Marker, White/Blackboard, Paper Slips, Textbook page 120 and 121

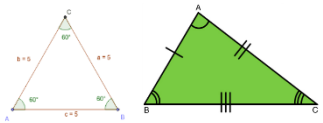
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: Write any two properties of a kite? How many lines of symmetry are there in a kite? Take their responses and draw a kite ABCD with two angles on the board, then call a student to the front of the class and ask him/her to find the remaining two angles in a kite ABCD. Ask the rest of the class to check and tell whether he/she correct or not. Repeat this activity to some other students.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will learn about polygons and types of polygons. Ask them: Do you know about polygons? Take their responses and instruct the students to open their textbook page 120 and tell them that Polygons are closed plane figures having three or more-line segments (sides). Explain them a polygon with three sides is known as a triangle. Repeat the concept of a quadrilateral as a polygon with four sides. Tell them more about a polygon that is polygon with five sides called pentagon, with 6 sides called hexagon, seven sides called heptagon, with eight sides called octagon etc. Now draw two triangles on the board. Point out towards the equilateral triangle and tell them that as all the sides and angles of the triangle are equal so it is called regular polygon. Now point out towards the second triangle and tell them that as in scalene triangle all sides and angles are not equal so it is called the irregular polygon. Similarly all shapes that have equal sides and equal angles are called regular polygon and the polygons with unequal sides and angles are irregular polygons. Explain and differentiate between regular and irregular polygons to show their figures given at the textbook page 121. Now tell them that a polygon where all interior angles are less than 180° is called a convex polygon. A regular triangle, pentagon, hexagon, heptagon, octagon, etc. are all examples of a convex polygon. Explain to them a polygon that has at least one angle greater than or equal to 180° (but less than 360°) is called a concave polygon. Ask students to open their textbook page 121 and learn more about convex and concave polygons.



Activity:

Make pairs of students. Provide each pair cards with various polygons drawn on them. Instruct to identify whether each polygon is convex, concave, regular or irregular. Encourage them to explain their reasoning for each classification. Walk around and check their work and correct where needed. After completing their task instruct them to share their working with other pairs. Appreciate them for their good work.

Sum Up: **(3min)**

Sum up the lesson by retelling about the polygons and its types and also explain “Note to Remember” given at pages 121 of their textbook.

Assessment: **(5min)**

To assess students’ learning, ask them solve “Pause and Try” given at page 121 of their textbook.

Homework: **(2 min)**

Solve Q1 of “Learning check 8.2” given on page 121 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 6

Unit Name: Polygons and Circles **Topic:** Measure of the sum of Interior angles of a Polygon **Date:**

Objective(s):

At the end of this period, the students will be able to:

Calculate the sum of interior angles of a polygon.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 122, 124 and 125

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: What is meant by a polygon? What is a difference regular and irregular polygon? What is the difference between convex and concave polygons? Take their responses and draw two polygons on the board. Ask students to tell whether the polygons are convex or concave, regular or irregular. Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: (25 min)

Tell the students today we will calculate the sum of interior angles of a polygon. Ask them: how can we find the sum of interior angles of a polygon? Take their responses and instruct the students to open their textbook page 122. Tell them that there are two methods to find the sum of the interior angles of a polygon: by using the formula or by dividing the polygons into triangles. First, tell students that we can use the formula $180^0 \times (n - 2)$ to find the sum of the interior angles of any polygon where n is the number of sides of the polygon. Draw a triangle and tell them that as the triangle has 3 sides so, put n = 3 in above formula as $180^0 \times (3 - 2) = 180^0 \times (1) = 180^o$. As we can see that the sum of interior angles of a triangle is 180^o. Instruct students to open their textbook page 122 and observe how to find the sum of the interior angles of the quadrilaterals, pentagon and hexagon. Tell them that another method to find the sum of interior angles of a polygon by dividing the polygons into triangles. Explain to students that the sum of interior angles of a polygon can also be found by simply multiplying 180° by the number of triangles that can be formed inside the polygon (by joining any one vertex with all the other non-adjacent vertices). Write the formula and explain it to students.

Sum of interior angles of a polygon = $180^o \times$ number of triangles formed inside the polygon

Instruct students to read the statement of worked example at page 122. Tell them we have to find the sum of interior angles of a quadrilateral and a pentagon. Solve the example by using two methods step by step on the board and explain each step to them. Encourage students to ask questions if they have any confusion.

Activity:

Have students open page 124 of their textbooks. Ask them to solve Q1 of “Learning Check 8.3” of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3min)

Sum up the lesson by recalling with students how we can find the sum of the interior angles of the polygons.

Assessment: (5min)

Assess students' understanding through their participation in class discussions, their ability to find the sum of interior angles of a polygon on board.

Homework: (2 min)

Solve Q2 of “Learning check 8.3” given on page 125 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 7

Unit Name: Polygons and Circles **Topic:** Measure of each Interior Angle of Regular Polygons **Date:**

Objective(s):

At the end of this period, the students will be able to:

Calculate the measure of each Interior Angle of a regular Polygon.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 123, 124 and 125

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: how to find the sum of interior angles of a polygon by using formula? How to find the sum of interior angles of a polygon by dividing the polygons into triangles? Take their responses and draw a polygon on the board ask them to find the sum of interior angles of the given polygon. Appreciate them for their correct answer.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will calculate the measure of each interior angle of a regular polygon. Ask them: Do you know how we can measure each interior angle in a polygon? Take their responses and instruct the students to open their textbook page 123. Tell the students that if we know the sum of the interior angles of a polygon, then we can find each angle of a polygon easily. As all the angles of the regular polygon are equal in measure so when we have sum of the interior angles of any polygon and number of angles we can easily find the measure of each angle of that polygon. Explain students that we can find each angle of a polygon by using the formula that is:

$$\text{Each interior angle of a regular polygon} = \frac{\text{Sum of the interior angles of the regular polygon}}{\text{Number of interior angles of the regular polygon}}$$

As we now that the sum of the interior angles of the polygon = $180^0 \times (n - 2)$

$$\text{Each interior angle of a regular polygon} = \frac{180^o \times (n - 2)}{\text{Number of interior angles of the regular polygon}}$$

Explain them a pentagon has five sides and putting the value of n = 5 in the formula, we can get each angle.

$$\text{Each interior angle of a regular pentagon} = \frac{180^o \times (5 - 2)}{5} = \frac{180^o \times 3}{5} = \frac{540^o}{5} = 108^o$$

For more explanation solve the different examples of hexagon, heptagon and octagon on the board step by step and explain each step to students. Encourage students to ask questions if they have any confusion.

Activity:

Get students into pairs. Assign each pair one regular polygon and instruct to measure each of the interior angle of regular polygon. Walk around and check their work and guide them where required. After completing work call one by one each pair to the front of the class and ask him/her to show their working to the whole class. Appreciate them for their good work and discuss with them about their common mistakes.

Sum Up: **(3min)**

Sum up the lecture by retelling about to find each angle of a polygon by using the formula and also explain "Note to Remember" given at pages 123 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 123 of their textbook.

Homework: **(2 min)**

Solve Q3 of "Learning check 8.3" given on page 125 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 1

Unit Name: Polygons and Circles **Topic:** Relation between Interior and Exterior Angles of a Polygon **Date:**

Objective(s):

At the end of this period, the students will be able to:

Identify the relationship between interior and exterior angles of a polygon.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 123, 124 and 125

Teaching & Learning Activities:

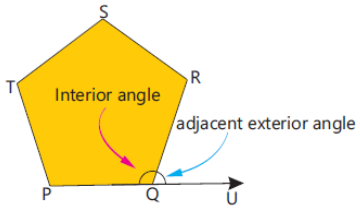
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: how can we find each interior angle in a polygon? Take their responses and draw a polygon on the board then ask them to find each interior angle of the given polygon. Repeat this activity by drawing different polygons on the board. walk around and check their work and appreciate them for their good work.

Main Activities/Concept Building: **(25 min)**

Tell the students that today we will identify the relationship between interior and exterior angles of a polygon. Ask them: Do you know about interior and exterior angles of the polygon? Take their responses and tell them that the interior angle of a polygon is an inside angle at one of its vertices. An angle outside the polygon formed by one of its sides and the extension of an adjacent side is called an exterior angle. Tell the students to look at the figure given on page 123 of the textbook and learn more about interior and exterior angles of the polygon. Explain to them that the sum of an interior angle and its adjacent exterior angles in any polygon equals 180^{o}, which forms a linear pair. Ask students to open their textbook page 123 and look at the pentagon and observe its interior and exterior angles that are:



Interior angle + adjacent exterior angle = 180^0 or $\angle PQR + \angle RQU = 180^0$

For more clarification draw different regular and irregular polygons on the board and explain about its interior and exterior angles and their relationship. Encourage students to ask questions if they have any confusion.

Activity:

Have students open page 124 of their textbooks. Ask them to solve Q6 and Q7 of "Learning Check 8.3" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3min)**

Sum up the lecture by retelling about relationship of interior and exterior angles of a polygon and also explain "Note to Remember" given at pages 124 of their textbook.

Assessment: **(5min)**

Assess students' understanding through their participation in class discussions, their ability to find the relationship between interior and exterior angles of different polygons.

Homework: **(2 min)**

Solve Q8 of "Learning check 8.3" given on page 125 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 2

Unit Name: Polygons and Circles **Topic:** Relation between Interior and Exterior Angles of a Polygon **Date:**

Objective(s):

At the end of this period, the students will be able to:

Identify the relationship between opposite interior and exterior angles in a triangle.

Resource Material:

Chalk/Marker, White/Blackboard, Paper slips, Textbook page 124 and 125.

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

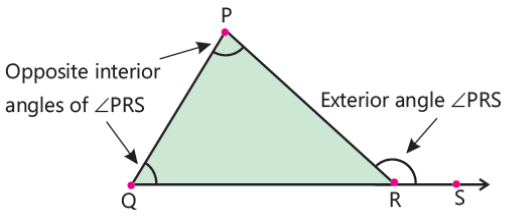
Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: how can we find the interior and exterior angles of a polygon? Take their responses and draw a pentagon with four interior angles on the board, then call a student to the front of the class and ask him/her to find the fifth unknown angle in the given hexagon also Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell the students that today we will identify the relationship between opposite interior and exterior angles in a triangle. Ask them: How can we identify the opposite interior and exterior angles of a triangle? Take their responses and tell them to look at the figure of textbook page 124. We can see that a triangle PQR have three sides and three interior angles. Draw two opposite interior angles and one exterior angle. We conclude that the measure of an exterior angle of a triangle is equal to the sum of the measures of the two opposite interior angles. So, from the figure, we can say that:

$\angle QPR + \angle PQR = \angle PRS$.

Tell them a triangle has 3 interior angles that add up to 180^o and each vertex has two exterior angles. For more explanation, draw different types of triangle on the board step by step and explain each step in detail to students. Encourage students to ask questions if they have any confusion.



Activity:

Instruct students to work in pairs and assign each student a triangle drawn on paper slip. Ask students to observe the triangle and find the interior and exterior unknown angles. Walk around and check their work and guide them where required. After completing task instruct to share their working with the whole class. discuss with them about their common mistakes and appreciate them for their good work and active participation.

Sum Up: **(3min)**

Sum up the lecture by retelling about to find the relationship between opposite interior and exterior angles of a polygon.

Assessment: **(5min)**

Assess the students' understanding through their participation in class discussions, their ability to find opposite interior and exterior angles of different types of triangles.

Homework: **(2 min)**

Solve Q4 of "Learning check 8.3" given at page 125 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 3

Unit Name: Polygons and Circles **Topic:** Exterior Angles of a Polygon **Date:**

Objective(s):

At the end of this period, the students will be able to:

Calculate the exterior angles of a polygon.

Resource Material:

Chalk/Marker, White/Blackboard, Paper slips, Textbook page 124 and 125

Teaching & Learning Activities:

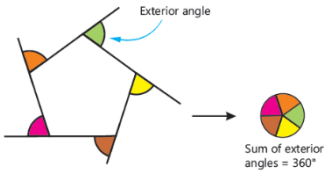
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: how can we find the opposite interior and exterior angles of a triangle? Take their responses and draw a triangle with two interior angles on the board, then call a student to the front of the class and ask him/her to find the third unknown angle in the given triangle. Ask the rest of the class to check and tell whether he/she correct or not. Repeat this activity to some other students by drawing different triangles with interior or exterior angles.

Main Activities/Concept Building: **(25 min)**

Tell students that today we will calculate the exterior angles of a polygon. Ask them: Do you know how can we find the exterior angles of a polygon? Take their responses and tell them to look at the given pentagon with the exterior angles marked given at textbook page 124. Explain to them that if we combine all the exterior angles, we can see that they add up to 360°. Tell them if we have any n-sided polygons; the sum of their exterior angles will be 360°. Introduce the formula to find the each of the exterior angles of a regular polygon that is:



Measure of each exterior angle $= \frac{360^o}{Number\ of\ sides\ of\ the\ regular\ polygon}$

Draw pentagon and a hexagon on the board with exterior angles. Ask students to tell how we can find each of the exterior angle of pentagon and hexagon? Take their responses and write the formula and tell them that we can find each exterior angles of any polygon by using this formula. Ask students to tell how many sides a pentagon and a hexagon has? After their correct answer that must be pentagon has 5 and hexagon has 6 sides, find each of the exterior angle on the board step by step and explain each step to them and encourage them to ask question if they have any confusion. For more explanation, find exterior angles of different polygons on the board step by step and explain each step in detail to students.

Activity:

Make pairs of students. Place paper slips of different polygons on the table. Instruct each pair to select two paper slips of their own choice and then find the exterior angle of the given polygon. Walk around and check their work and correct where needed. After completing their task instruct them to share their working with other pairs. Appreciate them for their good work.

Sum Up: **(3min)**

Sum up the lecture by retelling about to how to find the exterior angle of the polygons.

Assessment: **(5min)**

Assess students' understanding through their participation in class discussions, their ability to find each exterior angle of different types of polygons.

Homework: **(2 min)**

Solve Q5 of "Learning check 8.3" given on page 125 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 4

Unit Name: Polygons and Circles **Topic:** Circle and properties **Date:**

Objective(s):

At the end of this period, the students will be able to:

Identify the properties of a circle.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 125, 126 and 127

Teaching & Learning Activities:

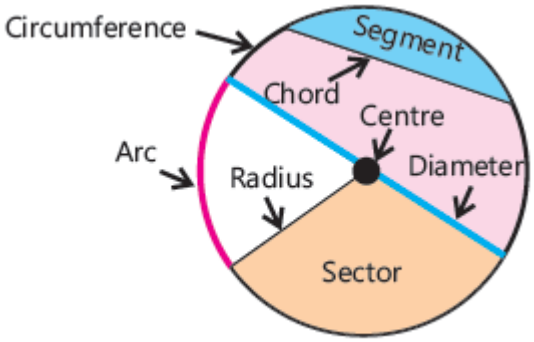
Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: how can you find each exterior angle in a polygon? Take their responses and draw any two polygons on the board. Ask students to find the each exterior angle of the given polygons. Walk around and check their work and guide them where required. Repeat this activity by drawing some other polygons.

Main Activities/Concept Building: **(25 min)**

Tell students today we will identify the properties of a circle. Ask them: Do you know about the circle shape and its parts? Take their responses and draw a circle on the board. Explain them that a circle is a plane figure that is a set of points that lie at the same distance from the centre of it. Show a round clock to students and point out towards their hands and tell them look at the hands of the clock move around a fix point and make a circle. Instruct students to open the textbook page 126. Briefly explain the parts of the circle like centre, radius, diameter, circumference, chord, segment of the circle, arc and semicircle by drawing parts of the circle on the board and pointing each part and tell them about that part. Tell students the difference between chord and diameter of the circle. Tell students the line that passes through centre of the circle and divide the circle into two equal parts, where each part is called semicircle is the diameter of the circle. Then explain to students the difference between the circumference and arc of the circle. Tell them that the boundary of the circle is called circumference of the circle whereas the portion of the circumference of the circle is the arc of the circle. Then explain about major and minor arc to them. Ask students what is the segment of the circle. Take their responses and tell them that when a chord divides the circle into two parts then each part is the segment of the circle. The smaller part is called minor segment and the larger part called the major segment. Encourage students to ask questions if they any confusion. Ask students to open their textbook p[age 125, 126 and 127 and deeply learn about the parts of the circle.



Sum Up: **(3min)**

Sum up the lecture by retelling about the circle and its properties.

Assessment: **(5min)**

Assess students' understanding through their participation in class discussions, their ability to a circle and its properties on board.

Homework: **(2 min)**

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 5

Unit Name: Polygons and Circles **Topic:** Circle and properties **Date:**

Objective(s):

At the end of this period, the students will be able to:

Describe the properties of a circle.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 125, 126 and 127

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: Do you know about the circle shape and the objects that are around us in circle shape. Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: (25 min)

Tell students today we will describe the properties of the circle. Draw a circle and label its parts and briefly explain each part of the circle. Call a student to the front of the class and instruct to draw a circle on the board and label the parts centre, diameter and circumference of the circle. Call another student to the front of the class and instruct to label the chord and segments of the circle. Call another student to the front of the class and ask him/her to label the arc and semicircle of the circle and explain about these parts of the circle. Ask the rest of the class to check their work and correct them if needed.

Activity:

Get students into pairs. Each pair is provided with a tangible circular object, such as a lid, plate, or circular piece of cardboard, to enhance their understanding of circle geometry. The students are tasked with the exciting challenge of identifying and clearly labeling parts of the circle directly on their chosen object, employing markers or tape to make these terms readily visible. Furthermore, the students are encouraged to label accurate measure of the radius, the distance from the center to any point on the circle's edge, and the diameter, a line segment that passes through the center and touches the edge, effectively dividing the circle into two equal halves, segment of the circle, arc of the circle, chord and semicircle of the circle. Once each group has successfully labeled their circle's components, they present their objects to the entire class. During these presentations, students take turns explaining how they labeled the distinct parts and discussing about that parts. Encourage students to tell about the parts of the circle and difference between each part. Appreciate them for their good working and discuss with them about their common confusion points.

Sum Up: (3min)

Sum up the lecture by retelling about the circle and its properties. Also discuss the “Note to remember” given at page 126.

Assessment: (5min)

Assess students' understanding by asking them to solve Q1 of “Learning check 8.4” given at page 127.

Homework: (2 min)

Solve Q2 of “Learning check 8.4” given on page 127 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 6

Unit Name: Polygons and Circles **Topic:** Sum Up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 8 by solving Q1-5 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, textbook pages 128 and 129

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Tell students that they are going to revise all the concepts of the Unit “Polygons and Circles”.
Ask them the different questions that are related to “Polygons and Circles”.

Main Activities/Concept Building: **(30 min)**

Activity:

Have students open pages 128 and 129 of their textbooks. Ask them to solve Q1 to Q4 of “Unit Check 8”.
Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 128.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q5 of “Unit Check 8” given at page 129 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 7

Unit Name: Polygons and Circles **Topic:** Sum Up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 8 by solving Q6-8 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, textbook page 129, Cut-outs of polygons, Glue/thumb pin

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit "Polygons and Circles".

Ask them the different questions that are related to "Polygons and Circles".

Main Activities/Concept Building: **(30 min)**

Activity1:

Have students open page 129 of their textbooks. Ask them to solve Q6 and Q7 of "Unit Check 8". Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students today, we will be performing a math project (work with math).

- Put different cut-outs of 4-sided figures in a large bowl on the table.
- Ask students to come to the board one by one and pick up any two polygons randomly.
- Then instruct him/her to paste the shapes on the board.
- Next, instruct him/her to write the similarities/differences in a table.
- Instruct other students to check if he/she is right.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points of the whole unit "Polygons and Circles".

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q8 of "Unit Check 8" given at page 129 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 1

Unit Name: Linear Equations and Coordinate System **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Linear Equations and Coordinate System”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Ask them a few questions related to the concept of unit “Linear Equations and Coordinate System”.
Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **Solve the following linear equations.**

a) $\frac{x}{3} - 5 = 2$	b) $\frac{(3x-7)}{4} - \frac{x}{2} = 8$

2. **If 5 is less than twice the number is 15, find the number.**

3. **The sum of two consecutive numbers is 13. Find the numbers.**

4. **Amina is currently twice as old as her son. The sum of their ages is 36. How old is Amina?**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 2

Unit Name: Linear Equations and Coordinate System **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Linear Equations and Coordinate System”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Ask them a few questions related to the concept of unit “Linear Equations and Coordinate System”.
Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **Construct the linear equation in two variables for the following.**

   a) **One- third of a number, when added to 12, equals two times another number.**

   b) **A number decreased by 10 is three times another number.**

2. **The price of 2 kg almond and 5 kg walnuts is Rs 4500. Construct a linear equation in two variables for this statement.**

3. **The difference of two numbers is 7. Construct a linear equation in two variables for this statement.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 3

Unit Name: Linear Equations and Coordinate System **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Linear Equations and Coordinate System”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Ask them a few questions related to the concept of unit “Linear Equations and Coordinate System”.
Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: (32 min)

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: (3 min)

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: (0 min)

N/A

Homework: (0 min)

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. Identify the quadrant in which each of these ordered pairs lies.

a) (1, – 3), Quadrant: _____ b) (9, 5), Quadrant: _____

c) (–7, 6), Quadrant: _____ d) (– 6, – 2), Quadrant: _____

2. Plot the given points on a coordinate plane.

A (– 2, 4) B (1, – 8) C(– 5, 0) D (– 3, – 6)

3. Plot the graph for the following equations.

a) $2x - 1 = 5$ b) $14 - 3y = 8$

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 4

Unit Name: Linear Equation and Coordinate System **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Polygons and Circles”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Linear Equations and Coordinate System”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

_____

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. Plot the graph for the following equations.

a) $y = -2x$

b) $x - 3y = 1$

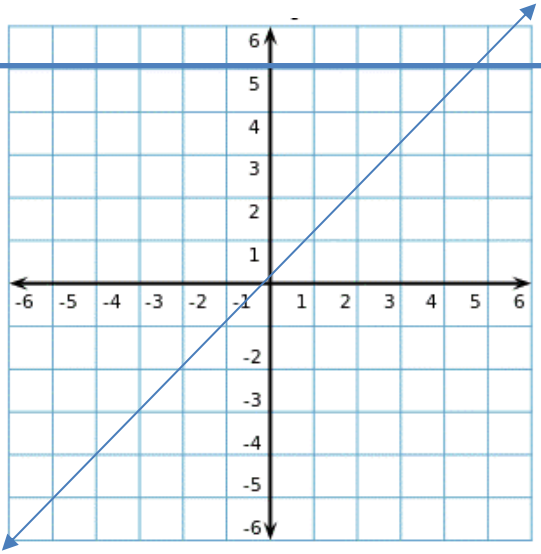
2. Observe the graph and find:

a) The value of y when x = 2.

b) The value of x when y = 3.

c) The value of y when x = – 4.

d) The value of x when y = – 5.



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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 5

Unit Name: Polygons and Circles **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Polygons and Circles”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Ask them a few questions related to the concept of unit “Polygons and Circles”.
Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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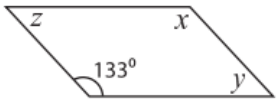
Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

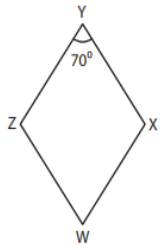
Name: _____ **Date: _____**

1. Find the unknown angles of the following quadrilaterals.

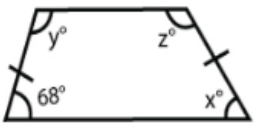
a)



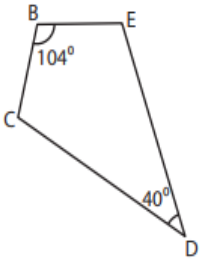
b)



c)



d)



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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 6

Unit Name: Polygons and Circles **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Polygons and Circles”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Polygons and Circles”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

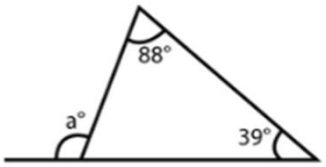
1. **Differentiate between regular and irregular polygons with examples.**

   _____
   _____
   _____
   _____

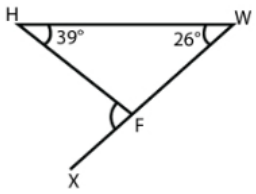
2. **Find the sum of interior angles of a heptagon and an octagon.**

3. **Using the exterior angle property of triangles to find the unknown angles.**

a)



b)



4. **Find the measure of each of the exterior angle of a regular 15-sided polygon.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 2 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 7

Unit Name: Polygons and Circles **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Polygons and Circles”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Polygons and Circles”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

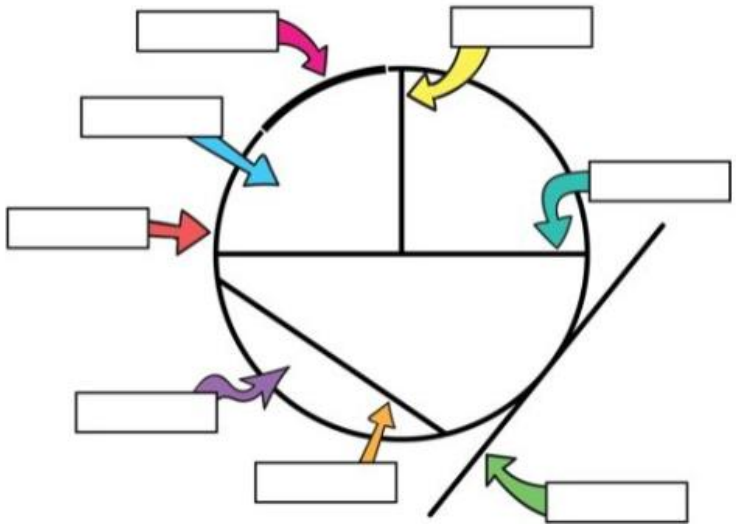
Worksheet

Name: _____ **Date: _____**

1. **The measure of 5 interior angles of an irregular hexagon is 100^0, 145^0, 68^0, 125^0 and 140^0. Find the measure of the 6^{th} interior angle.**

2. **Define the terms centre, arc and circumference, segment and chord of the circle.**

3. **Label the parts of the following circle.**



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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 1

Unit Name: Surface Area and Volume **Topic:** Area and Perimeter of composite shapes **Date:**

Objective(s):

At the end of this period, the students will be able to:

Calculate the area and perimeter of the shaded/unshaded region in composite shapes.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 130-132

Teaching & Learning Activities:

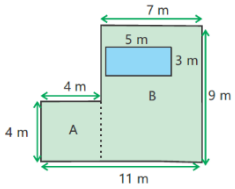
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students: Do you know about area and perimeter of any shape? Take their responses and recall with them what is meant by area and perimeter. Have student's open textbook at page 130. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers***: *The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners*.)

Main Activities/Concept Building: **(25 min)**

Before the main concept, tell them briefly about the unit outline and its real-life relevance. Tell the students today we will calculate the area and perimeter of the shaded/unshaded region in composite shapes. Ask them: What is meant by composite shapes? Take their responses and instruct the students to open their textbook page 131 and tell them that a composite shape is made up of two or more simple shapes placed beside each other. Explain them that we have to find area or perimeter of a composite figure, divide it further into simple 2-D shapes and then determine the area and perimeter of different shapes. Instruct students to read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that Ahmad has a garden with a swimming pool in it. We have to find the perimeter and area of the garden as well as the swimming pool. Also, we have to find the area of the garden without the pool. Solve the example step by step on the board and explain each step to them. Encourage them to ask questions if they any confusion. For more explanation, solve the worked example 2 on the board step by step and explain each step in detail to students.



Activity:

Have students open page 132 of their textbooks. Ask them to solve Q1 (a, b) of "Learning Check 9.1" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required. Discuss with them about their common mistake.

Sum Up: **(3min)**

Sum up the lecture by retelling about area and perimeter of composite shapes and also explain "Note to Remember" given at page 132 of their textbook.

Assessment: **(5min)**

To assess students' understanding draw any composite figure and find the area and perimeter of the that figure.

Homework: **(2 min)**

Solve Q2 of "Learning check 9.1" given on page 132 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 2

Unit Name: Surface Area and Volume **Topic:** Circumference of a Circle **Date:**

Objective(s):

At the end of this period, the students will be able to:

Identify how to calculate the circumference of a circle.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 133-134

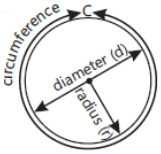
Teaching & Learning Activities:

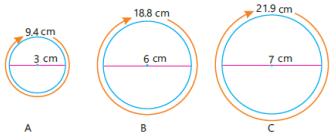
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students how to find the area and perimeter of the composite figures. Take their responses and then call a student to front of the class and ask him/her to draw composite figures and find the area and perimeter of the given composite figures. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will identify how to calculate the circumference of a circle. Ask them: What is meant by circle and circumference? Take their responses and instruct the students to open their textbook page 133 and tell them that a circle is a plain figure whose boundary consists of points equidistant from its centre. Explain to them that perimeter of a square is the total length of its boundary. Similarly, the total length of the boundary of the circle is known as the circumference of the circle. Explain them the relationship between the circumference and diameter. Explain by drawing three circles with the following values and diameter.





Circle A: circumference = 9.4 cm, diameter = 3 cm

$\frac{circumference}{diameter} = \frac{9.4\ cm}{3\ cm}$ = 3.14 (approx.)

Circle B: circumference = 18.8 cm, diameter = 6 cm

$\frac{circumference}{diameter} = \frac{18cm}{6\ cm}$ = 3.14 (approx.)

Circle C: circumference = 21.9 cm, diameter = 7 cm

$\frac{circumference}{diameter} = \frac{21.9\ cm}{7\ cm}$ = 3.14 (approx.)

Explain them we conclude that take any circle, the ratio of circumference and diameter of any circle is always 3.14 (approx.). Tell them we call for this value as a "Pi" shown by the symbol "π" and this value remains constant. So,

$\pi = \frac{circumference}{diameter} = \frac{C}{d}$

Instruct students to read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that the distance around a circular-shaped ground is 4458.75 m. We have to find the radius of the ground. Solve the example step by step on the board and explain each step to them. For more explanation, solve the worked example 2. Encourage students to ask questions if they have any confusion.

Sum Up: **(3min)**

Sum up the lecture by retelling about circumference of the circle and also explain "Note to Remember" given at page 134 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 133 of their textbook.

Homework: **(2 min)**

Revise the class work.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 3

Unit Name: Surface Area and Volume **Topic:** Circumference of a Circle **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the circumference of a circle.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 134-136

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students how to find the circumference of a circle. Take their responses and then call a student to front of the class and ask him/her to right the formula to find the circumference of a circle if radius or diameter of a circle is given. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students of the class. Appreciate them for their active participation in class.

Main Activities/Concept Building: (25 min)

Tell students today we will calculate the circumference of the circle. Before starting the lesson recall with students the formula to find the circumference of the circle. Tell students if radius or diameter is given we can calculate the circumference of the circle. Tell them that we can also calculate the diameter or radius of the circle if circumference of the circle is given. Instruct students to open their textbook page 134 and read the statement of the worked example 3 and tell what is given and what we have to find. Take their responses and tell them that circumference of the circle is given and we have to find the diameter of the circle. Instruct students to find the diameter in their notebook by using the formula. Walk around and check their work and guide them where needed.

Activity:

Divide the class into small groups and distribute circular objects to each group. Instruct students to measure both the diameter and radius of their assigned circle. Guide each group through the process of calculating the circumference using the appropriate formula. Encourage discussions within the groups, ensuring that each member actively participates in the calculations. Circulate among the groups, providing assistance as needed and asking probing questions to reinforce understanding. Have each group present their calculated circumferences to the class. Encourage students to explain their steps and reasoning. Facilitate a brief discussion on any challenges faced and address any misconceptions.

Sum Up: (3min)

Sum up the lecture by retelling about how to find the circumference of the circle when radius or diameter is given.

Assessment: (5min)

To assess students' learning, ask them solve "Pause and Try" given at page 134 of their textbook.

Homework: (2 min)

Solve Q1, Q2 for circumference, Q3 and Q4 of "Learning check 9.2" given on page 136 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 4

Unit Name: Surface Area and Volume **Topic:** Area of a Circle **Date:**

Objective(s):

At the end of this period, the students will be able to:

Identify how to calculate the area of a circle.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 134-135

Teaching & Learning Activities:

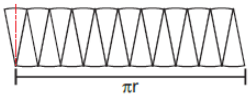
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students how to find the diameter of the circle if the circumference of the circle is given. Take their responses and then call a student to front of the class and ask him/her to draw a circle and write the relationship between circumference and diameter of the circle. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will identify how to calculate the area of a circle. Ask them: how to find the area of a circle? Take their responses and instruct the students to open their textbook page 134 and tell them that the area of a circle is all the space inside the circumference of circle. Draw a circle on the cardboard. Divide the circle into an even number of equal sectors. The circle is divided into 20 equally sized sectors. Then arrange the sectors so that they all line up in one line as shown in the figure. Next, flip half of the sector over and position it as shown in the image. Divide one of these sectors into two equal parts and place them at each end. You can see that it is rectangular. Explain to them that he radius of the circle is the width of this rectangle. The circumference is $2\pi r$. Tell them that as half the length of the circumference is on one side, the length of this rectangle is $\frac{1}{2} \times 2\pi r = \pi r$.



Explain them that the area of the given rectangle is equal to the area of the circle. Area of a circle = The area of a rectangle

= length × width

$= (\pi \times radius) \times radius = \pi(radius)^2 = \pi r^2$

Read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that the radius of the circle is 3 cm. We have to find the area of the circle. Solve the example step by step on the board and explain each step to them. For more explanation, solve the solve different example related to area of the circle on the board step by step and explain each step in detail to students. Encourage students to ask questions if they have any confusion.

Sum Up: **(3min)**

Sum up the lecture by retelling about the formula and examples related to area of a circle and also explain "Note to Remember" given at page 135 of their textbook.

Assessment: **(5min)**

To assess students' learning, draw a circle with radius 6 cm and find the area of the given circle.

Homework: **(2 min)**

Revise the class work.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 5

Unit Name: Surface Area and Volume **Topic:** Area of a Circle **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the area of a circle.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 135-136

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students how to find the area of a circle. Take their responses and then call a student to front of the class and ask him/her to write the formula to find the area of the circle. Ask the rest of the class to check and correct if required. Repeat this activity to some other students of the class. Appreciate them for telling the correct formula to find the area of the circle.

Main Activities/Concept Building: (25 min)

Tell the students today we will calculate the area of a circle. Begin the lesson by recalling with students the formula to find the area of the circle. Tell them that we can find the area of the circle if radius of the circle is given. The formula to find the area of the circle is πr^2.Instruct students to open their textbook page 135 and read the statement of the worked example 2 and tell what is given and what we have to find. Take their responses and tell them that A circular wooden table top has a radius of 3.5 metres. We have to find the cost of polishing it at the rate of Rs 98 per square metre. Now instruct students to solve the example in their notebook. Walk around and check their work and guide them where needed. Discuss with them about their common mistakes. After this instruct students to solve Q1 and Q2 for area of the circle. Walk around and check their work and guide them where needed.

Activity:

Divide the class into small groups and distribute circular objects to each group. Instruct students to measure the radius of their assigned circle. Guide each group through the process of calculating the area using the formula. Encourage discussions within the groups, ensuring that each member actively participates in the calculations. Circulate among the groups, providing assistance as needed and asking probing questions to reinforce understanding. Have each group present their calculated areas to the class. Encourage students to explain their steps and reasoning. Facilitate a brief discussion on any challenges faced and address any misconceptions.

Sum Up: (3min)

Sum up the lesson by re-telling students how to calculate the area of the circle by using the formula.

Assessment: (5min)

To assess students' learning, ask them solve Q5 and Q6 of "Learning Check 9.2" given at page 136 of their textbook.

Homework: (2 min)

Solve Q7 to Q10 of "Learning check 9.2" given on page 136 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 6

Unit Name: Surface Area and Volume **Topic:** Surface Area of Right Rectangular Prism **Date:**

Objective(s):

At the end of this period, the students will be able to:

Calculate the surface area of right rectangular prism.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 136, 137, 142 and 143

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by showing different circles with various radii. Take their responses and then call a student to front of the class and ask him/her ask to find the area of a circle. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will calculate the surface area of right rectangular prism. Ask students: Do you know about prism and right prism. Take their responses and tell them that a three-dimensional solid with two identical shapes (polygons) facing each other is known as a prism. Explain that these faces are called the base of the prism, and that the base can be triangular, square, rectangular, etc.

Now tell students that a right prism is a prism whose faces and connecting edges are perpendicular to the base. A cuboid is an object whose base is a polygon and whose vertical planes are perpendicular to the base. Tell them that right angle prisms are available in a variety of designs. Let's talk about some of them together along with their surface area. Tell them that a cuboid is another name for a right prism. Explain them that a cuboid has rectangular faces on all sides, and the opposite sides of the rectangle are the same length. The length, width, and height of a cuboid are l, w, and h, respectively. By defining the total surface area of a cuboid, add the areas of its six faces.

The total surface area of the cuboid = $2(l \times w + w \times h + h \times l)$ units

$= 2\ (lw + wh + hl)$

Instruct students to read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that a plastic container has a length, width and height of 8 cm, 5 cm and 4 cm, respectively. We have to find the total surface area and express it in square metres (m^2). Solve the example step by step on the board and explain each step to them. For more explanation, solve the worked example 2 on the board step by step and explain each step in detail to students. Encourage students to ask questions if they have any confusion.

Sum Up: **(3min)**

Sum up the lecture by retelling about definition and examples of surface area of a rectangular prism and also explain "Note to Remember" given at page 137 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 137 of their textbook.

Homework: **(2 min)**

Solve Q1, Q4(a), Q5 and Q10 for surface area of "Learning check 9.3" given on page 142 and 143 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 1 **Lesson Plan:** 7

Unit Name: Surface Area and Volume **Topic:** Surface Area of Right Square Prism **Date:**

Objective(s):

At the end of this period, the students will be able to:

Calculate the surface area of right square prism.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 137, 138 and 142

Teaching & Learning Activities:

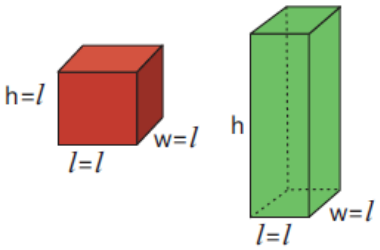
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking about prism and right rectangular prism. Take their responses and then call a student to front of the class and ask him/her write the formula to find the surface area of the right rectangular prism. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will calculate the surface area of right square prism. Ask students: Do you know about right square prism. Take their responses and tell them that a solid with 8 vertices, 6 flat faces, and 12 straight edges is known as a right square prism. Explain them that the bases of a square prism are squares. It contains six faces, two of which are opposite each other and are square in shape; the remaining four faces can either be square or rectangular. Explain them that we can use two formulas for right square prism. If two sides are equal and third side is different then we can use the formula:



Surface area of a right square prism (with rectangular vertical faces) = $2 \times (l \times l) + 4 \times (l \times h)$

$= 2l^2 + 4lh$

Surface area of a right square prism (with square vertical faces) = $2 \times (l \times l) + 4 \times (l \times l)$

$= 6l^2$

Read the statement of the worked example and tell what is given and what we have to find. Take their responses and tell them that A right square prism-shaped steel bar with rectangular vertical sides have a height of 20 cm. We have to find the total surface area of the bar if the length of its square base is 6 cm. Express the answer in mm^2. Solve the example step by step on the board and explain each step to them. For more explanation, solve the different examples on the board step by step and explain each step in detail to students. Encourage students to ask questions if they have any confusion.

Activity:

Have students open page 142 of their textbooks. Ask them to solve Q2 for surface area of "Learning Check 9.3" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3min)**

Sum up the lecture by retelling about definition and examples of surface area of a square prism and also explain "Note to Remember" given at page 138 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 138 of their textbook.

Homework: **(2 min)**

Solve Q4(b) and Q9 for surface area of "Learning check 9.3" given on page 142 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 1

Unit Name: Surface Area and Volume **Topic:** Surface Area of Right triangular Prism **Date:**

Objective(s):

At the end of this period, the students will be able to:

Identify right triangular prism and its surface area.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 138 and 139

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

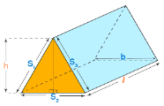
Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking: how to calculate the surface area of right square prism? Take their responses and write land then call a student to front of the class and ask him/her write the formula to find the surface area of the right square prism. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will identify right triangular prism and its surface area. Ask them: how to find the surface area of the right triangular prism? Take their responses and instruct the students to open their textbook, page 138, and tell them that an object with two triangular bases and three rectangular sides perpendicular to the bases is called a right triangular prism. Explain to them that the bases of the two triangles are parallel and identical. Tell them that the length of a triangular prism is the vertical distance between its two bases. Explain to them that there are two bases, which are identical triangles, and three side faces, which are identical rectangles. Tell them about the right triangular prism, as it has five faces, nine edges, and six vertices. Explain to them the following steps to find the surface area of the right triangular prism: In step-I, find the area of the triangular bases of the prism.

Total area of two triangles = $2 \times \frac{1}{2} \times base\ length \times height\ of\ base\ triangle$

= base length × height = b × h



In step-II, determine the product of the perimeter of the base triangle (sum of three sides) and the length of prism such that $(s_1 + s_2 + s_3) \times L$

In step-III, find the sum of all the area, which is the required total surface area.

Total surface area = b × h + $(s_1 + s_2 + s_3) \times L$

Read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that a right triangle prism-shaped house has the following dimensions are given as s_2 = b = 8 m, s_1 = 6 m, s_3 = 6 m, L = 10 m, h = 5 m. We have to find the surface area of the house. Solve the example step by step on the board and explain each step to them. For more explanation, solve the worked example 2 on the board step by step and explain each step-in detail to students. Encourage students to ask questions if they have any confusion.

Sum Up: **(3min)**

Sum up the lecture by retelling about definition and examples to find the surface area of right triangular prism.

Assessment: **(5min)**

To assess students' learning, ask them to find the surface area of the right triangular prism if s_2 = b = 7 m, s_1 = 5 m, s_3 = 3 m, L = 12 m, h = 8 m.

Homework: **(2 min)**

Revise the class work.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 2

Unit Name: Surface Area and Volume **Topic:** Surface Area of Right triangular Prism **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the surface area of right triangular prism.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 142 and 143.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking about prism and right triangular prism. Take their responses and then call a student to front of the class and ask him/her write the number of edges, faces and vertices of right triangular prim. Ask the rest of the class to check and tell he/she correct or not. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: (25 min)

Tell the students today we will calculate the surface area of right triangular prism. Begin by reviewing the formula for the surface area of a right triangular prism: b × h + $(s_1 + s_2 + s_3) \times L$. Introduce the concept of a right triangular prism and discuss its characteristics. Display or distribute triangular prism models or drawings to help students visualize the shape. Instruct the students to open the textbook page 142 and solve Q3 (a-d) on the board step by step and explain each step-in detail to students. Encourage students to ask questions if they have any confusion.

Activity:

Divide the class into small groups. Provide each group with craft materials and instructions to build a right triangular prism. Once the prisms are built, ask each group to measure and record the dimensions of their prism. Instruct each group to calculate the surface area of their prism using the formula discussed in the lesson. Have each group present their prism, dimensions, and surface area to the class. Discuss any variations in results and potential sources of error. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3min)

Sum up the lecture by recalling with students how to calculate the surface area of the right triangular prism.

Assessment: (5min)

To assess students' learning, ask them solve Q12 of "Learning Check 9.3" given at page 142 of their textbook.

Homework: (2 min)

Solve Q4(c) for surface area of the right triangular prism of "Learning Check 9.3" given at page 142 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 3

Unit Name: Surface Area and Volume **Topic:** The Volume of a Rectangular Prism **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the volume of right rectangular prism.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 139, 140, 142 and 143

Teaching & Learning Activities:

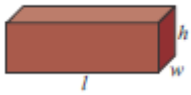
Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking about right triangular prism. Take their responses ask him/her to combine the formula for triangular part and product of perimeter of base triangle and its length. Repeat this activity to some other students by writing different statements or phrases.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will calculate the volume of the right square prism. Ask students: how can we find the volume of a rectangular prism? Take their responses and appreciate if someone gives the right answer. Draw a rectangular prism as given in textbook on the board and tell them that as the rectangle has length width and height. So we can find the volume of the rectangular prism by multiplying its length, width and height.



Instruct students to open their textbook page 139 and 140 and learn more about volume of the right rectangular prism. Draw a right rectangular prism with length 8 cm, width 6 cm and height 7 cm and instruct them to use the formula to find the volume of the right rectangular prism. Solve the example step by step on the board and explain to them as the prism is right rectangular prism. find the volume and explain each step to them. Encourage them to ask questions if they have any confusion. For more explanation, solve the different examples related to right rectangular prim on the board and explain each step to them.

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Activity:

Divide the class into small groups. Provide each group with craft materials and instructions to build a right triangular prism. Once the prisms are built, ask each group to measure and record the dimensions of their prism. Instruct each group to calculate the surface area of their prism using the formula discussed in the lesson. Have each group present their prism, dimensions, and surface area to the class. Discuss any variations in results and potential sources of error. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3min)**

Sum up the lesson by re-telling students how to find the volume of the right rectangular prism.

Assessment: **(5min)**

To assess students’ learning, ask them solve “Pause and Try part 1” given at page 140 of their textbook.

Homework: **(2 min)**

Solve Q1 and Q4(a) and Q6-Q8 for volume of the rectangular prism of “Learning check 9.3” given at page 142 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 4

Unit Name: Surface Area and Volume **Topic:** The Volume of a Square Prism **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the volume of right square prism.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 139-142, paper slips of different right square prism

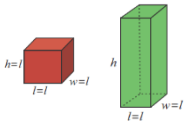
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students about rectangular prism and how to find the volume of the right rectangular prism. Take their responses and then draw a right rectangular prism on the board with length, width and height and instruct students to find the volume of the drawn right rectangular prism. Walk around and check their work and correct if required.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will calculate the volume of the right square prism. Ask students: how can we find the volume of a square prism? Take their responses and appreciate if someone gives the right answer. Draw a square prism on the board and tell students there are two types of the square prism one square prism with rectangular vertical faces and the other one is the right square prism with square vertical faces. Draw both types of prism on the board. Tell students as in right square prism with rectangular prism length and width are same but the height is different so the formula to find the volume of square prism is:



Volume of a square prism (rectangular vertical faces) = length $\times$ width $\times$ height = l $\times$ l $\times$ h= l^2h

Tell students the in right square prism with square vertical faces all sides are of equal length then the volume of the right square prism can be found by using the formula l^3. Instruct students to open their textbook page 139 and 140 and learn more about volume of the right square prism. Now instruct students to read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that we have to find the capacity of the steel container whose length and width is 8 m and height is 10 m. Solve the example step by step on the board and explain to them as the prism is right square prism with rectangular vertical faces so we find the capacity by using formula l^2h. find the capacity in cm3 and explain each step to them. Encourage them to ask questions if they have any confusion. For more explanation, solve the worked example 2 and explain each step to them.

Activity:

Divide the class into small groups. Provide each group paper slips of right square prism and Instruct each group to calculate the volume of the right square prism. After completing task each of the group present their work to the whole class. Discuss any variations in results and potential sources of error. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3min)**

Sum up the lesson by re-telling students how to find the volume of the square prism and also explain “Note to remember” given at page 140 to them.

Assessment: **(5min)**

To assess students’ learning, ask them solve “Pause and Try part 2” given at page 140 of their textbook.

Homework: **(2 min)**

Solve Q2 and Q4(b) for volume of square prism of “Learning Check 9.3” given at page 142 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 5

Unit Name: Surface Area and Volume **Topic:** The Volume of a triangular Prism **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify how to calculate the volume of right triangular prism.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 141, card board

Teaching & Learning Activities:

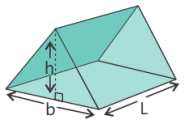
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: What is meant by right square prism and how we can calculate the volume of the right square prism? Take their responses and recall with them the two types of right square prism and the formula to find the volume of the right square prism. Now draw two types of prism on the board and instruct students to find the volume of the given prism. Walk around and check their work and guide them where required.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will identify how to calculate the volume of the right triangular prism. Before starting the lesson ask them: Do you know how to calculate the volume of the right prism? Take their responses and tell them that as we know that a solid with two triangular bases and three rectangular sides perpendicular to the base is known as a right triangular prism. So to calculate the volume of a triangular prism, the values of its base area and length are required. Volume of Triangular Prism = Base Area × Length = B × L



Where b is the base area and L is the length of the right triangular prism. We can calculate the base area of the triangular prism by using the formula: B = ½ ×b × h, Where b is the length of the base, and h is the height of the triangular base. Volume of Triangular Prism = Base Area × Length = B × L = ½ ×b × h × L

Instruct students to open their textbook page 143 and recall with students the formula to find the volume of the right triangular prism. Now instruct students to read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that we have to calculate the volume of the triangular prism-shaped tent of length of the triangular base is 4 m, the height of the triangular base is 5 m and the length of the tent is 8 m. Solve the example step by step on the board and explain each step to them. Encourage students to ask questions where they found any confusion.

Activity:

Divide the class into small groups. Provide each group cardboard and ruler and instructions to made a right triangular prism. Once the prisms are made, ask each group to measure and record the dimensions of their prism. Instruct each group to calculate the volume of their prism using the formula discussed in the lesson. Have each group present their prism, dimensions, and volume to the class. Discuss any variations in results and potential sources of error. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3min)**

Sum up the lesson by recalling with students the formula to calculate the volume of the right triangular prism.

Assessment: **(5min)**

To assess students' learning, ask them to tell the formula to calculate the volume of the right triangular prism.

Homework: **(2 min)**

Revise the class work.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 6

Unit Name: Surface Area and Volume **Topic:** The Volume of a Triangular Prism **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the volume of right triangular prism.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 142 and 143, right triangular prism models or visual aids

Teaching & Learning Activities:

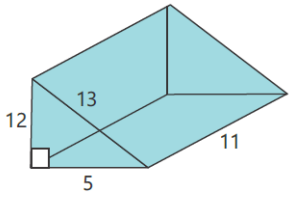
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students what is meant by right triangular prism? What is the formula to find the area of the right triangular prism? Take their responses and appreciate them for the correct answer. instruct students to draw a right triangular prism in their notebook and write its length of base and height. Walk around and check their work.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn to calculate the volume of the right triangular prism. Recall with students the formula to find the volume of the right triangular prism. Instruct students to open their textbook page 142 and read the statement of the worked example 2 and tell what is given and what we have to find. Take their responses and tell them that a right triangular prism is given and we have to find the volume in cm^3. Solve the example on the board step by step and explain each step to them. Encourage them to ask questions if the have any confusion. For more explanation solve different examples of finding volume of right triangular prism on the board and explain each step to them.



Activity:

Divide the class into small groups and distribute right triangular prism models or visual aids to each group. Instruct each group to measure the dimensions of the triangular base and the height of their prism. Guide the students in applying the volume formula to calculate the volume of their right triangular prism. Encourage discussions within the groups, ensuring that each member participates in the calculations. Circulate among the groups, providing assistance as needed and asking probing questions to reinforce understanding. Have each group present their calculated volume to the class. Encourage students to explain their steps and reasoning. Facilitate a brief discussion on any variations in results and address any misconceptions.

Sum Up: **(3min)**

Sum up the lesson by recalling with students how to find the volume of the right triangular prism by using formula.

Assessment: **(5min)**

To assess students' learning, ask them solve Q3 for volume of the right triangular prism of "Learning Check 9.3" given at page 142 of their textbook.

Homework: **(2 min)**

Solve Q4(c) and Q11 of "Learning Check 9.3" given at page 143 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 2 **Lesson Plan:** 7

Unit Name: Surface Area and Volume **Topic:** Surface area and Volume of the cylinder **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify cylinder and its surface area.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 143, 144 and 146

Teaching & Learning Activities:

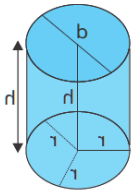
Opening Activities/Warm-up: **(7 min)**

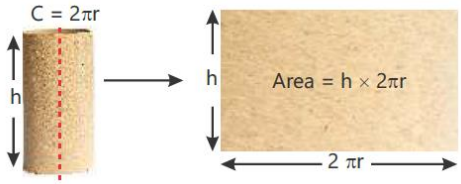
Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by students: What is the right triangular prism and how we can calculate the surface area and volume of the right triangular prism? Take their responses and appreciate for their correct answer. Now ask students to draw a right triangular prism in their notebook and then find surface area and volume of the prism. Walk around and check their work and correct them where needed.

Main Activities/Concept Building: **(23 min)**

Tell the students today we will identify the objects that are of cylinder shape and its surface area. Ask students: Do you know about the cylinder shape objects. Take their responses and tell them that there are many objects that are of cylinder shape for example cell, candle, bucket, drum pipe etc. are the examples of cylinder shape. Draw a cylinder shape as given in the textbook page 143 on the board and instruct students to observe the cylinder and observe its faces. Tell them that a cylinder has 3 faces, 2 flat and one curved face. Now point out towards the height and radius r of the cylinder and tell them that the surface area of the cylinder is the sum of surface area of curved surface and flat surface. Point out towards the flat face that are circular and ask students how we calculate the surface area of the circle? Take their responses and tell that that the area of each circular face is πr^2. As the flat face are two so the surface area of 2 flat face are $2\pi r^2$. Now to calculate the surface area of the curved face. Tell students we take an empty paper roll and cut it along the vertical line as shown in the figure as drawn on the board. We can see that it is rectangular in shape. Now the width of this rectangle is h (height of cylinder) and length is the circumference of the circular face of the cylinder, i.e., $2\pi r$. So, the area of a rectangle = $h \times 2\pi r = 2\pi rh$. Now the total surface area of the cylinder is $2\pi rh + 2\pi r^2$ or $2r\pi(r + h)$. explain to how to find the surface area of the cylinder and encourage students to ask questions if they have confusion. Instruct students to draw a cylinder in their notebooks and then label its flat and curved faces and then find the formula to find the surface area of the cylinder.





Sum Up: **(3min)**

Sum up the lesson by re-telling students about cylinder and its surface area and explain Note to remember given at page 143 to them.

Assessment: **(5min)**

To assess students' learning, by asking students how many flat and curved face a cylinder have? What is meant by surface area of the cylinder?

Homework: **(2 min)**

Revise the class work

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 3 **Lesson Plan:** 1

Unit Name: Surface Area and Volume **Topic:** Surface area of the Cylinder **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the surface area of cylinder.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 143, 144 and 146, cardboard, ruler

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day homework. Begin the lesson by asking students: tell the name of the objects of cylinder shape? How many faces a cylinder has? What is meant by surface area of the cylinder? Take their responses and appreciate the students for their correct answer.

Main Activities/Concept Building: (25 min)

Tell the students today we will calculate the surface area of right cylinder. Ask students: how can we find the surface area of a cylinder? Take their responses and draw a cylinder on the board and recall with students the faces and the formula to calculate the surface area of the cylinder. Instruct students to open their textbook page 143 and144 and learn about cylinder and the surface area of it. Now instruct students to read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that the height and radius of the tin is given and we have to calculate the surface area if the tin is open at both ends. Tell them that as the both flat faces are open so the surface area of the tin is only the surface area of the cylinder that is $2\pi rh$. Now put the values and solve step by step on the board. Explain each step to them and encourage to ask question if they have any confusion. For more explanation, solve the worked example 2 on the board and explain it to students.

Activity:

Divide the class into small groups. Provide each group cardboard to make cylinder. Once the cylinder made by cardboard, ask each group to measure and record the length of it and the radius. Instruct each group to calculate the surface area of their cylinder using the formula. Have each group present their cylinder, its height and radius and surface area to the whole class. Discuss any variations in results and potential sources of error. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3min)

Sum up the lesson by re-telling students the formula to find the surface area of the cylinder and also explain “Note to Remember” given at page 144 of their textbook.

Assessment: (5min)

To assess students’ learning, ask them solve Q1 for surface area of the cylinder of “Learning Check 9.4” given at page 146 of their textbook.

Homework: (2 min)

Q2 for surface area, Q3 and Q4 of “Learning Check 9.4” given at page 146 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 3 **Lesson Plan:** 2

Unit Name: Surface Area and Volume **Topic:** Volume of a Cylinder **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the volume of cylinder.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 145 and 146

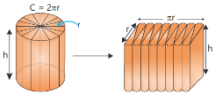
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking about how to calculate the surface area of the cylinder if its both are open? How we can calculate the surface area of the cylinder with flat and curved faces. Take their responses and appreciate them for their correct answer. now draw cylinder with radius and its height and then ask students to find the surface area of the cylinder. Walk around and check their work and guide them if required.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will calculate the volume of the cylinder. Ask students: how can we find the volume of a cylinder? Take their responses and appreciate if someone gives the right answer. Now tell students as volume refers to the amount of space occupied by an object and capacity means the quantity that a container can hold. Draw a cylinder radius r and height h on the board. Tell students first we find the formula to find the volume of the cylinder. For this we divide the circular top into equal sector. Divide the circular top into small 16 sectors and cut off each sector vertically and arrange them in such a way that 8 sectors will be on one side and the remaining 8 will be on the other side. We can see that it is a cuboid now. The circumference of the circular flat surface of the cylinder is $2\pi r$. As half of the length of the circumference is on one side, the length of this cuboid is $\frac{1}{2} \times 2\pi r = \pi r$. The radius of the cylinder will become the width of the cuboid, i.e., r. The height of the cylinder will also be the height of the cuboid, i.e., h. So, the volume of this cuboid is the volume of the cylinder.



The volume of a cuboid = volume of a cylinder= length × width × height = $\pi r \times r \times h = \pi r^2 h$

Tell students we can calculate the volume of the cylinder by using this formula. Now solve the worked example 1 and 2 to calculate the volume of the cylinder and explain each step to them and encourage them to ask questions if they have confusion.

Activity:

Divide the class into small groups. Provide each group paper slips of height and radius of cylinder and Instruct each group to calculate the volume of the cylinder. Have each group present their cylinder, its height and radius and volume to the whole class. Discuss any variations in results and potential sources of error. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by re-telling students the formula to find the volume of the cylinder and also explain "Note to Remember" given at page 145 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them solve Q1 for volume of the cylinder of "Learning Check 9.4" given at page 146 of their textbook.

Homework: **(2 min)**

Solve Q2 for volume, Q5 to Q8 of "Learning Check 9.4" given at page 146 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 3 **Lesson Plan:** 3

Unit Name: Surface area and Volume **Topic:** Sum up and Unit check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 9 by solving Q1-5 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, textbook pages 146, 147 and 148

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.
Ask students: How are you? Encourage them to say, “Alhamdulillah”.
Tell students that they are going to revise all the concepts of the Unit “Surface area and Volume”.
Ask them the different questions that are related to “Surface area and Volume”.

Main Activities/Concept Building: **(30 min)**

Activity:

Have students open page 147 of their textbooks. Ask them to solve Q1 to Q3 of “Unit Check 9”. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 146.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q4 and Q5 of “Unit Check 9” given at page 147 and 148 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 3 **Lesson Plan:** 4

Unit Name: Surface area and Volume **Topic:** Sum up and Unit check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 9 by solving Q6-9 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 148, Dice, Square grid, Colour pencils

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit "Surface area and Volume".

Ask them the different questions that are related to "Surface area and Volume".

Main Activities/Concept Building: **(30 min)**

Activity 1:

Have students open page 162 of their textbooks. Ask them to solve Q6 and Q7 of "Unit Check 9". Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students today, we will be performing a math project (work with math).

- Get students into pairs.
- Instruct each member to take turns to roll the dice.
- Ask him/her to draw the sides him/her draws the sides of the shape according to the numbers on the dice.
- For example a member rolls the dice and it shows 4 and 2 on each dice.
- The member will draw a rectangle with these sides.
- Then instruct him/her to write the area in the middle of the square/rectangle.
- The member with the most area wins the game.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points of the whole unit "Surface area and Volume".

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q8 and Q9 of "Unit Check 9" given at page 148 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 3 **Lesson Plan:** 5

Unit Name: Distance, speed and time **Topic:** Conversion of Units of Distance **Date**:

Objective(s):

At the end of this period, the students will be able to:

Convert different units of distance (k to m, m to km, m to cm).

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 149, 150, 151 and 152, paper slips of units of distance

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students how we can measure the length of long and short objects? Take their responses and recall with them the units of distance that are used to measure the length of long and short objects. Have students open textbook at page 149. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers:*** *The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners.)*

Main Activities/Concept Building: (22 min)

Before the main concept, tell them briefly about the unit outline and its real-life relevance. Tell students today we will learn about conversion of units of distance. Before starting ask students: which units are used to measure the length of the objects? Take their responses and tell them that the distance is measured in metres, kilometres and centimetres. Recall with students that there are 1000 metres in one kilometre, 100 centimetres in one metre, and 10 millimetres in one centimetre. Explain to them when we convert larger unit to smaller unit we multiply. Instruct students to open their textbook page 150. Tell them to convert kilometres to metres we have to multiply the number of kilometres by 1000. Instruct students to read the statement of the worked example 1 where we have to find the number of metres in 5 km. Solve the example and explain to students. Now point out towards the worked example 2 where we have to find number of metres in 12 km and 770 m. Tell them that first we convert km to metres and then add metres into it. Solve the example and explain each step to them. Encourage them to ask questions where they feel confusion. Similarly explain to students how to convert metres to centimetres and centimetres to millimetres and solve the examples related to them on the board and explain each step to them.

Activity:

Instruct students to work in pairs. Place paper slips of conversion of larger units of distance. Instruct each pair to come forward and select paper slips of each unit and then convert those units into smaller unit as mention on it. Walk around and check their work and guide them where needed. After completing the task each pair share their working with others. Appreciate them and announce winner the pair with correct work in short time.

Sum Up: (3min)

Sum up the lecture by recalling with students how to convert the units of distance from km to m, m to cm and cm to mm.

Assessment: (5min)

To assess students' learning, ask them solve "Pause and Try" given at page 150 of their textbook.

Homework: (2 min)

Solve Q1 (a, b, c, d, g, h, k, l, m) of "Learning check 10.1" given on page 152 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 3 **Lesson Plan: 6**

Unit Name: Distance, speed and time **Topic:** Conversion of Units of Distance **Date**:

Objective(s):

At the end of this period, the students will be able to:

Convert different units of distance (cm to m, cm to mm, mm to cm).

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 150, 151 and 152, paper slips of units of distance

Teaching & Learning Activities:

Opening Activities/Warm-up: (7 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students how we can convert the larger units of distance to smaller units of distance? Take their responses and tell them that to convert larger unit to smaller unit we have to multiply, then recall with them about how many metres are in one kilometre, how many centimetres are in one metre and how many millimetres are in one centimetre. Write some questions on the board and ask students to convert the given units to smaller unit?

Main Activities/Concept Building: (23 min)

Tell students today we will learn about conversion of units of distance from smaller units to larger units. Before starting ask students: which units are used to measure the length of the objects? Take their responses and tell them that the distance is measured in metres, kilometres and centimetres. Recall with students that there are 1000 metres in one kilometre, 100 centimetres in one metre, and 10 millimetres in one centimetre. Explain to them when we convert larger unit to smaller unit we multiply and when we convert smaller unit to larger unit we have to divide. Instruct students to open their textbook page 150. Tell them to convert metres to kilometres we divide the number of metres by 1000. Instruct students to read the statement of the worked example 1 and ask what is given and what we have to find. Take their responses and tell them that 7000 metres are given and we have to convert it into kilometres. Solve the example and explain to students. Now point out towards the worked example 2 where we have to find number of kilometres and metres in 2505 m. Tell them that to convert metres to kilometres and metres, we divide the number of metres by 1000. The quotient will be the kilometres and the remainder will be the metres. Solve the worked example 2 and explain each step to them. Encourage them to ask questions where they feel confusion. Similarly explain to students how to convert centimetres to metres and millimetres to centimetres and solve the examples related to them on the board given at page 151 and 152.

Activity:

Instruct students to work in pairs. Place paper slips of conversion of smaller units of distance. Instruct each pair to come forward and select paper slips of each unit of distance and then convert those units into larger unit as mention on it. Walk around and check their work and guide them where needed. After completing the task each pair share their working with others. Appreciate them and announce winner the pair with correct work in short time.

Sum Up: (3min)

Sum up the lesson by recalling with students how to convert the smaller units of distance to larger units.

Assessment: (5min)

To assess students’ learning, ask them to solve Q1 (e, f, i) of “Learning check 10.1” given on page 152 of their textbook.

Homework: (2 min)

Solve Q1 (j, n, o) of “Learning check 10.1” given on page 152 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 3 **Lesson Plan: 7**

Unit Name: Distance, speed and time **Topic:** Time (24-Hour clock, 12-Hour clock) **Date**:

Objective(s):

At the end of this period, the students will be able to:

Convert 12-hour clock to 24-hour clock.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 153, 154 and 157, paper slips of time in 12-hour format

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students how we can convert the smaller units of distance to larger units of distance? Take their responses and tell them that to convert smaller unit to larger unit we have to divide, then Write some questions of smaller units of distance on the board and ask students to convert the given units to larger unit.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn how to convert 12-hour clock format to 24-hour clock format. Before starting lesson ask students how many hours in a day and how many minutes in an hour? Take their responses and tell them that there are 24 hours in a day and 60 minutes in an hour. Instruct students to open their textbook page 153 and ask students: What is the difference between 12-hour format and 24-hour clock? Take their responses and tell them that there are two ways to show the time. One way is using the 12-hour clock format and the other one is 24-hour clock. We tell the time in a.m. or p.m. when using the 12-hour clock format. Show the clock to students and instruct to look at the clock, it is a 12-hour clock and the time on it 7:00 o clock.

If it is 7 o'clock in the morning, we write it as “7:00 a.m” and If it is 7 o'clock in the evening, we write it as “7:00 p.m.” but if we talk about 24-hour clock, then we do not use a.m. or p.m. In 24-hour clock We can write 7:00 a.m. as 07:00 and 7:00 p.m. as 19:00. Explain 24-hour clock and 12-hour clock formats to students by giving different examples. Tell students we can convert 12-hour clock time to 24-hour clock. Tell them that from From 12 midnight to 12:59 a.m., replace 12 with 00. It means that in 24-hour format we 12:59 a.m. as 00:59. Tell them that from 1:00 p.m. to 11:59 p.m., add 12 hours and remove p.m. Write the example as given in the tetbook page 154 that is 3:30 p.m. is in 12-hour format and to convert it into 24-hour clock format we add 12 in 3 or 12 + 3 = 15 and the time in 24-hour format is 15: 30. Tell students the time from 1:00 a.m. to 12:59 p.m.,remains the same just remove the a.m. or p.m. for example 2:20 a.m. in 24-hour format is 02:20. Explain the conversion of 12-hour format to 24-hour format step by step and explain each step to them and encourage them to ask questions if they have any confusion.

Activity:

Instruct students to work in pairs. Place paper slips of time written in 12-hour clock. Instruct each pair to come forward and select two paper slips of your own choice and then convert them to 24-hour clock format. Walk around and check their work and guide them where needed. After completing the task each pair share their working with others. Discuss with them about their common mistakes. Appreciate them and announce winner the pair with correct work in short time.

Sum Up: **(3min)**

Sum up the lesson by recalling with students how to convert 12-hour clock time to 24-hour clock time.

Assessment: **(5min)**

To assess students’ learning, ask them to solve Q1 (a-d) of “Learning check 10.2” on textbook page 157.

Homework: **(2 min)**

Solve Q1 (e-h) of “Learning check 10.2” given on page 157 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 1**

Unit Name: Distance, speed and time **Topic:** Time (24-hour clock, 12-hour clock) **Date**:

Objective(s):

At the end of this period, the students will be able to:

Convert 24-hour clock to 12-hour clock.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 153, 154 and 157, paper slips of time in 24-hour format

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: How many hours in a day? What is the difference between 12-hour clock and 24-hour clock? How we can convert 12-hour clock to 24-hour clock? Take their responses and appreciate them for their correct responses.

Main Activities/Concept Building: (25 min)

Tell students today we will learn how to convert 24-hour clock format to 12-hour clock format. Before starting lesson ask students how many hours in a day and how many minutes in an hour? Take their responses and tell them that there are 24 hours in a day and 60 minutes in an hour. Instruct students to open their textbook page 153 and ask students: how many ways we show time? Take their responses and tell them that there are two ways to show the time. One way is using the 12-hour clock format and the other one is 24-hour clock. We tell the time in a.m. or p.m. when using the 12-hour clock format. Show the clock to students and instruct to look at the clock, it is a 12-hour clock and the time on it 6:45 p.m. in 12-hour format and in 24-hour format the time is 18: 45

Explain 24-hour clock and 12-hour clock formats to students by giving different examples. Tell students we can convert 24-hour clock time to 12-hour clock. Tell them that from from 00:00 to 00:59, write the time as 12 midnight to 12:59 a.m. It means that in 12-hour format we 00:32 as 12:31 a.m. Tell them that from 13:00 to 23:59, we subtract 12 hours and make it p.m. Write the example as given in the tetbook page 154 that is 18:09 p.m. is in 24-hour format and to convert it into 12-hour clock format we subtract 12 from 18 or 18 – 12 = 5 and the time in 12-hour format is 5 : 09 p.m. Tell students the time from 01:00 to 12:59 remains the same just write the a.m. or p.m.with it for example 08:45 a.m. in 12-hour format is 8:45 a.m. Explain the conversion of 24-hour format to 12-hour format step by step and explain each step to them and encourage them to ask questions if they have any confusion.

Activity:

Instruct students to work in pairs. Place paper slips of time written in 24-hour clock format. Instruct each pair to come forward and select two paper slips of your own choice and then convert them to 12-hour clock format. Walk around and check their work and guide them where needed. After completing the task each pair share their working with others. Discuss with them about their common mistakes. Appreciate them and announce winner the pair with correct work in short time.

Sum Up: (3min)

Sum up the lesson by recalling with students how to convert 24-hour clock time to 12-hour clock time.

Assessment: (5min)

To assess students’ learning, ask them to solve Q2 (a-d) of “Learning check 10.2” at textbook page 157.

Homework: (2 min)

Solve Q2 (e-h) of “Learning check 10.2” given on page 157 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 2**

Unit Name: Distance, speed and time **Topic:** Conversion of Units of time **Date**:

Objective(s):

At the end of this period, the students will be able to:

Convert between different units of time from larger units to smaller units.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 154, 155 and 157, paper slips of units of time

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: What is the difference between the 24-hour clock and 12-hour clock? How many hours in a day? How many minutes in an hour? How many seconds in a minute? Take their responses and recall with them the units of the time. Write the time in 24-hour clock on the board and ask students to tell the time in 12-hour clock. Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: (25 min)

Tell students today we will learn about conversion of unit of time from larger units to smaller units. Ask students: Do you know how we can convert the units of time from larger units to smaller units? Take their responses and appreciate if someone gives the right answer. Tell them that we can convert hours to minutes by multiply the number of hours by 60, as there are 60 minutes in one hour. Instruct students to open their textbook page 154 and read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that Marwa took 2 hours to complete a calligraphy project and we have to find how many minutes she takes to complete the project. Tell them that to convert 2 hours to minutes we multiply the 2 by 60 and we get 120 minutes. Now tell them that if hours and minutes are given and we have to convert it into minutes, then first we convert hours to minutes and then add minutes into it. For more explanation, solve the worked example 2 step by step on the board and explain it to them. Tell students as we know that there are 60 seconds in one minutes so to convert minutes into second we multiple the number of minutes by 60. Solve the worked example 1 and 2 related to conversion of minutes to second and explain to them. Encourage them to ask questions if they have any confusion.

Activity:

Instruct students to work in pairs. Place paper slips of time written in hours and minutes. Instruct each pair to come forward and select two paper slips of your own choice one paper slip of conversion of hours to minutes and one of conversion of minutes into seconds. Walk around and check their work and guide them where needed. After completing the task each pair share their working with others. Discuss with them about their common mistakes. Appreciate them and announce winner the pair with correct work in short time.

Sum Up: (3min)

Sum up the lesson by recalling with students how to convert hours to minutes and minutes to seconds.

Assessment: (5min)

To assess students’ learning, ask them to solve pause and try given at page 155 of their textbook.

Homework: (2 min)

Solve Q3 and Q4 of “Learning check 10.2” given on page 157 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 3**

Unit Name: Distance, speed and time **Topic:** Conversion of Units of time **Date**:

Objective(s):

At the end of this period, the students will be able to:

Convert between different units of time from smaller units to larger units.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 155 and 157, paper slips of units of time

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: how many minutes in one hour? How many seconds in one minutes? How we convert hours to minutes and minutes to seconds? Take their responses and write 3 hours 5 minutes on the board and instruct students to convert and tell the given time in minutes. Take their answers and appreciate the students for their correct answer.

Main Activities/Concept Building: (25 min)

Tell students today we will learn about conversion of unit of time from smaller units to larger units. Ask students: Do you know how we can convert the units of time from smaller units to larger units? Take their responses and appreciate if someone gives the right answer. Tell them that we can convert minutes to hours we divide the number of minutes by 60, as there are 60 minutes in one hour. Instruct students to open their textbook page 155 and read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that 600 minutes are given and we have to convert the minutes into hours. Tell them that to convert 600 minutes to hours we divide 600 by 60 and we get 10 hours. Now tell them that to convert minutes to hours and minutes, we divide the number of minutes by 60. The quotient will be the hours and the remainder will be the minutes. For more explanation, solve the worked example 2 step by step on the board and explain it to them. Tell students as we know that there are 60 seconds in one minutes so to convert second to minutes we divide the numbers of seconds by 60. Solve the worked example 1 and 2 related to conversion of seconds to minutes and explain to them. Encourage them to ask questions if they have any confusion.

Activity:

Instruct students to work in pairs. Place paper slips of time written in minutes and seconds. Instruct each pair to come forward and select two paper slips of your own choice one paper slip of conversion of minutes to hours and one of conversion of seconds into minutes. Walk around and check their work and guide them where needed. After completing the task each pair share their working with others. Discuss with them about their common mistakes. Appreciate them and announce winner the pair with correct work in short time.

Sum Up: (3min)

Sum up the lesson by recalling with students how to convert minutes to hours and seconds to minutes.

Assessment: (5min)

To assess students' learning, write the units of time in minutes and some units of time in seconds and ask them to converts minutes to hours and seconds into minutes.

Homework: (2 min)

Solve Q5 and Q6 of "Learning check 10.2" given on page 157 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 4**

Unit Name: Distance, speed and time **Topic:** Time calculation **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify and define arrival time, departure time and journey time.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 156 and 157

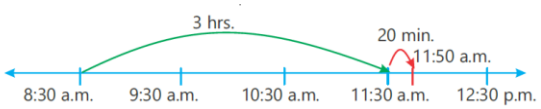
Teaching & Learning Activities:

Opening Activities/Warm-up: **(7 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: how many minutes in one hour and how we convert hours to minutes and minutes to hours? How many seconds in one minute and how we convert minutes to seconds and seconds to minutes? Take their responses and instruct students to write time in minutes and convert into hours. Walk around and check their work and guide where needed. Appreciate them for their correct work.

Main Activities/Concept Building: **(23 min)**

Tell students today we will learn about terms arrival time, departure time and the journey time. Before starting lesson ask students: Do you know about these terms and have you used these terms before? Take their responses and appreciate if someone gives the right answer. Now ask students: What is your school timing? When you leave the home for school and when you reach the school? Take their responses and tell them that, when you leave the home for school the time you leave the home is called departure time, when you reach the school the time is called arrival time, and the time you take from home to school arrival is called your journey time. Explain the terms by using different real-life examples. Now ask students to open their textbook page 156 and explain the term departure time, arrival time and journey time to students. Ask students to read the statement pf the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that Hadia went on a school trip from Lahore to Kallar Kahar. She started her journey from Lahore at 8:30 a.m. and reached Kallar Kahar at 11:50 a.m. and we have to find her journey time from Lahore to Kallar Kahar. Tell students as she started her journey at 8: 30 a.m. so this time is the departure time and she reached Kallar Kahar at 11: 50 a.m. so this time is called arrival time. Now to find the journey time first, count the number of hours from 8:30 a.m. to 11:30 a.m.



That is exactly 3 hours. Then count the minutes from 11:30 a.m. to 11:50 a.m. that is 20 minutes. It means she takes 3 hours and 20 minutes to reach from Lahore to Kallar Kahar. Solve the example step by step on the board and explain each step to them. Encourage students to ask questions if they have any confusion.

Sum Up: **(3min)**

Sum up the lesson by recalling with students the term arrival time, departure time and journey time and how we can calculate anyone these if two quantities are given.

Assessment: **(5min)**

To assess students’ learning, ask them give example of departure time, arrival time and journey time.

Homework: **(2 min)**

Solve Q7 and Q8 of “Learning check 10.2” given on page 157 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 5**

Unit Name: Distance, speed and time **Topic:** Time calculation **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate arrival time, departure time and journey time in a given situation.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 156 and 157

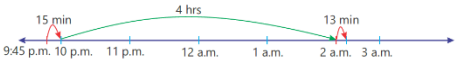
Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: What is meant by the terms arrival time, departure time and the time of journey? Take their responses and instruct students to write the departure time from your home to school, arrival time to school and then find the journey time? Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: (22 min)

Tell students today we will learn about how to calculate he arrival time, departure time and the journey time. Before starting lesson ask students: Do you know about these terms and have you used these terms before? Take their responses and appreciate if someone gives the right answer. Tell them that when you leave the home for school the time you leave the home is called departure time, when you reach the school the time is called arrival time, and the time you take from home to school arrival is called your journey time. Explain the terms by using different real-life examples. Now ask students to open their textbook page 156 and explain the term departure time, arrival time and journey time to students. Ask students to read the statement pf the worked example 2 and tell what is given and what we have to find. Take their responses and tell them that A bus departs at 9:45 p.m. from City A and takes 4 hours 28 minutes to reach City B. we have to find the arrival time of the bus to city B. Tell students as she started her journey at 9: 45 p.m. so this time is the departure time and it take 4 hours and 28 minutes to reach city B so it is the journey time of the bus. Now to find the arrival time first, count the time from 9:45 p.m. to 10 p.m. that is 15 minutes. Next, count 4 hours from 10 p.m. onwards. That is 2 a.m. To complete 28 minutes, subtract 15 minutes from 28. 28 min – 15 min = 13 min. Finally, we count 13 minutes from 2 a.m. That is 2:13 a.m. Solve the example step by step on the board and explain each step to them. Encourage students to ask questions if they have any confusion.



Activity:

Have students open page 157 of their textbooks. Ask them to solve Q9 and Q10 of "Learning Check 10.2" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3min)

Sum up the lesson by recalling with students the term arrival time, departure time and journey time and how we can calculate anyone these if two quantities are given.

Assessment: (5min)

To assess students' learning, ask them to solve "Pause and Try" given at page 156 of their textbook.

Homework: (2 min)

Solve Q11 and Q12 of "Learning check 10.2" given on page 157 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 6**

Unit Name: Distance, speed and time **Topic:** Speed **Date**:

Objective(s):

At the end of this period, the students will be able to:

Differentiate between uniform and average speeds.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 158

Teaching & Learning Activities:

Opening Activities/Warm-up: (8 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: Define the terms arrival time, departure time and the journey time. Have students to work in 3 groups and one group write the situation where they find departure time and the second group write the situation where we calculate the journey and the third one write the situation where we have to find the arrival time. Walk around and check their work and appreciate them for their good work.

Main Activities/Concept Building: (22 min)

Tell students today we will learn about the difference between uniform speed and the average speed. Before starting lesson ask students when you fast moving when you walk or when you ride a bicycle? Take their responses and tell them that speed is the distance covered by a moving objects in unit time. The unit used to measure the speed is metre per second or kilometres per hours. Explain students the speed and its formula in detail. Now ask students to open their textbook page 158 and learn more about speed and its units. Instruct students to read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that two cars cover the same distance of 300 km. one car cover this distance in 2.5 hour and the car B cover this distance in 3 hours. As we know that we calculate the speed by dividing the distance by time the speed of the car A is 120 km/hr and the speed of the car Bis 100km/hr. Tell students if the car covers the distance at same or constant speed then the speed is called the unifom speed. Tell them that in actual situations, the speed may or may not be the same throughout a journey. For example, Car A may travel at 80 km/hr at some point during the journey (due to poor road conditions, etc.), while Car B may travel at 110 km/hr at some point during the journey (due to a smooth road, a sloppy road, etc.). may be at some way speed is 80 km/hr and half of the 100 km/hr. explain the difference between uniform speed and average speed by giving different examples.

Activity:

Divide the class into small teams. Each team should have an equal number of students. Set up a simple relay race course in a nearby open area or within the classroom. Explain that each team member represents a different type of speed - either uniform or average. For the uniform speed segment, students must maintain a constant speed while completing their part of the relay. For the average speed segment, students can vary their speed during the relay, symbolizing different rates during a journey. Observe the teams and discuss the variations in speed observed during the relay race. Conclude the activity with a class discussion on how the relay race represented uniform and average speeds.

Sum Up: (3min)

Sum up the lesson by explaining students “Note to remember” given at page 158.

Assessment: (5min)

To assess students’ learning, ask them what is the difference between uniform and average speed.

Homework: (2 min)

Revise the classwork.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 4 **Lesson Plan: 7**

Unit Name: Distance, speed and time **Topic:** Speed **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate speed, distance and time for a given situation.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 159,160 and 161

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: What is the difference between uniform speed and average speed? Take their responses and appreciate them for their correct answer. Recall with them the difference between average speed and the uniform speed by giving real-life examples.

Main Activities/Concept Building: (25 min)

Tell students today we will learn how to calculate the speed, distance and time. Before starting lesson ask students to tell what is the distance, speed and time? Take their responses and recall with them these terms with examples. Instruct students to open their textbook page 159 and read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that Zain travelled by bus at a speed of 45 km/hr for 2 hours and then at a speed of 55 km/hr for 3 hours. We have to calculate the average speed of the bus. Tell them that we calculate the average speed of the bus by dividing the total distance by total time. For this first we find the total distance that is:

Total distance covered = (45 km × 2) + (55 km × 3) = 90 km + 165 km = 255 km

After this we calculate the total time that is: 2 hours + 3 hours = 5 hours.

Tell students as the speed change during the travelling so the speed is the average speed. Now to calculate the average speed divide the total distance by total time.

Average speed = $\frac{total\ distance}{total\ time}$ = $\frac{255km}{5\ hours}$ = 51 km/hr

Solve the example step by step on the board and explain each step to them. Encourage them to ask question if they have any confusion. Tell students if the average speed and time is given then we have to find the distance by multiplying time with average speed. If average speed and distance is given then we will find the time by dividing the distance by average speed. For more explanation, solve worked example 3 and 4 step by step on the board and explain each step to them.

Activity:

Have students open page 161 of their textbooks. Ask them to solve Q3-Q6 of "Learning Check 10.3" of their textbooks. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: (3min)

Sum up the lesson by re-telling students how to calculate the speed, time and distance and explain "Note to remember" to them.

Assessment: (5min)

To assess students' learning, ask them to solve "Pause and Try" given at page 159 of their textbook.

Homework: (2 min)

Solve Q1 of "Learning check 10.3" given on page 160 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 1

Unit Name: Distance, speed and time **Topic:** Conversion of Units of Speed **Date**:

Objective(s):

At the end of this period, the students will be able to:

Convert between different units of speed.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 160 and 161

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask the students: How are you? Encourage them to say, “Alhamdulillah”.

Ask students about their previous day homework. Begin the lesson by asking students to define seed, distance and time? How many minutes are in one hour? How many metres are in 1 kilometre? How many centimetres are in one metre and how many seconds are in one hour? Take their responses and appreciate them for their correct answers.

Main Activities/Concept Building: (32 min)

Tell students today we will learn about conversion of units of speed. Before starting ask students: which units are used to measure the speed of the objects? Take their responses and tell them that as speed is the distance covered by a moving object in unit time. The distance is measured in metres, kilometres and centimetres whereas the time is measured in hours, minutes and seconds. Recall with students that there are 1000 metres in one kilometre, 100 centimetres in one metre, 60 minutes in one hour and 60 seconds in one minute. Instruct students to open their textbook page 160. Tell them that to convert kilometres per hour to metres per second, we have to multiple numbers of kilometres by 1000 to convert them into metres and to convert hours to seconds we have to divide it by 3600 as there are 3600 seconds in one hour. Solve the worked example 1 where we have to convert 36 kilometres per hour to metres per second on the board step by step and explain each step to them. Encourage them to ask questions if they have any confusion. Now tell students to convert smaller units to larger units or metres per second to kilometres per hour we have to multiple it by 3600 and divide it by 1000. Solve the worked example 2 and 3 on the board and explain each step in detail to them.

$$36 \text{ km/hr} = \frac{36\times1000}{3600} = \frac{36000}{3600} = 10\text{m/se}$$

Activity:

Instruct students to work in pairs. Instruct each member of the pair to write the time and the total distance he covered from home to school. Then find the speed and convert the speed of the units. Walk around and check their work and guide them where required. After completing the task each pair come forward and show their working to the whole class. Discuss with them about their common mistakes and appreciate them for their good work.

Sum Up: (3min)

Sum up the lecture by recalling with students how to convert the units of speed from kilometres per hour to metres per second and metres per second to kilometres per hour by solving examples on the board.

Assessment: (5min)

To assess students’ learning, ask them solve “Pause and Try” given at page 160 of their textbook.

Homework: (2 min)

Solve Q2 of “Learning check 10.3” given on page 161 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 2

Unit Name: Distance, Speed and Time **Topic:** Sum up and Unit check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 10 by solving Q1-5 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, textbook pages 161 and 162

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Distance, Speed and Time”.

Ask them the different questions that are related to “Distance, Speed and Time”.

Main Activities/Concept Building: **(30 min)**

Activity:

Have students open page 161 and 162 of their textbooks. Ask them to solve Q1 to Q3 of “Unit Check 10”.

Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 161

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q4 and Q5 of “Unit Check 10” given at page 162 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 3

Unit Name: Distance, Speed and Time **Topic:** Sum up and Unit check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 10 by solving Q6-7 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 162 and 163

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit "Distance, Speed and Time".

Ask them the different questions that are related to "Distance, Speed and Time".

Main Activities/Concept Building: (30 min)

Activity 1:

Have students open page 162 of their textbooks. Ask them to solve Q6 of "Unit Check 10". Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students today, we will be performing a math project (work with math).

- Get students into groups (Group A and Group B).
- Instruct them to use thumbtacks to attach the cards randomly on the board.
- Call one member from Group A to come to the board and pick up 2 cards of his/her choice.
- If both cards have the same matching time (in 12 hour clock and 24 hour clock format), the group gets 1 point and keeps the cards.
- If the cards do not match, the group doesn't get a point and leaves the cards as they are on the board.
- Take turns.
- The group with more cards at the end wins.

Sum Up: (3 min)

Sum up the lesson by repeating the important points of the whole unit "Distance, Speed and Time".

Assessment: (0 min)

N/A

Homework: (2 min)

Solve the Q7 of "Unit Check 10" given at page 162 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 4

Unit Name: Surface Area and Volume **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Surface Area and Volume”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Surface Area and Volume”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: (32 min)

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: (3 min)

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: (0 min)

N/A

Homework: (0 min)

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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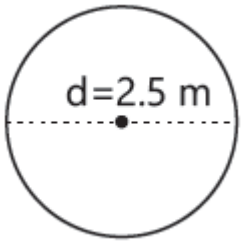
Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

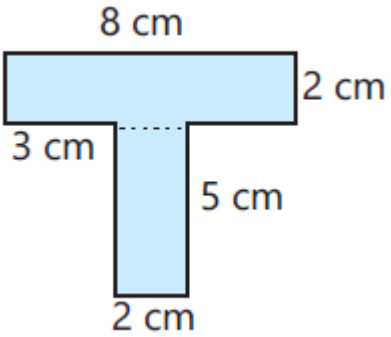
Name: _____ **Date: _____**

1. **Find the area and Circumference of the given circle.**



2. **Find the surface area and volume of cylinders when r = 7.5 cm and h is 12 cm.**

3. **Find the area of the given figure.**



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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 5

Unit Name: Surface Area and Volume **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Surface Area and Volume”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Surface Area and Volume”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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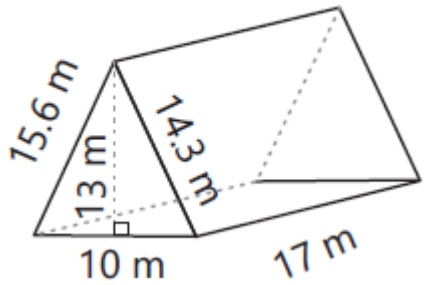
Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **Find the surface area and volume of the given prism.**



2. **A hall with a length of 8 m is in a triangle prism shape. Find the total surface area of the hall if the sides' lengths are 6 m, 6 m and 4 m, respectively and the total surface area of the bases is 20 m^2.**

3. **The circumference of a cylindrical wooden block is 43.96 cm. Find its surface area if its height is 30 cm.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 6

Unit Name: Distance, Speed and Time **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Distance, Speed and Time”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Distance, Speed and Time”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: (32 min)

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: (3 min)

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: (0 min)

N/A

Homework: (0 min)

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **Convert the following units.**
   a) 55 mm to cm

   b) 35 km 600 m to m

   c) 4 hours 25 minutes to minutes

   d) 15 minutes 30 sec to sec

2. **Convert them to 24-hour format.**

   a) 3: 20 p.m. b) 1:45 a.m.

3. **Convert the times to the 12-hour format.**

   a) 13:39 b) 00.44

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 1** **Week:** 5 **Lesson Plan:** 7

Unit Name: Distance, Speed and Time **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Distance, Speed and Time”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Distance, Speed and Time”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: (32 min)

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: (3 min)

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: (0 min)

N/A

Homework: (0 min)

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **Convert the following.**
   a) **140 m/sec to km/hr**

   b) **312 km/hr to m/sec**

2. **The bus leaves from City A for City B at 8:40 p.m. It takes 2 hours and 3 minutes to reach City B. What is the arrival time of the bus?**

3. **A train's average speed is 80 km/hr. Find the total distance covered by the train in 5 hours.**

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 1

Unit Name: Angles and Transformation **Topic:** Transformations **Date:**

Objective(s):

At the end of this period, the students will be able to:

Recognize, identify and draw lines of symmetry in 2-D shapes.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 164-166

Teaching & Learning Activities:

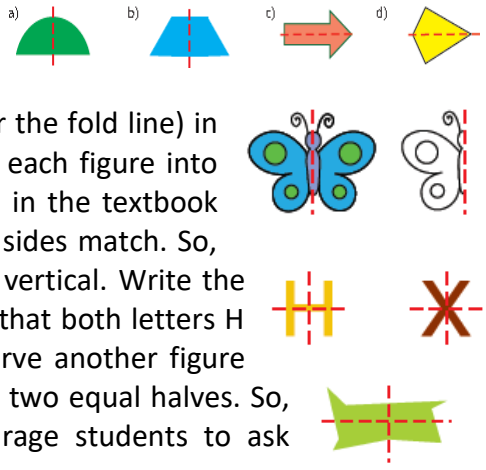
Opening Activities/Warm-up: **(8 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about previous day homework. Have student's open textbook at page 164. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers***: *The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners.*)

Main Activities/Concept Building: **(22 min)**

Before the main concept, tell them briefly about the unit outline and its real-life relevance. Tell students today we will recognize, identify and draw lines of symmetry in 2-D shapes. Ask them: What is meant by transformations? Take their responses and instruct students to open their textbook page 165 and tell them that changes the size or position of an image is known as transformation. Explain them there are many types of transformation, today we will learn about the type of transformation called reflective symmetry. Ask students: what is meant by reflective symmetry? Take their responses and tell them that an object or shape is said to have reflective symmetry if there is a line of symmetry such that one half of the object is a mirror image of the other half. Draw the figures that are given textbook page 165 on the board and draw line of symmetry and explain them the dotted line (or the fold line) in these figures is the line of symmetry. These lines of symmetry divide each figure into equal halves. Instruct them that to look at the butterfly that is given in the textbook page 165. Explain them when it folds its wings, we can see that both sides match. So, the butterfly shows a line of symmetry. Thus, the line of symmetry is vertical. Write the letter H and X on the board and draw line of symmetry and tell them that both letters H and X have both vertical and horizontal line of symmetry. Now observe another figure that have a dotted line but these lines are not dividing the shape into two equal halves. So, tell them there is no line of symmetry in the given figure. Encourage students to ask questions if they have any confusion.



Activity:

Have students open page 166 of their textbooks. Ask them to solve Q1 (a-h) of "Learning Check 11.1" of their textbooks. Walk around and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3min)**

Sum up the lecture by retelling about the shapes and objects that have line of symmetry and that have not.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 165 of their textbook.

Homework: **(2 min)**

Solve Q2 (a - h) of "Learning check 11.1" given on page 166 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 2

Unit Name: Angles and Transformation **Topic:** Rotational Symmetry **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recognize and identify rotational symmetry and identify how to rotate objects and find the order of rotational symmetry.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 166 to 169

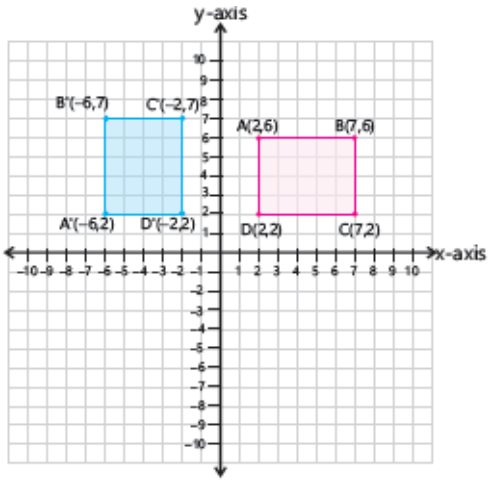
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: What is meant by reflective symmetry? How can we identify the line of symmetry in any shapes? Take their responses, and then call a student to the front of the class and write ask him/her to write the letters M, J and D and tell which letter has vertical line of symmetry, which one has horizontal line of symmetry and which one has no line of symmetry. Ask the rest of the class to check and tell him/her correct or not. Repeat this activity to some other students by drawing different shapes, letters, etc.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about rotational symmetry. Ask them: Do you know about rotational symmetry? Take their responses and tell them that rotation is a type of a transformation. Explain them rotation means turning a shape around a fixed point (centre of rotation), where it can be rotated through clockwise or anticlockwise. Instruct students to open their textbook and explain the rotational symmetry of shape given in the textbook page 166 and 167 by drawing shapes on the board and explain the order of rotation. Tell students when we rotate objects first we have to specify the angle of rotation and point of rotation and direction is also mentioned but if the direction is not given then it can be assumed that a rotation is anticlockwise. Tell them that we can rotate an object about its origin on a coordinate plane. To rotate the shape on the coordinate plane, first we have to find the vertices of the given shape. After that figure out the coordinates of the points in which it will be reflected. There are some rules which help us to figure out the coordinates of the rotated shape. Tell students the rule are, if we rotate an object 90° anticlockwise or 270° clockwise about the origin if the given point is P(x, y), then change the sign of y and switch the position of x and y. if we if we rotate an object 90° clockwise or 270° anticlockwise about the origin if the given point is P(x, y), then change the sign of x and switch the position of x and y. if we rotate an object 180° anticlockwise or clockwise about the origin then just change the sign of x and y. Instruct students open their textbook page 167 and learn more about rules of the rotation of the objects on coordinate plane. Instruct students read the statement of the worked example and tell what is given and what we have to find. Take their responses and tell them that a rectangle ABCD is given and we have to rotate this image 90° anticlockwise about it origin. When we rotate this image 90° anticlockwise about the origin, we change the sign of y and switch the position of x and such that (x, y) $\rightarrow$(–y, x). Rotate the image where the y-value of the original point becomes the new x-value with opposite sign and the x-value of the original point becomes the new y-value step by step on the board and explain each step to students and encourage students to ask questions if they have any confusion.



Sum Up: **(3min)**

Sum up the lecture by retelling about rotational symmetry with the help of examples and also explain “Note to Remember” given at page 167 of their textbook.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 167 of their textbook.

Homework: **(2 min)**

Solve Q1 of "Learning check 11.2" given on page 168 and 169 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 3

Unit Name: Angles and Transformation **Topic:** Rotational Symmetry **Date**:

Objective(s):

At the end of this period, the students will be able to:

Rotate objects and find the order of rotational symmetry.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 167, 168 and 169

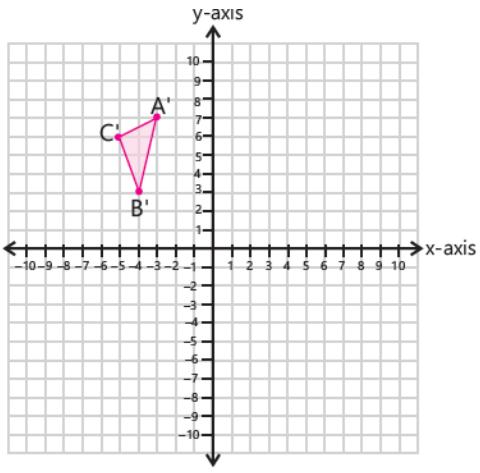
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: What is meant by rotational symmetry? What happened when we rotate an image 90° anticlockwise or 270° clockwise? What happened when we rotate an image 270° anticlockwise or 90° clockwise? What happened when we rotate an image 180° anticlockwise or clockwise? Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will rotate objects and find the order of rotational symmetry. Recall the concept of rotational symmetry and the order of rotation. Explain students the basic steps to rotate an image when angle of rotation and direction is specified. Instruct students to open the textbook page 167 and 168 and recall the steps of rotation of objects clockwise or anticlockwise with the help of the worked example 1. Paste a coordinate plane of the board and copy the image of the Q2 (a) of "learning check 11.2" given at page 169 of their textbook. Call a student to the front of the class and ask him/her to find the coordinate of the given triangle. Ask the rest of the class to check whether he/she correct or not. Then ask students what are new coordinate of the reflected triangle when it is rotated 270° anticlockwise. Take their responses and tell them that as we rotate the given triangle 270o anticlockwise, we change the sign of x and switch the position of x and y. Call another student to the front of the class and ask him/her to find the new points of the reflected triangle and then mark on the coordinate plane. Ask the rest of class to check and correct if needed. Discuss with them about their mistakes.



Activity 1:

Instruct students to open the textbook pages 169 of "Learning Check 11.2 and solve Q2 (b) and Q5 step by step in the notebooks. Walk around and check their work and guide them where needed. Appreciate them for their good work.

Sum Up: **(3min)**

Sum up the lesson by recalling with students how we can rotate an image about origin clockwise and anticlockwise when angle of rotation is given. Also explain Note to remember given at page 168.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 168 of their textbook.

Homework: **(2 min)**

Solve Q3, Q4 and Q6 of "Learning check 11.2" given on page 169 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 4

Unit Name: Angles and Transformation **Topic:** Translation Objects **Date:**

Objective(s):

At the end of this period, the students will be able to:

Identify translation of objects and learn how to translate objects on square grid.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 169 - 173

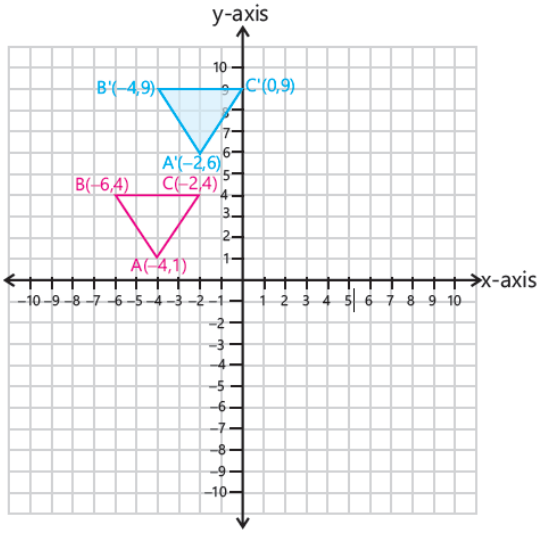
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: What is meant by transformation of an object? What is meant by rotation of an object clockwise and anticlockwise about its origin when angle of rotation is given? Then write a point for example P (3, 4) and ask students when happened when we rotate it 90° clockwise or anticlockwise and if we rotate it 180° clockwise or anticlockwise. Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about translation of objects and learn how to translate objects on square grid. Ask them: Do you know about translation of an object? Take their responses and tell them as we know about rotation of objects. In rotation of objects we rotate the shape about its origin when angle of rotation is given but in translation of objects we shift an object from one place to another in any order and anywhere in the coordinate plane, left, right up, down, etc. Translation of an object is basically the type of transformation where the size of object does not change only the position of the object is changed. Instruct students to open their textbook page 170 and read the statement of the worked example 1. Tell them that when a point P(x, y) is given and we have to translate it 2 units right and 3 units up it means that we have to add 2 in the x-coordinate and 3 unit in y-coordinate that is (x, y) → (x + 2, y + 3). Tell them that when we translate the image 3 units right and 2 units down as given in worked example 2, then we add 3 in the x-coordinate and subtract 2 from the y-coordinate. Instruct students to read the statement of the worked example 3 and tell what is given and what we have to find. Take their responses and tell them that a triangle is given and we have to translate it 2 units right and 5 units up. Explain to them as the shape move 2 unit right so we add 2 units to the x-coordinate of each vertices of the triangle and 5 units to y-coordinate of each vertices. Paste a coordinate plane on the board and copy the triangle given in book on it and translate it step by step and explain each step to them and encourage them to ask questions if they have any confusion.



Sum Up: **(3min)**

Sum up the lesson be recalling with students how we can translate an object or shape on the coordinate plane and also explain "Note to Remember" given at page 170 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 170 of their textbooks.

Homework: **(2 min)**

Revise the classwork.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 5

Unit Name: Angles and Transformation **Topic:** Translation of objects **Date**:

Objective(s):

At the end of this period, the students will be able to:

Translate objects on square grid according to given description.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 170, 171, 172 and 173

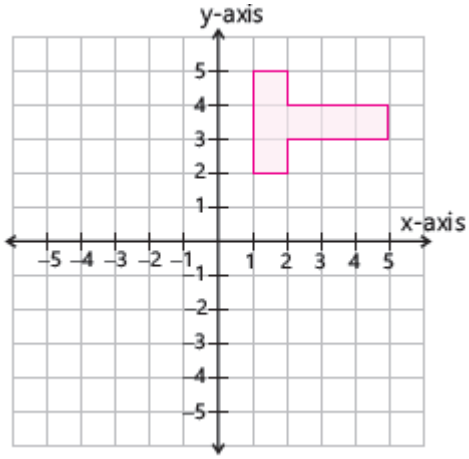
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: what is meant by translation of an object? What is the difference between translation and rotation of an object? Write a point X (3, -7) on the board and ask students to tell the translation of that point if it moves 3 units left and 4 units up. Take their responses and appreciate them for their correct answers.

Main Activities/Concept Building: **(25 min)**

Tell students to learn about translation of an object on the square grid paper. Recall with students how to translate and object or shape on the square grid paper by revising the steps of translation of the triangle in worked example given at page 170. After this paste square grid paper on the board and copy the image given in Q1 (a) of "Learning check 11.3" on the board and call a student to the front of the class and ask him/her to find the coordinate of the vertices of the given shape. The vertices of the given shape are (1, 2), (2, 2), (2, 3), (5, 3), (5, 4), (2, 4), (2, 5), (1, 5). Call another student to the front of the class and ask him/her to find the vertices of the translated image when it moves 3 units left and 6 units down. Ask the rest of the class to check and correct if needed. Then instruct him/her to draw the translated image on the Cartesian coordinate plane and explain each step to the whole class. Appreciate him/her for their good work. Repeat this activity by copying Q1 (b) on the board and calling random students to front of the class to solve it.



Activity 1:

Instruct students to open the textbook pages 172 of "Learning Check 11.3 and solve Q1 (c-d) step by step in their notebook. Walk around and check their work. Discuss with them about their common mistakes.

Sum Up: **(3min)**

Sum up the lesson by re-telling students how we can translate an object up, down, right, or left on the coordinate plane.

Assessment: **(5min)**

To assess students' learning by asking them to solve "Pause and try" given at page 171 of their textbook in their notebook.

Homework: **(2 min)**

Solve Q1 (e, f) of "Learning check 11.3" given on page 173 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 6

Unit Name: Angles and Transformation **Topic:** Describing Translation of objects **Date**:

Objective(s):

At the end of this period, the students will be able to:

Give precise description of given transformation.

Resource Material:

Chalk/Marker, White/Blackboard, coordinate planes of pre-image and translated image, Textbook page 171 and 173

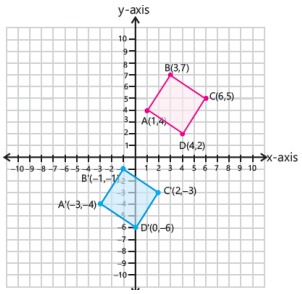
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students how we can translate any shape. Then draw a rectangle with points (2, 4), (2, 6), (7, 4), (7, 6) and instruct students to find the coordinates of the translated image if it moves 4 units left and 5 units down. Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: **(25 min)**

Tell students that today we will learn how to describe the translation of an object. Instruct them to open their textbook page 171 and read the statement of the worked example 1 and tell what is given and what we have to find. Take their responses and tell them that pre-image and the translated image is given and we have to describe the translation of the image. Paste the coordinate plane on the board and copy the pre-image and translated image on it. Tell them to describe the translation of the given image first we choose any one point of the pre-image, for example we choose point A whose coordinates are (1, 4). Now we look at its corresponding point A’ on the translated image that has coordinates (–3, –4). To find how many units move left we have to find which number subtracted from 1 to get –3. 4 is the number when subtracted from 1 we have –3. This shows that the translated image moves 4 units left from the pre-image. Now to find how much the translated image moves down from the pre-image we have 4 – 8 = –4 so, the translated image moves 8 unit down from the pre-image. So the given translated image moves 4 units left and 8 units down from the pre-image. Similarly all other points moved by the same number of units. As a result, this translation can be described as: $(x, y) \rightarrow (x - 4, y - 8)$ or in words as: "4 units left and 8 units down." For more clarification solve more examples related to description of the pre-image and its translated image on the board and explain it to students. Encourage students to ask questions if they have any confusion.



Activity:

Divide the class into small groups. Distribute coordinate planes of pre-image and translated image to each group. Instruct each group to describe translation of the given translated images. Encourage discussions within the group. After some time, have each group present their findings to the class, discussing their interpretations and answering the questions. Discuss with them about their common mistakes. Appreciate them for their active participation and correct work.

Sum Up: **(3min)**

Sum up the lesson by recalling with students how we can describe the translation of an object or shape.

Assessment: **(5min)**

To assess students’ learning by asking them to solve Q2 (a) of “Learning check 11.3” given at page 173 of their textbook.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Homework: **(2 min)**

Solve Q2 (b-d) of “Learning check 11.3” given at page 173 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 1 **Lesson Plan:** 7

Unit Name: Angles and Transformation **Topic:** Construction of Triangles **Date**:

Objective(s):

At the end of this period, the students will be able to:

Construct equilateral and isosceles triangle.

Resource Material:

Chalk/Marker, White/Blackboard, Board geometry Box, Textbook page 174 and 177

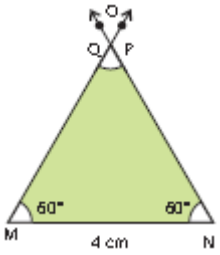
Teaching & Learning Activities:

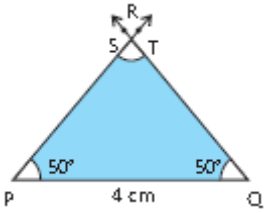
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Draw a triangle on the board and ask students do you know the given shape and its types. Take their responses and tell them that a closed figure with three sides is called a triangle. On the basis of its sides we divide the triangle into three types one is equilateral triangle, second one is isosceles triangle and the third one is scalene triangle.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about construction of equilateral and isosceles triangle. Begin the lesson by asking students: What is meant by equilateral triangle? Take their response that must be an equilateral triangle is the triangle where three sides are of equal in measure. Ask them: Do you know how we construct the equilateral triangle? Take their responses and instruct them to open the textbook page 174 and read the statement of the worked example that is draw an equilateral ΔMNO in which $\angle$M = $\angle$N = 60° and MN = 4 cm. Tell them that to draw an equilateral triangle first we draw the line segment $\overline{MN}$ = 4 cm with a ruler. Now place the protractor at $\overline{MN}$ such that the centre of the protractor is exactly at point M. Read the angle 60°on the protractor and mark point P. Again, place the protractor at $\overline{MN}$ such that the centre of the protractor is exactly at point N. Then, read the angle 60° on the protractor and mark point Q. Join M to P and N to Q and name the point where they meet as O. Tell them that ΔMNO is the required equilateral triangle. Ask students: What is meant by isosceles triangle. Take their responses that the isosceles triangle is the triangle in which the measures of two of its sides are equal. Ask students: how to construct isosceles triangle? Take their responses and instruct them to open the textbook page 174 and read the statement of the worked example that is draw a ΔPQR in which $\angle$P = $\angle$Q = 50° and PQ = 4 cm. Tell them that first we draw line segment $\overline{PQ}$ = 4 cm with a ruler. Then place the protractor at PQ such that the centre of the protractor is exactly at point P. Read the angle 50^0 on the protractor and mark point T. Again, place the protractor at PQ such that the centre of the protractor is exactly at point Q. Read the angle 50^0 on the protractor and mark point S. Join P to T and Q to S and name the point where they meet as R. Tell them that ΔPQR is the required isosceles triangle. Draw triangles on the board step by step and explain each step to them. Encourage students to ask questions if they have any confusion.





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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Sum Up: **(3min)**

Sum up the lecture by retelling students the steps to construct equilateral and isosceles triangle.

Assessment: **(5min)**

To assess students', to solve Q2 of "Learning check 11.4" given on page 177 of their textbook.

Homework: **(2 min)**

Solve Q3 of "Learning check 11.4" given on page 177 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 1

Unit Name: Angles and Transformation **Topic:** Construction of triangle **Date**:

Objective(s):

At the end of this period, the students will be able to:

Construct scalene and acute-angled triangle.

Resource Material:

Chalk/Marker, White/Blackboard, Geometry Box, Textbook page 175 and 177

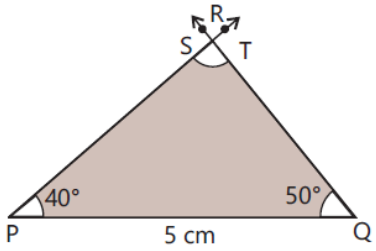
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

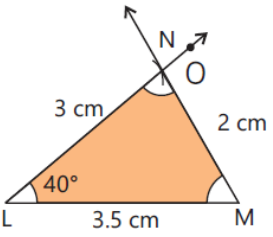
Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: how to construct equilateral and isosceles triangles? What is the difference between equilateral and isosceles triangle? How we can construct equilateral and isosceles triangle of the given measurements. Take their responses and appreciate them for their correct answers. Recall with them the steps to construct equilateral and isosceles triangles

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about construction of scalene and Acute-angled triangle. Begin the lesson by asking students: What is meant by scalene triangle? Take their response that must be a triangle where all of three sides are of different in length is the scalene triangle. Ask them: Do you know how we construct the scalene triangle? Take their responses and instruct them to open the textbook page 175 and read the statement of the worked example that is draw an scalene ΔPQR in which $\angle$P = 40º, $\angle$N = 50° and PQ = 5 cm. Tell them that to draw a scalene triangle first we draw the line segment $\overline{PQ}$ = 5 cm with a ruler. Now place the protractor at $\overline{PQ}$ such that the centre of the protractor is exactly at point P. Read the angle 40°on the protractor and mark point T. Again, place the protractor at $\overline{PQ}$ such that the centre of the protractor is exactly at point Q. Then, read the angle 50° on the protractor and mark point S. Join P to T and Q to S and name the point where they meet as R. Tell them that ΔPQR is the required scalene triangle.



Ask students: What is meant by acute-angled triangle. Take their responses that the acute-angled triangle is the triangle in which the measures of three angles are acute angles. Ask students: how to construct acute-angled triangle? Take their responses and instruct them to open the textbook page 175 and read the statement of the worked example that is draw an ΔLMN in which $\angle$L = 40° and LM = 3.5 cm and LN = 3 cm. Tell them that first we draw line segment $\overline{LM}$ = 3.5 cm with a ruler. Then place the protractor at LM such that the centre of the protractor is exactly at point L. Read the angle 40^0 on the protractor and mark point O. Now place the pointer of the compass at point L and draw an arc of 3 cm that intersect LO at point N. Join M to N. Tell them that ΔLMN is the required acute-angled triangle. Draw triangles on the board step by step and explain each step to them. Encourage students to ask questions if they have any confusion.



Sum Up: **(3min)**

Sum up the lesson by recalling with students the steps to construct scalene and acute-angled triangle.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 175 of their textbook.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Homework: **(2 min)**

Solve Q1 and Q4 of “Learning check 11.4” given on page 177 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 2

Unit Name: Angles and Transformation **Topic:** Construction of triangle **Date**:

Objective(s):

At the end of this period, the students will be able to:

Construct right-angled and obtuse-angled triangle.

Resource Material:

Chalk/Marker, White/Blackboard, Geometry Box, Textbook page 176 and 177

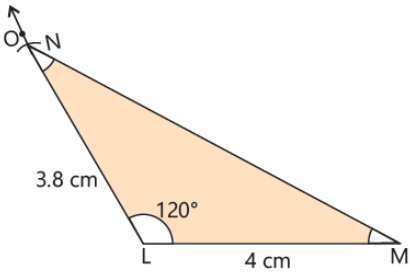
Teaching & Learning Activities:

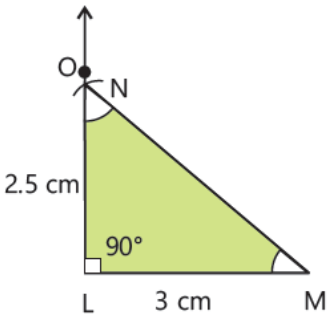
Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: How to construct scalene triangle and obtuse-angled triangle? Instruct students to tell the steps to construct the scalene triangle and acute-angled triangle. Take their responses and appreciate them for their correct answers.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about construction of obtuse-angled and right-angled triangle. Begin the lesson by asking students: What is meant by obtuse-angled triangle? Take their response that must be a triangle where one angle is of obtuse angle. Ask them: Do you know how we construct the obtuse-angled triangle? Take their responses and instruct them to open the textbook page 176 and read the statement of the worked example that is draw an obtuse-angled ΔLMN in which $\angle$L = 120°, LM = 4 cm and LN = 3.8 cm. Tell them that to draw a obtuse-angled triangle first we draw the line segment $\overline{LM}$ = 4 cm with a ruler. Now place the protractor at $\overline{LM}$ such that the centre of the protractor is exactly at point L. Read the angle 120°on the protractor and mark point O. Now place the pointer of the compass at point L and draw an arc of 3.8 cm that intersect LO at point N. Join M to N. Tell them that ΔLMN is the required obtuse-angled triangle. Ask students: What is meant by right-angled triangle. Take their responses that the right-angled triangle is the triangle in which the measure of one angle is 90°. Ask students: how to construct right-angled triangle? Take their responses and instruct them to open the textbook page 176 and read the statement of the worked example that is draw an ΔLMN in which $\angle$L = 90° and LM = 3 cm and LN = 2.5 cm. Tell them that first we draw line segment $\overline{LM}$ = 3 cm with a ruler. Then place the protractor at LM such that the centre of the protractor is exactly at point L. Read the angle 90^0 on the protractor and mark point O. Now place the pointer of the compass at point L and draw an arc of 2.5 cm that intersect LO at point N. Join M to N. Tell them that ΔLMN is the required right-angled triangle. Draw triangles on the board step by step and explain each step to them. Encourage students to ask questions if they have any confusion.





Sum Up: **(3min)**

Sum up the lesson by recalling with students to steps to construct obtuse-angled and right-angled triangle.

Assessment: **(5min)**

To assess students' learning ask them to solve Q5 of "Learning check 11.4" given on page 177 of their textbook.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Homework: **(2 min)**

Solve Q6 of "Learning check 11.4" given on page 177 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Term: 3 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 3

Unit Name: Angles and Transformation **Topic:** Finding Unknown angles of a Triangle **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate unknown angles in a triangle.

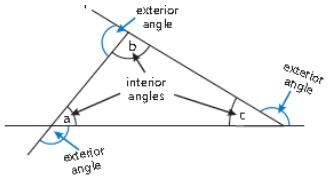
Resource Material:

Chalk/Marker, White/Blackboard, Textbook page 177-180.

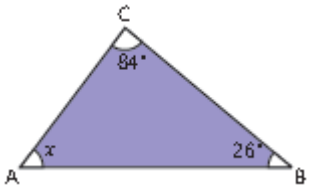
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: what is measure of three angles of the triangle? Take their responses and tell them that the sum of the angles of three angles of the triangle is 180º.



Main Activities/Concept Building: (25 min)



Tell students today we will learn calculate unknown angles in a triangle. Ask students: Do you know: what is the difference between interior and exterior angles in a triangle? Take their responses and appreciate if someone gives the right answer. Instruct students to open their textbook page 177. Now tell students that the interior angles refer to all angles located within a triangle. Explain them the sum of interior angles of a triangle is 180^0.On the other hand, the exterior angles of the triangle refer to angles formed between the sides of a triangle and the respective extended adjacent sides of the triangle. Explain them the sum of consecutive angled in a triangle is also 180^0. Draw triangle on the board and explain students about interior and exterior angle of the triangle and encourage them to ask questions if they have any confusion. Instruct students to open their textbook page 177 and read the statement of the worked example 1. Tell them that the triangle ABC is given and we have to find the unknown marked angle. As two angle of the triangle ∠ACB = 84º and ∠CBA = 26º is given and we have to find the third angle. Tell them that as we know that the sum of the interior angle of the triangle is 180º. So,

∠CBA + ∠ACB + ∠CAB = 180º

26º + 84º + ∠BAC = 180º

110º + ∠BAC = 180º

∠BAC = 180º – 110º = 70º

For more clarification, solve the worked example 2, 3 and 4 on the board and explain them each step. Encourage students to ask questions if they have any confusion.

Activity:

Have students open page 179 of their textbooks. Ask them to solve Q1 (a-d) of "Learning Check 11.5" of their textbooks in their notebooks. Walk around, check their work and guide them if required.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Sum Up: **(3min)**

Sum up the lesson by re-telling students how we can find the unknown interior and exterior angle of the triangle with examples and also explain “Note to Remember” given at page 177 of their textbook.

Assessment: **(5min)**

To assess students’, to solve Q1(e-f) of “Learning check 11.5” given on page 179 of their textbook.

Homework: **(2 min)**

Solve Q1(g-i), Q2 and Q3 of “Learning check 11.5” given on page 180 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 4

Unit Name: Angles and Transformation **Topic:** Sum Up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 11 by solving Q1-7 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, textbook pages 180-182.

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Angles and Transformation”.

Ask them the different questions that are related to “Angles and Transformation”.

Main Activities/Concept Building: **(30 min)**

Activity:

Have students open page 180-182 of their textbooks. Ask them to solve Q1 to Q5 of “Unit Check 11”. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 180.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q6 and Q7 of “Unit Check 11” given at page 182 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 5

Unit Name: Angles and Transformation **Topic:** Sum Up and Unit Check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 11 by solving Q8-12 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, textbook page 183, card board or chart paper in different colours, Large print of a coordinate plane, Scissors, Glue, Pins, Ruler and Pencils.

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit "Angles and Transformation".

Ask them the different questions that are related to "Angles and Transformation".

Main Activities/Concept Building: (30 min)

Activity 1:

Have students open page 183 of their textbooks. Ask them to solve Q8 to Q10 of "Unit Check 11". Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students today, we will be performing a math project (work with math).

- Get students into small groups.
- Instruct each group to choose any type of transformation (reflective, rotational or translation).
- The task is to cut various colours images/objects out of the cardboard or chart paper and represent various transformations on a large sheet or chart paper of a coordinate plane given to each member.
- Then ask them to present their work to other groups and explain their working.

Sum Up: (3 min)

Sum up the lesson by repeating the important points of the whole unit "Angles and Transformation".

Assessment: (0 min)

N/A

Homework: (2 min)

Solve the Q11 and Q12 of "Unit Check 11" given at page 183 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 6

Unit Name: Data Management and Probability **Topic:** Bar Graph **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recognize drawing and interpreting of bar graphs.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 184, 185, 186, 190, 191

Teaching & Learning Activities:

Opening Activities/Warm-up: **(8 min)**

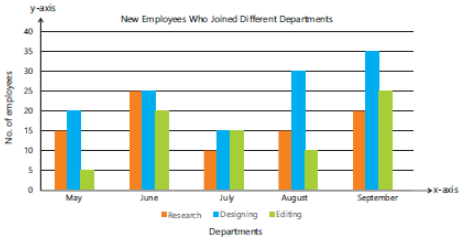
Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about previous day homework. Have student's open textbook at page 184. Quickly recall the concepts related to questions given in rapid recall. Then ask them to solve those questions. Encourage students to ask questions if they have any confusion. Read the opening page question and tell them that we will be able to solve it after learning about the concepts of the unit.

(***Note for teachers***: *The sections "Think out of the box", "Talk over and write" and "Technology corner" are supplementary exercises. These can also be given to students who finish their work quickly or are fast learners.*)

Main Activities/Concept Building: **(22 min)**

Before the main concept, tell them briefly about the unit outline and its real-life relevance. Tell the students today we will recognize drawing and interpreting of bar graphs. Ask them: What is meant by multiple bar graph? Take their responses and Explain to them that a multiple bar graph is an extension of a simple bar graph that shows the relationship between various data values. Like bar graph multiple bar graph is also drawn vertically and horizontally and each data value is represented by bars on the graph. Instruct students to open their textbook page 185 and read the statement of the worked example and tell what is given and what we have to find. Take their responses and tell them that the data is about the number of employees who joined various departments of an educational office during 5 months and we have to draw multiple bar graph for this data. Tell students first we draw x-axis and y-axis perpendicular to each other and mention the values along each axis. Choose an appropriate scale. Colour the correct numbers of values for each department and draw the multiple bars. Draw the multiple bar graph step by step on the board and explain each step to them. Encourage them to ask questions if they have any confusion.

Departments	May	June	July	August	September
Research Department	15	25	10	15	20
Designing Department	20	25	15	30	35
Editing Department	5	20	15	10	25



Activity:

Have students open page 190 of their textbooks. Instruct students to read the statement of the Q1 of "Learning Check 12.1" of their textbooks. Ask students to read and interpret the graph and then answer the questions that are given. Take their responses and correct them where required. Appreciate them for their correct answers.

Sum Up: **(3min)**

Sum up the lesson by re-telling students how we can draw and interpret the multiple bar graph and also explain "Note to Remember" given at pages 185 and 186 of their textbook.

Assessment: **(5min)**

To assess students' understanding ask them to tell: what is the difference between simple bar graph and multiple bar graph.

Homework: **(2 min)**

Solve Q2 of "Learning check 12.1" given on page 191 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 2 **Lesson Plan:** 7

Unit Name: Data Management and Probability **Topic:** Line Graph **Date:**

Objective(s):

At the end of this period, the students will be able to:

Recognize drawing and interpreting of line graphs.

Resource Material:

Chalk/Marker, White/Blackboard, Graph Paper, Textbook pages 186, 187 and 191

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: How can we draw a multiple bar graph from the given data? How we can interpret the data if a bar graph is given? Take their responses and appreciate them for their correct answer. Recall with them we draw multiple bar graph when we compare data values.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will learn about drawing and interpreting line graphs. Ask them: Do you know about line graph? Take their responses and explain them a line graph is a visual representation of data using points connected by straight lines. Explain them it is used to show changes over time. Instruct students to open their textbook page 186 and read the statement of the worked example and tell what is given and what we have to find. Take their responses and tell them that a table is given that shows the amount of zakat (in millions) collected by an Islamic bank over a five-year period and we have to draw line graph for it.

Year	2018	2019	2020	2021	2022
Zakat (in millions)	20	38	35	42	48

Discuss the key components, such as the x-axis, y-axis, data points, and lines. Paste the graph paper on the board and draw x-axis and y-axis on the graph paper. Show years along the x-axis and Zakat along the y-axis, after this Choose a suitable scale to mark the values. Show the points according to the chosen scale and values of the given data and join the point with a line. Solve the example step by step on the board and explain to them each step. Encourage them to ask questions if they have any confusion.

Activity:

Have students open page 191 of their textbooks. Instruct students to read the statement of the Q4 of "Learning Check 12.1" of their textbooks. Ask students to read and interpret the line graph and then answer the questions that are given. Take their responses and correct them where required. Appreciate them for their correct answers.

Sum Up: **(3min)**

Sum up the lecture by retelling how to draw and interpret the line graph with examples.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 186 of their textbook.

Homework: **(2 min)**

Solve Q3 of "Learning check 12.1" given on page 191 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 1

Unit Name: Data Management and Probability **Topic:** Pie Graph **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recognize drawing and interpreting of pie graphs.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 187, 188, 189, 192

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by recalling with students about line graph by asking question such that: How we can draw line graph? Ask students to tell the steps to draw a line graph. Take their responses and appreciate for their correct answer.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will learn about drawing and interpreting of another type of graph to show that values that are called pie graphs. Ask them: Do you know about pie graph? Take their responses explain them a pie graph is a circular graph that represents data of each value in small regions of a circle called sectors. Explain them the whole circle itself represents the total quantity or value and each sector of the graph shows one value. To construct a pie graph, first we find the angle of each sector. Explain them it can be calculated by dividing the frequency of each observation of the data by the total number of data observations and then multiplying the answer by 360° that can be written as:

Angle of each sector = $\frac{\text{Frequency of each observation}}{\text{Total number of observations}} \times 360^{o}$

Instruct students to open the textbook page 188 and read the statement of the worked example and tell what is given and what we have to find. Take their responses and tell them that data shows the amount five students spent on helping needy children in paying their school fees and we have to draw pie graph for it. Explain to them first we find the total amount that five children pay and then we find the angle for the given values by using formula. Find the angles of each data value and explain it to them. After finding central angles, tell them that now we draw a circle of any radius on the board and by drawing redial segment. Now draw angle of 67o by placing the protractor on its centre and explain to them. Tell them that now we again place a protractor and align it on the centre of the circle aligned with the radial segment (the arm of 67°). Draw an angle of 57° for the second student, Marwa. Continue the procedure and make all the required angles of each student. Solve the example step by step on the board and encourage students to ask questions if they have any confusion.

Students	Dania	Marwa	Fahad	Afnan	Rohaan
Amount (in Rs)	938	798	980	1204	1120

Activity:

Divide students into small groups and provide each group with a pie graph and a set of questions related to the data. Encourage them to analyze the graph, calculate each sector value by using formula. Walk around and check their work and guide them where needed. Each group come forward and presents their data to the whole class. Discuss with them about their common mistakes and the point where they feel difficulty.

Sum Up: **(3min)**

Sum up the lecture by retelling about how to draw and interpret the pie graph and also explain "Note to Remember" given at page 187 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 189 of their textbook.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Homework: **(2 min)**

Solve Q5 of “Learning check 12.1” given on page 192 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 2

Unit Name: Data Management and Probability **Topic:** Choosing an Appropriate Type of Graph/Chart Date:

Objective(s):

At the end of this period, the students will be able to:

Select and justify the most appropriate graph(s) for a given data set.

Resource Material:

Chalk/Marker, White/Blackboard, Chart or Graph Paper, Textbook pages 189, 190, 192

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: Do you know about different types of graph and how we can represent data on those graphs. Take their responses and appreciate them for their correct responses?

Main Activities/Concept Building: (25 min)

Tell the students today we will learn how we select and justify the most appropriate graph(s) for a given data set. Ask them: Do you know how we can select that we draw a bar graph, pie graph or line graph for the given data set? Take their responses and instruct students to open their textbook page 189. Tell students that the most appropriate type of graph or chart depends on the nature of the data. Explain them every type of chart has its own characteristics. First tell the students about pictograph that a pictograph is suitable when you have to show the data in an attractive and lively way. Explain to them that it is the most basic chart that we use at the beginning of our introduction to graphs. Tell them that bar charts are commonly used to compare the values of different categories or groups, making it easy to visualize patterns, and variations in the data. They are effective for presenting categorical data and are often used in various fields such as business, economics, statistics, and more. Tell the students that multiple bar charts are effective tools for visually comparing data across different variables or categories, making it easier to identify variations within and between groups. Explain them line graph is suitable when we want to show data that is changing over time. For example, the rate of the dollar, the temperature of a city, etc. Tell students that pie charts are useful for providing a visual representation of the distribution of a set of data and are particularly effective when there are a small number of categories. For example, the percentage of shares among business partners, percentage of profits from different products, etc. Explain each type of graph with example to students and explain how we can choose graph for the specific type of data. Encourage students to ask questions if they have any confusion.

Activity:

Present different data sets on the whiteboard. Ask students to discuss in groups and decide which type of graph would be most appropriate for each data set. Have each group justify their choice by considering the nature of the data and the information. Encourage discussion within the groups about the reasoning behind their choices. Encourage groups to review each other's graphs to ensure accuracy and clarity. This promotes collaboration and provides an opportunity for constructive feedback.

Sum Up: (3min)

Sum up the lecture by retelling about the best selection of chart according to data representation.

Assessment: (5min)

To assess students based on their group presentations, contributions to class discussions, and their ability to justify graph choices.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Homework: **(2 min)**

Solve Q6 of “Learning check 12.1” given on page 192 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 3

Unit Name: Data Management and Probability **Topic:** Data and its Types **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recognize the difference between discrete, continuous, grouped and ungrouped data.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook, prepared card/sticky notes, page 192

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask them about their previous day homework. Begin the lesson by discussing with students about their everyday information like today temperature of different cities, their marks in mathematics test, weight of students, height of students etc. and ask them what type of this information called? Take their responses and tell them that this information gathered from any source about anything is called data and the process of collecting data is called data collection.

Main Activities/Concept Building: (25 min)

Tell the students today we will learn the difference between discrete, continuous, grouped and ungrouped data. Ask students: Do you know about types of data? Take their responses and tell them that on the basis of data we divide the data into types such that discrete and continues data, grouped and ungrouped data. Ask students: What is the difference between discrete and continuous data? Tell the students that the term "discrete" means "different" or "separate." Discrete data refers to values or quantities represented by an integer or whole numbers. Explain to them that discrete data values are countable and cannot be divided into further parts. Write examples on the board like the number of animals in a zoo, the number of students in a class, etc. On the other hand, tell the students that a value or quantity that can be expressed as a fraction or decimal numbers correspond to continuous data. Explain them continuous data cannot be counted and take any value within the range. Write examples on the board like height of students, volume of a container, etc. Ask students: What is the difference between ungrouped and grouped data? Tell the students that ungrouped data consists of individual, raw observations or values. Write examples on the board like a list of individual exam scores for a class, such as 75, 82, 90, 68, etc. Now tell the students that grouped data involves organizing individual observations into groups or intervals. Write examples on the board like exam scores grouped into intervals like 60-69, 70-79, 80-89, etc., with corresponding frequencies. Instruct students to open their textbook page 169 and learn more about data and its types.

Activity:

Divide students into small groups. Distribute a set of pre-prepared cards or sticky notes with examples of different data types to each group. Instruct the groups to sort the examples into categories on their large sheets of paper or whiteboards. Encourage discussion and collaboration within the groups. Encourage groups to review each other's graphs to ensure accuracy and clarity. After completing the task they present their working with reasoning to the whole class. Appreciate them for their good work and discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lecture by retelling about the data and its types and also explain “Note to Remember” given at page 192 of their textbook.

Assessment: (5min)

To assess students’ learning, ask them solve “Pause and Try” given at page 192 of their textbook.

Homework: (2 min)

Revise the class work.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 4

Unit Name: Data Management and Probability **Topic:** Frequency Distribution Date:

Objective(s):

At the end of this period, the students will be able to:

Construct frequency distribution (ungrouped) tables for given data.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 193 and 196

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Begin the lesson by asking them: What is the difference between discrete and continuous data? Take their responses, and then call a student to the front of the class and ask him/her to write examples of each data on the board and tell the difference between discrete and continuous data. Repeat this activity to some other students.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn to construct frequency distribution (ungrouped) tables for given data. Recall with students that the ungrouped data is for raw information or values. Ask them: Do you know about frequency? Take their responses and tell them that the number of times a specific observation occurs in the collected data is called the frequency of that value and to organizing information in the form of table consisting of the observations and the frequency of each observation is called frequency distribution. Tell them that when the observation are tabulated in an ungrouped manner such that each observation of the data shown with its frequency. Instruct students to open their textbook page 193 and read the statement of the worked example and tell what is given and what we have to find. Take their responses and tell them that the scores of grade 7 students in a math test out of 10, are given and we have to prepare frequency table for this data. Tell them that to construct frequency distribution table, first we draw a table with three columns, scores in first column, tally marks in second column and frequency in the third column. Observe the data as 2 is the lowest value in the given data so we start with 2, write 2 in the first column and write all the obtained marks in first columns and now count the number of times each score has been obtained and put the corresponding tally marks against it. After this count them and write the number in the third column. This gives us the frequency of each score. Solve the example step by step on the board and explain to them each step. Encourage them to ask questions if any confusion.

Score in test	Tally marks	Frequency
2	///	3
3	//	2
5	//	2
6	𝍸	5
7	𝍸 ////	9
8	𝍸 //	7
9	𝍸 //	7
10	𝍸	5
	Total	40

Activity:

Have students open page 196 of their textbooks. Ask them to solve Q1 of "Learning Check 12.2" of their textbooks. Walk around the class, check their work and guide them where required.

Sum Up: **(3min)**

Sum up the lesson by retelling students how we can construct the frequency distribution table for ungrouped data and also explain "Note to Remember" given at page 193 of their textbook.

Assessment: **(5min)**

To assess students' learning ask them to tell the steps to construct frequency distribution table for ungrouped data.

Homework: **(2 min)**

Solve Q3 of "Learning check 12.2" given on page 196 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 5

Unit Name: Data Management and Probability **Topic:** Grouped Frequency Distribution Date:

Objective(s):

At the end of this period, the students will be able to:

Construct frequency distribution (grouped) tables for given data.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 194, 195 and 196

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: What is frequency? What is meant by frequency distribution for ungrouped data? Take their responses and appreciate them for their correct answer. Instruct students to write ungrouped data in their notebooks and construct frequency distribution table for it. Walk around and check their work and appreciate them for their good work.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn to construct frequency distribution (ungrouped) tables for given data. Recall with students that the grouped data is the collected data from any source that is organised into groups or categories to show some meaning. Ask students: Do you know about grouped frequency distribution? Take their responses and tell them that when we have too many values of any collected data then it is a difficult to enlist each value along with its tallies and frequencies. Too many rows are required to tabulate that data. In such situations, we use grouped frequency distribution. A grouped frequency distribution has class limits, which are intervals. Explain the terms range of the data, class intervals, upper and lower class limit, class boundaries that are used in grouped frequency distribution with examples to students. Instruct students to open their textbook page 194 and read the statement of the worked example and tell what is given and what we have to find. Take their responses and tell them that data of 35 children about their collection of money for donation is given and we have to prepare frequency table for this data. Tell them that to construct frequency distribution table, first we find the range of the given data, tell students we can find the range of the given data by subtracting the lowest data value from the highest data value. As the minimum value is Rs 32 and maximum value is 51 then 51 – 32 = 19 is the range. After finding the range we decide the number of classes into which we divide the given data. Here we divide the data into 4 classes. Size of the class can be found by dividing the range by number of classes that is 19/4 = 4.75 ≈ 5. Here 32-37, 38-43, 44-49, and 50-55 are the classes or class intervals. Now find the class boundaries for each class. For this, first subtract the upper-class limit of the first class from the lower-class limit of the second class and divide the result by 2.

32	33	33	34	35	36	37
38	38	39	40	41	42	43
44	47	47	48	48	48	49
49	49	50	50	50	50	50
50	51	51	51	51	51	51

$$\frac{38-37}{2} = \frac{1}{2} = 0.5$$

To find the class boundaries we subtract the result of the division that is 0.5 from the lo wer-class limit of each class and add the result of the division (0.5) to the upper-class limit of each class. Now draw the table and write the class interval in the first column, the class boundaries in the second column, the data values in the third column, the tallies in the fourth column and the frequency in the fifth column.

Class intervals	boundaries	Collection (in Rs)	Tally marks	Frequency
32-37	31.5 – 37.5	32, 33, 33, 34, 35, 36, 37	𝍸 //	7
38-43	37.5 – 43.5	38, 38, 39,40, 41, 42, 43	𝍸 //	7
44-49	43.5 – 49.5	44, 47, 47, 48, 48, 48, 49, 49, 49	𝍸 ////	9
50-55	49.5 – 55.5	50, 50, 50, 50, 50, 50, 51, 51, 51, 51, 51, 51	𝍸 𝍸 //	12
			Total	35

Solve the example step by step on the board and explain to them each step. Encourage them to ask questions if any confusion.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Activity:

Have students open page 196 of their textbooks. Ask them to solve Q2 of "Learning Check 12.2" of their textbooks. Walk around the class, check their work and guide them where required.

Sum Up: **(3min)**

Sum up the lecture by retelling about the frequency distribution for grouped data and also explain "Note to Remember" given at page 195 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them solve "Pause and Try" given at page 195 of their textbook.

Homework: **(2 min)**

Solve Q4 and Q5 of "Learning check 12.2" given on page 196 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 6

Unit Name: Data Management and Probability **Topic:** Histogram Date:

Objective(s):

At the end of this period, the students will be able to:

Differentiate between a histogram and a bar graph and identify how to construct a histogram.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook, pages 196 and 197

Teaching & Learning Activities:

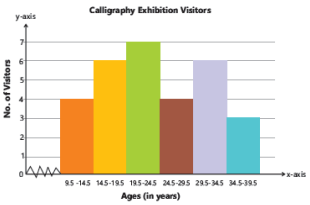
Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Ask them about their previous day homework. Begin the lesson by asking them: What is difference between grouped and ungrouped data? What is the difference between upper class and lower-class limit? What is meant by class boundary? What is meant by frequency distribution for ungrouped data? Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will differentiate between a histogram and a bar graph and identify how to construct a histogram. Ask them: Do you know about histogram? Take their responses and tell them that the term "histogram" originates from the Greek words "histos," meaning pole, and "gram," means chart or graph. So we can say that a histogram is a pole chart. A histogram is used to represent data where the class intervals (or boundaries) are taken along the x-axis and the corresponding frequencies are along the y-axis. A histogram is drawn by dividing the range of the given data into smaller intervals or boundaries. Ask students: Can you tell what is the difference between bar chart and histogram? Take their responses and tell them that in bar graph the various categories, such as days, number of days, favorite fruits, or names of students, can be represented along the x-axis and there is gap between the bars of the bar graph and the order of the does not matter. But in histogram only numbers are represented along x-axis and need sequence of data to represent data and there is no gap between the bars of the histogram. Instruct students to open their textbook page 197 and read the statement of the worked example and tell what is given and what we have to find. Take their responses and tell them that data is about the ages of the different people who visited the calligraphy exhibition on the weekend and we have to construct histogram for this data. First we arrange the given data and construct group frequency distribution table for it. Construct the table and explain each of it to them. After this find the boundaries for each class and write in table. After creating the frequency distribution table, take a graph paper and draw x and y-axis. Label the ages along x-axis and number of visitors along y-axis. On the horizontal axis, label the lower boundary of each interval, draw a bar extending from the lower value of each interval to the lower value of the next interval. The height of each bar should be equal to its corresponding frequency. Construct the histogram and explain each step to them. Encourage them to ask questions if they have any confusion. For more clarification solve one example related to construction of histogram and explain it to them.

Class Intervals	Class Boundaries	Frequency
10-14	9.5 – 14.5	4
15-19	14.5 – 19.5	6
20-24	19.5 – 24.5	7
25-29	24.5 – 29.5	4
30-34	29.5 – 34.5	6
35-39	34.5 – 39.5	3
		$\sum f = 30$



Sum Up: **(3min)**

Sum up the lecture by recalling with students the steps to construct histogram as given at page 197 and 198 of their textbook.

Assessment: **(5min)**

To assess students’ learning ask them to tell the difference between histogram and bar graph.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Homework: **(2 min)**

Revise the class work.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 3 **Lesson Plan:** 7

Unit Name: Data Management and Probability **Topic:** Histogram Date:

Objective(s):

At the end of this period, the students will be able to:

Construct histograms.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook, pages 197 - 199

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask students: How are you? Encourage them to say, “Alhamdulillah”. Begin the lesson by asking students: What is meant by histogram? What is the difference between histogram and bar graph? Take their responses and appreciate them for their correct answer.

Main Activities/Concept Building: (25 min)

Tell students today we will learn to construct histograms. Ask them: How can we construct a histogram? Ask them to tell the steps to construct the histogram. Take their responses and instruct students to open their textbook page 197 and 198 and recall the steps to construct the histogram by revising the worked example. After recalling the steps of construction instruct students to open their textbook page 199 and read the statement of Q1 of “Learning check 12.3”. Tell them that in the given question number of people who visited the park daily during a month is given and we have to construct histogram for this data. Instruct students first arrange the given data, then draw frequency distribution table for this data and draw histogram in their notebooks. Walk around and monitor their working and guide them where required. After completing the question allow class to share their frequency distribution table ad histogram to each other and discuss about it. Appreciate them for their good work and discuss with them about their common mistakes.

After this instruct students to solve Q2 in their notebook. Walk around and check their work and guide them where needed.

Sum Up: (3min)

Sum up the lesson by retelling students how to construct the histogram for the given data.

Assessment: (5min)

To assess students’ understanding by asking different question related to construction of histogram.

Homework: (2 min)

Solve Q3 to Q5 of “Learning check 12.3” given on page 199 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 1

Unit Name: Data Management and Probability **Topic:** Arithmetic Mean **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the mean for ungrouped and grouped data.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook, pages 199, 200, 201, 204 and 205

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: What is the difference between grouped and ungrouped data? If the data is given how we can say that the given data is grouped or ungrouped form? Take their responses and ask students to tell one example for grouped data and one for the grouped data. Appreciate them for their correct response.

Main Activities/Concept Building: **(25 min)**

Tell the students today we will learn to construct the mean for ungrouped and grouped data. Ask them: What is meant by arithmetic mean? Take their responses and tell them that the arithmetic mean of a given set of data can be calculated by dividing the sum of all values by the number of values in the data. Explain them if *x* denotes any value of the data and n is the number of values in the given set of data, then their arithmetic mean (X) is calculated by the following formula:

$$\bar{X} = \frac{\sum x}{n}$$

Explain them Where $\sum x$ (read as summation x) denotes the sum of all values of the given data. Instruct the students to open the textbook page 200 and solve the worked example 1 and 2 for ungrouped data step by step on the board and explain each step to them. Tell students we can also find the mean of the grouped data. Instruct students to open their textbook page 201 and read the statement of the worked example where marks obtained by students in a math exam are given and we have to find the mean marks. Explain to students to find the mean of the grouped data, first calculate the midpoint for each classes. To find the midpoint of the classes we add the lower class boundary and upper class boundary and then divide the sum by 2. After finding the midpoint, we multiply each midpoint by its corresponding frequency f. We can find the mean of the grouped data by dividing the sum of product of midpoint and their corresponding frequency by sum of the frequency. Find the step by step and explain each step to them. Encourage them to ask questions if they have any confusion.

Classes	Lower	Upper	Midpoint (x)	Frequencies	fx
25 - 39	25	39	32	3	32 × 3 = 96
40 - 54	40	54	47	4	47 × 4 = 188
55 - 69	55	69	62	8	62 × 8 = 496
70 - 84	70	84	77	9	77 × 9 = 693
85 - 99	85	99	92	6	92 × 6 = 552
			Sum = Σ =	30	2025

Activity:

Have students open page 204 of their textbooks. Ask them to solve Q1 of "Learning Check 12.4" in their notebooks. Walk around and check their work and guide them where needed. Appreciate them for their good work.

Sum Up: **(3 min)**

Sum up the lecture by retelling students how to find the arithmetic mean of grouped and ungrouped data and also explain "Note to Remember" given at page 200 of their textbook.

Assessment: **(5min)**

To assess students' learning, solve the Q2 of "Learning check 12.4" given on page 204 of their textbook.

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Homework: **(2 min)**

Solve Q3 and Q4 “Learning check 12.4” given on pages 204 and 205 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 2

Unit Name: Data Management and Probability **Topic:** Median and Mode **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the median and mode for ungrouped data and identify appropriate Measure of Central Tendency.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook, pages 202 - 205

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: what is meant by arithmetic mean? Ask students to tell the formula to find the arithmetic mean for grouped and ungrouped data. Take their responses and appreciate them for their correct response.

Main Activities/Concept Building: **(25 min)**

Tell students today we will calculate the median and mode for ungrouped data. Ask them: What is meant by median? Take their responses and instruct students to open their textbook page 202. Tell students that median is the middle most observation in an arranged (either ascending or descending order) data set. Explain them if number of values say n is odd, then median is ($\frac{n+1}{2}$)th observation and if n is even, the median is the arithmetic mean of ($\frac{n}{2}$)th and ($\frac{n}{2}$ + 1)th observation. Solve the worked example on the board step by step and explain each step to them. Ask students: What is meant by mode? Take their responses and instruct the students to open their textbook page 203. Tell the students that mode is the most frequent observation in a data. Tell them mode is represented by the symbol $\hat{X}$. If in a given data set two or more values exist with equal frequency. Explain to them this is the main difference between mode, mean and median because the data has only one mean and median. Solve the worked examples related to mode given at textbook page 203 and explain each step to them. Encourage students to ask questions if they have any confusion. Tell students arithmatic mean is the most reliable and accurate method to measure the central tendency of any that as in arithematic mean we use all the data values while in median and mode, we use certain values for calculation. Tell them that median is reliable when there is an extreme value in the data and The mode is preferred and dependable when determining trends, inclinations, tendencies, or popularity. Otherwise in all other situations means is commonly used method. Exlpain this using the worked example given at page 203 of their textbook. Explain with comparison which method is more reliable for measuring central tendency.

Activity:

Have students open page 204 of their textbooks. Ask them to solve Q5 of "Learning Check 12.4" of their textbooks. Walk around the class, check their work and guide them. Appreciate them for their good work.

Sum Up: **(3min)**

Sum up the lesson by recalling with students about median and mode and how to calculate it and also explain "Note to Remember" given at page 203 of their textbook.

Assessment: **(5min)**

To assess students' learning, ask them which method is most appropriate for measuring the central tendency of any data set and solve "Pause and Try" given at page 202 of their textbook.

Homework: **(2 min)**

Solve Q6 and Q7 "Learning check 12.4" given on page 205 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 3

Unit Name: Data Management and Probability **Topic:** Probability **Date**:

Objective(s):

At the end of this period, the students will be able to:

Recall probability of a single event and the method to calculate it.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook, pages 205 – 207, 211

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: Do you know about probability? Take their responses and tell them that the chance to something happen is called the probability, in a game there is probability is win or lose the game, when we flip the coin there is probability of head or tail, what is the weather tomorrow or when we roll a dice we have probability that 1, 2, 3, 4, 5 or 6. These are all examples of probability.

Main Activities/Concept Building: (25 min)

Tell the students today we will recall probability of a single event and the method to calculate it. Recall with students the probability and the terms related to probability that is experiment, outcomes, sample space and event. Tell them that an experiment is a procedure that results in certain outcomes or findings. Then explain them by examples like tossing a coin, rolling dice, spinning a spinner, etc. Tell them about random experiment that is performed again and again under the same circumstances. Now explain them about outcome that is a possible result of a random experiment. Explain them by an example like there are two possible results when flipping a coin: heads or tails. Tell them about sample space that is the collection of all possible outcomes from the random experiment. Explain them sample space is denoted by the symbol capital letter S. Now tell them about an event that is an outcome, or a collection of numerous outcomes. A, B, C, and other capital letters are typically used to indicate it. Ask students to open page 205 and learn more probability and the terms related to it and ask questions if they have any confusion. Now explain them about the probability of a single event. Tell the students that the probability of an occurrence can be computed by simply dividing the number of positive or desired outcomes by the total number of possible outcomes.

Probability of an event = P(E) = $\frac{\text{Number of favourable (desired) event}}{\text{Total number of possible outcomes}}$

Solve the worked example given at page 206 on the board and explain each step to them. After this explains to students if each event has the same probability of occurring, the events are called equally likely events. On the other hand, the events having a different probability of occurring are not equally likely. To explain it solves the example given at 206 and 207 step by step on the board. Encourage them to ask questions if they have any confusion. For more clarification solve different examples on the board and explain to them.

Sum Up: (3min)

Sum up the lecture by retelling students about probability and how to calculate the probability of single event and also explain "Note to Remember" given at page 205 and 207 of their textbook.

Assessment: (5min)

To assess students' learning by asking questions related to probability of a single event and the formula to calculate it.

Homework: (2 min)

Solve Q1 of "Learning check 12.5" given on page 211 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 4

Unit Name: Data Management and Probability **Topic:** Probability **Date**:

Objective(s):

At the end of this period, the students will be able to:

Identify certain, impossible and complement of events and their probability.

Resource Material:

Chalk/Marker, White/Blackboard, Probability Cards, Textbook, pages 207 -209

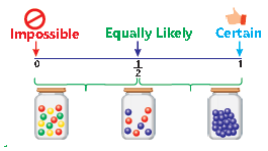
Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah. Ask the students: How are you? Encourage them to say, “Alhamdulillah”. Ask students about their previous day homework. Begin the lesson by asking students: what is probability? What is the difference between experiment and random experiment? Define outcome, sample space and an event? How we can calculate the probability of single event? Take their responses, and appreciate for their correct answer.

Main Activities/Concept Building: **(25 min)**

Tell students today we will learn about certain, impossible and complement of events and their probability. Ask students: Do you know about certain and impossible events? Take their responses and show them 4 red balls. Ask students what is the probability of picking red ball? Take their responses that must be 4. Tell them that as all balls are of red colour so, possibilities of picking red ball is 4. Tell them that the probability of picking red ball is 4/4 = 1. Tell them that when the probability is 1 then we can say that it is certain event. This is because all outcomes are desired or favourable outcomes, as there are only red ball we have. Now ask students what is the possibility of picking blue ball. Take their responses and tell them that as we have only red balls and possibility of picking blue ball is impossible. So we can say that probability of picking blue ball is 0. Tell them that when 0% chance of an event or 0 probabilities then the event is said to be impossible event. Instruct students to open their textbook page 207 and learn more about impossible and certain events. Probability of certain and impossible event can be explain by probability line, draw line and explain it to them. For more explanation solve worked example 1 and 2 on the board given at page 208 of their textbook and explain step by step to them. Encourage them to ask question if they have any confusion. Ask students: Do you know about complement of an event? Take their responses and instruct students to open their textbook page 209 and read the statement of the worked example 1 and tell what is given and what we have to find. Then tell them that we have 3 red, 8 blue, and 7 yellow marbles in a bowl. We have to find the probability that the marble is blue. Also find the complement of this event. Tell them as total possible outcomes are 18 and blue balls are 8 so the probability of picking blue ball is: 8/18 = 4/9. Tell them that now we find the complement of this event that will be “not picking up a blue marble”.



Probability of not picking up a blue marble = P (not blue) = 1 – P (blue) = 1 – 4/9 = 5/9

For more explanation solve worked example 2 given at page 210.

Sum Up: **(3min)**

Sum up the lecture by retelling about certain, impossible and complement of an event and also explain “Note to Remember” given at page 207 of their textbook.

Assessment: **(5min)**

To assess students’ learning ask them to tell the difference between certain and impossible events with example.

Homework: **(2 min)**

Solve Q2 of “Learning check 12.5” given at page 211 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 5

Unit Name: Data Management and Probability **Topic:** Impossible and Certain Events **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the probability of certain and impossible events.

Resource Material:

Chalk/Marker, White/Blackboard, Probability Cards, Textbook page 207-211

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: what is the difference between impossible and certain events? Take their responses, and then ask students if we have 8 blue buttons what is probability of picking blue button and what is the probability of picking green button. Take their responses and appreciate them for their correct response.

Main Activities/Concept Building: (25 min)

Tell the students today we will learn to calculate the probability of certain and impossible events. Recall the concept of the impossible and certain event. Instruct students to open their textbook page 207 to 208 and recall the concept of certain, and impossible event. After this instruct students to read the statement of the Q3 of "Learning check 12.5" given at page 211 of their textbook and tell what is given and what we have to find. Take their responses and call a student to the front of the class and ask him/her to solve 'part a' of Q3 that is the probability of the wool mat if the total prayer mat is 40 and wool mat are 13. Ask the rest of the class to check and correct if needed. Call random students from class and instruct to solve part b of question 3. After this instruct students to solve Q4 (for certain and impossible events) in their notebooks. Walk around and check their work and guide them where needed.

Activity:

Divide the class into small groups. Instruct each group prepare card of questions related to certain and impossible events. Then exchange their cards with other groups. Ask them to identify and categorize the questions and their parts on the cards as certain and impossible event. Instruct students to find the probability of certain and impossible events that are mention in the card. Encourage communication and collaboration within the group. Ask each group to share their findings. Appreciate them for the correct solutions. Discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lesson by recalling with students the concept of certain and impossible event with example and the difference between them.

Assessment: (5min)

To assess students' understanding ask them to give example of certain and impossible event.

Homework: (2 min)

Solve Q5 (for certain and impossible event) of "Learning check 12.5" given at page 211 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 6

Unit Name: Data Management and Probability **Topic:** Complement of an Event **Date**:

Objective(s):

At the end of this period, the students will be able to:

Calculate the probability of compliment of events.

Resource Material:

Chalk/Marker, White/Blackboard, Textbook pages 209 – 211, index cards

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah. Ask the students: How are you? Encourage them to say, "Alhamdulillah". Ask students about their previous day homework. Begin the lesson by asking students: what is meant by complement of an event? Take their responses, and then ask students if we have 5 red balloons and 4 blue balloons then what is the probability that the balloon we pick is not red? Take their responses and appreciate them for their correct response.

Main Activities/Concept Building: (25 min)

Tell the students today we will learn to calculate the probability of complement of an event. Recall the concept of the complement of an event. Instruct students to open their textbook page 209 and 210 and recall the concept of complement of event with the help of examples. After this instruct students to read the statement of the Q3 of "Learning check 12.5" given at page 211 of their textbook and tell what is given and what we have to find. Take their responses and tell them that today we will find the complement of the events in in parts of the Q3. Call a student to the front of the class and ask him/her to solve for complement 'part a' of Q3 that is the probability of the not the wool mat if the total prayer mat is 40 and wool mat are 13. Ask the rest of the class to check and correct if needed. Call random students from class and instruct to solve part b and c of question 3. After this instruct students to solve Q4 (complement of events) in their notebooks. Walk around and check their work and guide them where needed.

Activity:

Divide the class into small groups. Instruct each group prepare card of questions related to complement of events. Then exchange their cards with other groups. Instruct students to find the probability of complement of an event that are mention in the card. Encourage communication and collaboration within the group. After completing their task each group come forward and share their working with the whole class and explain their work in detail. Allow other groups to ask question if they have any confusion related to their work. Appreciate them for the correct solutions. Discuss with them about their common mistakes.

Sum Up: (3min)

Sum up the lecture by retelling about examples of complement of an event.

Assessment: (5min)

To assess students' learning, ask them solve "Pause and Try" given at page 210 of their textbook.

Homework: (2 min)

Solve Q5 (complement of events) of "Learning check 12.5" given at page 211 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 4 **Lesson Plan:** 7

Unit Name: Data Management and Probability **Topic:** Sum up and Unit check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 12 by solving Q1-7 of Unit Check Exercise.

Resource Material:

Chalk/Marker, White/Blackboard, textbook pages 212 and 213

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Tell students that they are going to revise all the concepts of the Unit “Data Management and Probability”.

Ask them the different questions that are related to “Data Management and Probability”.

Main Activities/Concept Building: **(30 min)**

Activity:

Have students open page 212 and 213 of their textbooks. Ask them to solve Q1 to Q5 of “Unit Check 12”. Walk around the class and appreciate them for the correct solutions. Guide them if required.

Sum Up: **(3 min)**

Sum up the lesson by repeating the important points given in Sum-Up of the unit given at page 212.

Assessment: **(0 min)**

N/A

Homework: **(2 min)**

Solve the Q6 and Q7 of “Unit Check 12” given at page 213 of their textbook.

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 1

Unit Name: Data Management and Probability **Topic:** Sum up and Unit check **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concepts of Unit 12 by solving Q8-10 of Unit Check Exercise and by completing "work with math" activity.

Resource Material:

Chalk/Marker, White/Blackboard, Chart papers, Graph Papers, Glue Stick/thumb pins, textbook pages 213 and 214

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, "Assalaamu Alaikum" and start with the name of Allah.

Ask students: How are you? Encourage them to say, "Alhamdulillah".

Tell students that they are going to revise all the concepts of the Unit "Data Management and Probability".

Ask them the different questions that are related to "Data Management and Probability".

Main Activities/Concept Building: (30 min)

Activity:

Have students open page 213 and 214 of their textbooks. Ask them to solve Q8 and Q9 of "Unit Check 12". Walk around the class and appreciate them for the correct solutions. Guide them if required.

Activity 2:

Tell students today, we will be performing a math project (work with math).

- Get students into groups.
- Assign each number of a group a task.e.g., organize the data using graphs, calculating mean, median and mode, draw a frequency distribution chart and histogram for the data.
- Instruct each group to present their work and explain their conclusions about what type of chart was appropriate for which type of data or what measure of central tendency for various collected data value is more appropriate than the other.
- The member with the most area wins the game.

Sum Up: (3 min)

Sum up the lesson by repeating the important points of the whole unit "Data Management and Probability".

Assessment: (0 min)

N/A

Homework: (2 min)

Solve the Q10 of "Unit Check 12" given at page 214 of their textbook.

Teacher's Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 2

Unit Name: Angles and Transformation **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Angles and Transformation”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Angles and Transformation”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: (32 min)

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: (3 min)

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: (0 min)

N/A

Homework: (0 min)

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **What is difference between line and rotational symmetry?**

2. **Rotate the given figure and find its order.**

3. **Find the values of *x* and y for P' if an image having point P (– 5, – 3) is rotated:**

   a) 90° clockwise b) 180° anticlockwise c) 270° clockwise

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 3

Unit Name: Angles and Transformation **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Angles and Transformation”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Angles and Transformation”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: (32 min)

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: (3 min)

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: (0 min)

N/A

Homework: (0 min)

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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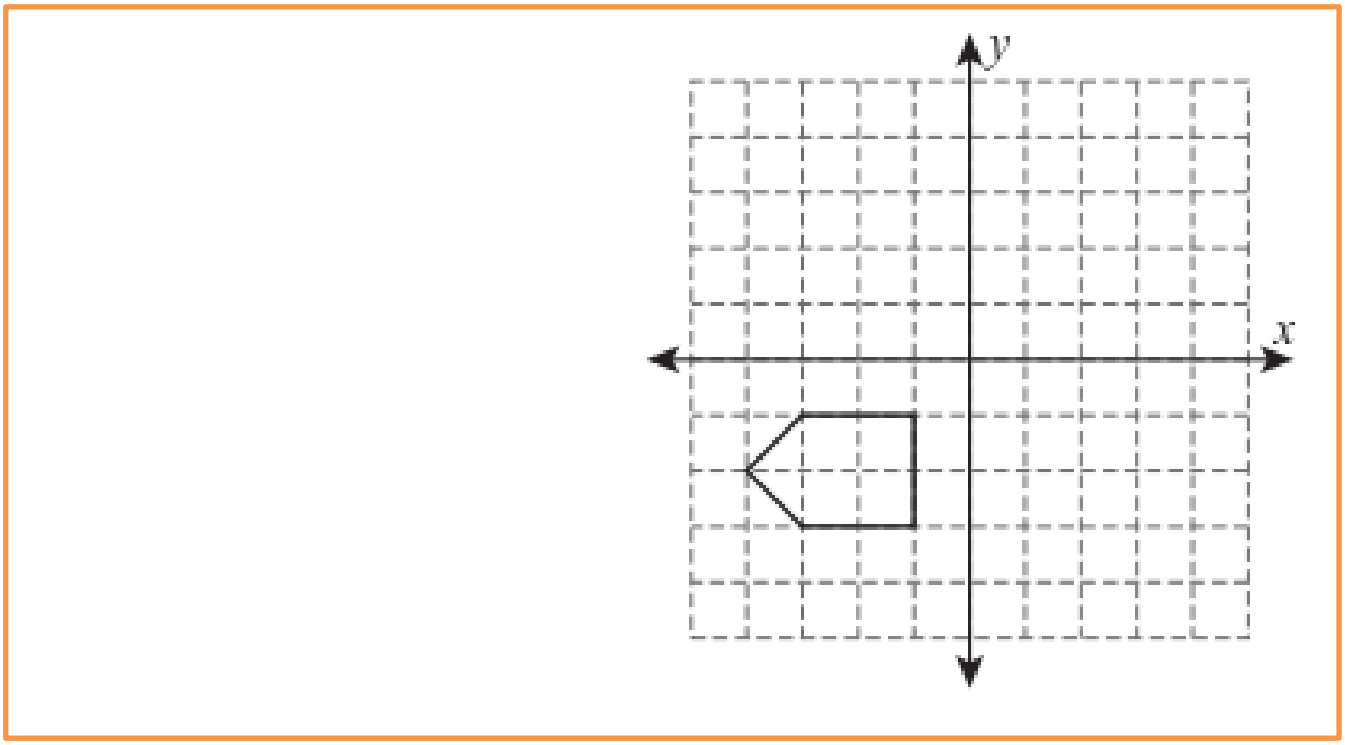
Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

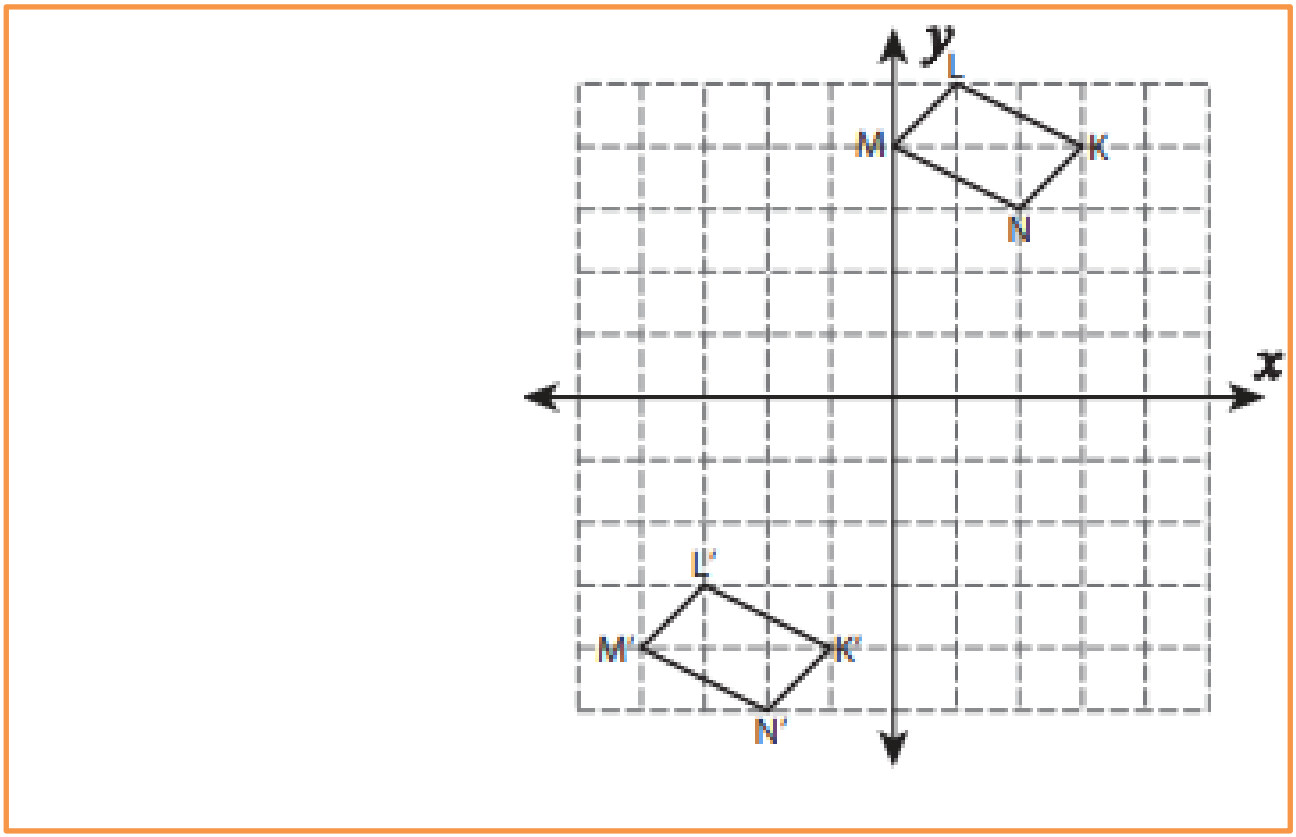
Worksheet

Name: _____ **Date: _____**

1. **Graph the image of the shape using the translation "2 units left and 4 units up."**



2. **Describe the translation of the given images.**



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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 4

Unit Name: Angles and Transformation **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Angles and Transformation”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Angles and Transformation”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: (32 min)

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: (3 min)

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: (0 min)

N/A

Homework: (0 min)

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

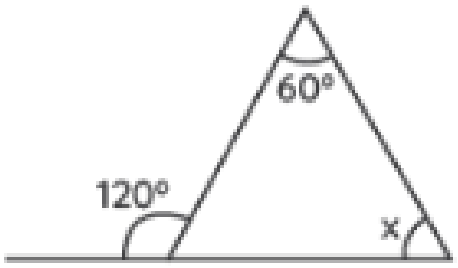
Name: _____ Date: _____

1. **Construct an isosceles triangle ABC in which $\overline{AB}$ = 4.5 cm and ∠A = ∠B = 30°.**

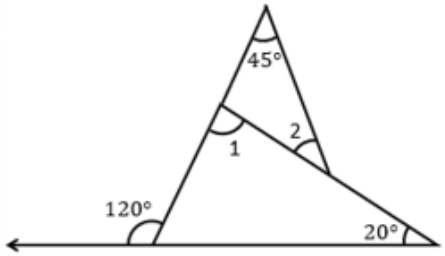
2. **Construct a right-angled triangle TUV in which $\overline{AB}$ = 4 cm, $\overline{BC}$ = 5 cm and ∠A = 90°.**

3. **Find the unknown angle of the following triangles.**

a)



b)



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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 5

Unit Name: Data Management and Probability **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Data Management and Probability”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Data Management and Probability”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ Date: _____

1. **The following data shows the percentage of boys and girls in four sections of grade VII at a school. Draw a vertical multiple bar graph for this data using an appropriate scale.**

Students	VII-A	VII-B	VII-C	VII-D
Boys	70%	40%	55%	60%
Girls	30%	60%	45%	40%

2. **Ahmad measured the height (in cm) of 30 trees in a nursery. Construct this data into a frequency distribution table. Also draw a column for class boundaries.**

   120, 129, 137, 140, 127, 133, 139, 138, 137, 128, 133, 136, 128, 122, 127, 121, 135, 126, 134, 127, 125, 123, 128, 130, 139, 124, 128, 137, 129, 134

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 6

Unit Name: Data Management and Probability **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Data Management and Probability”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: (5 min)

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Data Management and Probability”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: (32 min)

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: (3 min)

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: (0 min)

N/A

Homework: (0 min)

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ Date: _____

1. **Construct a histogram for the following data.**

Class Interval	**1 – 5**	**6 – 10**	**11 – 15**	**16 – 20**
Frequency	**8**	**4**	**9**	**5**

2. **Find the mean, median and mode for the following data.**

   4, 3, 5, 2, 4, 3, 5, 1, 4, 2, 5, 3, 2, 4, 5

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Term: 3 **Periodic Unit: 2** **Week:** 5 **Lesson Plan:** 7

Unit Name: Data Management and Probability **Topic:** Revision **Date**:

Objective(s):

At the end of this period, the students will be able to:

Revise the concept of the unit “Data Management and Probability”.

Resource Material:

Chalk/Marker, White/Blackboard, Worksheet

Teaching & Learning Activities:

Opening Activities/Warm-up: **(5 min)**

Say, “Assalaamu Alaikum” and start with the name of Allah.

Ask students: How are you? Encourage them to say, “Alhamdulillah”.

Ask them a few questions related to the concept of unit “Data Management and Probability”.

Tell students that they are going to revise and practice the main concepts of the Unit by solving a worksheet.

Main Activities/Concept Building: **(32 min)**

Activity:

Give the worksheet to students. Instruct them to complete it. Roam around the class, check their work and guide them if needed.

Sum Up: **(3 min)**

Based on the worksheets solved by students, retell the basic concepts and correct the common mistakes.

Assessment: **(0 min)**

N/A

Homework: **(0 min)**

N/A

Teacher’s Self-Evaluation:

Target: Achieved ☐ Not Achieved ☐ Partially Achieved ☐

Reason/Comments:

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Type	Series	Subject	Grade	Teacher	Time
Lesson Planners	SUN (SNC)	Mathematics	7		40 Min

Worksheet

Name: _____ **Date: _____**

1. **A coin is tossed. Find the probability of a tail. Also find the probability of the complement of the given event.**

2. **Ali rolled a single six-sided dice. Find the probability of the given events. Tell if there are any certain or impossible events. Also find the complement of these events.**

   a) P (factor of 7)
   b) P (even prime number)
   c) P (odd numbers)
   d) P (all number)

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