Lesson-6: Percentage

6 Theme 4: Why Do We Need to Think?

13 Periods (40 minutes each)



Learn Better (Main Course Book), Stay Ahead (Workbook), Book of Holistic Teaching, Book of Project Ideas, CRM signs

Animated Activities, Animation, Dictionary, eBook, Explainer Video, HOTS, I Explain, Infographic, Mental Maths, Quick Maths, Quiz, Slideshow, Test Generator

Curricular Goals and Objectives (NCF)

To enable the students:

- to develop an intuitive understanding of percentages in real-life contexts.
- to relate fractions and decimals to percentages through hands-on activities.
- to calculate percentages of given numbers and quantities in practical situations.

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- to explore the concept of percentage through experiential, visual and activity-based learning.
- to apply their understanding of percentages to solve problems related to daily-life contexts, such as shopping discounts, data representation and comparisons.

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Methodology

Period 1

Teacher: Good morning, students. How are you today?

Teacher: Before we begin today's SHOULD DO lesson, let us quickly revisit something we already know: fractions and

decimals. These are ways to show parts of a whole. Teacher: Let us start with a simple question. If you have a big chocolate bar and share it equally among 4 friends,

Students: One-fourth $\left(\frac{1}{2}\right)$

how much does each friend get?

Teacher: Great. Now, can anyone tell me how we can

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write \frac{1}{11} as a decimal?
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Students: 0.25.

Teacher: Fantastic. So, fractions and decimals both help us describe parts of a whole. But did you know there's another way to express them? It is called a percentage.

Teacher: A percentage is a way of expressing a number out of 100. For example, instead of saying one-fourth, we can say 25%. That means each person gets 25% of the chocolate bar.

Teacher: Let us try another one. Suppose you have a water bottle that is completely full, which means 100%. If you drink half of it, how much is left?

Students: 50%.

Teacher: Correct. Half of 100% is 50%. Percentages are just another way to show parts of a whole, just like fractions and decimals. Today, we will learn more about how to express fractions and decimals as percentages and explore how they are used in real life. Let us get started.

Open the **Dictionary** from the digital platform to introduce the meaning of percentage and how it is represented.

Confirming better



Teacher: Before we move forward, let us say a positive statement together: 'I love making new friends.'



Teacher: Why do you think making new friends is important?

Teacher: That is right. Friends help us learn new things, share happiness, and support each other. Building friendships makes our lives more joyful and helps us understand different perspectives.

Teacher: Wonderful. Now, let us begin our chapter.

Teacher: We are beginning a new chapter today, Percentage. To help us organize our thoughts and learning, we will use a KWL chart.



Teacher: I have made a KWL format on the blackboard. Please take out your notebooks and draw the same format.

K	W	L



Teacher: Now, let us fill in the first column (K - What I Know). Think for a moment—what do you know about percentages?

Student 1: I have seen percentages on shopping discount boards.

Student 2: Percentages are used in marks and test scores. Student 3: I think it has something to do with fractions.

Teacher: Great. You all have some understanding of percentages. Now, let us move to the second column (W - What I Want to Learn). What questions do you have about percentages?

Student 4: How do we change fractions into percentages?
Student 5: Why do we use percentages in real life?

Student 6: How do we calculate percentages of a number?

Teacher: These are excellent questions. As we go through the lesson, we will answer them one by one. Now, let us begin our Re-KAP activities to make learning more exciting. Today, we will do the Kinaesthetic, Auditory and Pictorial activities.

Teacher: Let us start with a Kinaesthetic activity.

Kinaesthetic

Kinaesthetic

Stand in your place. The last student in each row writes a small decimal number and traces it on the back of the student in front of them. This contine until the first student in the row identifies the number and says it out loud. Confirm the answer with the original number.

Teacher: Everybody, please open your books to the lesson page in your main course book. Who would like to read and explain the activity?



(Call a student volunteer to read out the instruction aloud to the class.)

Teacher: Great. Here are the steps that we will follow,

- 1. Stand in your assigned place and remain in your rows as they are.
- 2. The last student in each row will think of a small decimal number (e.g., 2.3, 0.75 or 1.06).
- 3. This student will use their finger to trace the decimal number on the back of the student in front of them.
- 4. The next student will try to recognise the number, then trace the same number on the back of the student in front of them.
- 5. This process continues until the first student in the row receives the number and says it out loud.
- 6. Finally, the last student in the row announces the original decimal number to check if it was passed correctly.

Example:

• The last student writes 3.5 on the back of the next student.

- The number is passed forward by tracing until it reaches the first student.
- The first student says the number out loud.
- The last student confirms whether it matches the original number.

Teacher (After the game): Let us check—does the number match the original decimal?

(Students confirm the answer.)

Teacher: Fantastic. This activity helps us recognize and remember decimal numbers in a fun way. Now, let us discuss how decimals are used in real life. Can you think of any examples?

Student 1: Prices in shops have decimals, like ₹12.50.

Student 2: My height is measured in decimals, like 1.45 meters.

Student 3: We see decimals in cricket scores and fuel prices.

Teacher: Excellent examples. Decimals are all around us. Now, let us proceed further with the next activity.

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Auditory



Listen to your teacher carefully. Answer the questions.

Teacher: Listen carefully as I read the question aloud. Think about the problem and try to find the answers step by step.

Teacher: Aryan had 8 apples. He gave $\frac{3}{8}$ of the apples

to his sister and $\frac{1}{\mu}$ of the apples to his friend.

Now, let us answer some questions:

- 1. How many apples did Aryan give to his sister?
- 2. How many apples did Aryan give to his friend?
- 3. How many apples does he have left?

Teacher: Let us go one by one. Who would like to answer the first question?

Student 1: Aryan gave $\frac{3}{8}$ of 8 apples to his sister. $\frac{3}{8} \times 8 = 3$ apples.

Teacher: Well done. Now, let us move to the second question.

Student 2: Aryan gave $\frac{1}{4}$ of 8 apples to his friend. $\frac{1}{4} \times 8 = 2$ apples.

Teacher: Excellent. Now, let us find out how many apples Aryan has left.

Student 3: Aryan gave away 3 + 2 = 5 apples, so he has 8 - 5 = 3 apples left.

Teacher: Great effort, everyone. You all did a fantastic job. Now, let us move on to our next fun learning activity.

 (\square) You may show the **eBook** given on the digital platform.

Pictorial



Teacher: Now, look at the picture in your books and answer the questions. Teacher: Observe each grid carefully.



The grid is divided into small squares. Some squares are shaded, and some are not.

Teacher: Let us start with the first figure. Count how many squares are shaded. Now, count the total number of squares in the grid.

Teacher: Who can tell me how we write the fraction for the shaded part?

Student 1: The fraction is 'shaded squares / total squares.' **Teacher**: That is correct. Now, let us convert this fraction into a decimal. Who can explain how we do that?

Student 2: We divide the numerator by the denominator. **Teacher**: Excellent. Let us repeat the same process for the other three figures.

(Discuss each figure with the class, helping them express the shaded part as a fraction and then convert it into a decimal.)

Teacher: That was an amazing class. You all participated so well today. Let us give a huge round of applause for everyone's effort.

Play the **Explainer Video** from the digital platform to give an introduction about the topic.

Differentiated Activities

110 km/hr

In your notebook, draw a 10 × 10 grid (100 squares). Shade any number of squares and write the percentage of the shaded part.

80 km/hr



Count the total number of boys and girls in the class. Find the percentage of boys and the percentage of girls.

40 km/hr



Stand up if you have a blue shirt at home. The teacher will count how many students are standing. What percentage of the class is standing?

Home Task

Write the percentage of 50 coloured squares in a 10 \times 10 grid in the notebook.

Period 2

Interacting better

Teacher: Open your books to page 74 and look at the activity in the 'Interacting better' section.





Teacher: Think of the decimal 0.20 and write it as a fraction. **Teacher**: Now, find three equivalent fractions for 0.20 by multiplying the numerator and denominator by the same number.

Teacher: Compare your answers with your partner. Do you have the same fractions, or are they different? Discuss how you got them.

(Give time for students to work on the task. Move around the class to observe and guide students who need help. Discuss the answers with the class.)

Teacher: Excellent work. This helps us see how decimals and fractions are connected in daily life.



Teacher: Let us look at the story in your book. What do you see happening in the Maths class?



(Allow students to observe the picture and share their thoughts.)

Teacher: Yes, Ryan is counting the number of girls and boys in the class. Can someone tell how many girls and boys there are?

Students: There are 18 girls and 12 boys.

Teacher: Great job. Now, Ryan is trying to find the percentage of girls in the class. Have you heard the word percentage before? What do you think it means?

Students: It might be something related to numbers or fractions.

Teacher: That is a good guess. We already know about fractions and decimals, and percentage is another way to express a part of a whole—out of 100.

Teacher: Let us learn more about percentage in this lesson.

Play the **Animation** from the digital platform to generate interest about the topic.

Percentage

PERCENTAGE

 The word per cent is derived from the Latin word per centum, which means 'per hundred'.

 Thus, per cent means for every hundred. The symbol of per cent is '%'.

 $1\% = \frac{1}{100} = 0.01; 100\% = \frac{100}{100} = 1$

 Look at the given 10 × 10 grid. There are 100 small squares in it.

 54 squares out of the 100 squares are shaded.

 In other words, we can also say that 54 per cent of the square grid is shaded.

 54% = $\frac{54}{100} = 0.54$

Teacher: The word per cent comes from the Latin words per centum, which means 'per hundred.'



Teacher: This means when we talk about percentages, we are comparing something to 100. The symbol for per cent is '%'.

Teacher: Let us take an example. Look at the 10 × 10 grid in your book. How many small squares are there in total? **Students**: 100 squares.

Teacher: Correct. Now, count the shaded squares. How many are shaded?

Students: 54 squares.

Teacher: Great. Since 54 squares are shaded out of 100, we can say that 54% of the grid is shaded.

Teacher: Let us write this in different forms:

- As a fraction: $\frac{54}{100}$
- As a decimal: 0.54

Teacher: This shows us that percentages, fractions, and decimals are connected. We can write the same value in different ways.

Teacher: Let us try another one together. If 30 squares were shaded instead of 54, what would the percentage be?

Students: 30% because 30 out of 100 squares are shaded. **Teacher:** That is correct. Fantastic work, everyone. Percentages help us express parts of a whole in a simple way. In the next session, we will learn more about conversions in percentage.

Show the **Infographic** from the digital platform to discuss the uses of percentage in real life.

Differentiated Activities

110 km/hr

Count the number of windows in the classroom. Estimate and write what percentage of the total classroom walls have windows.

80 km/hr

Count the total number of students in the class. Find out how many students are wearing white shoes and express the number in percentage.

40 km/hr



Look at the classroom board. Imagine it is divided into 100 equal squares. If the teacher shades 20 squares, what percentage of the board is shaded?

Home Task

Look around your home and find two objects where a part of them can be expressed as a percentage (e.g., half-filled water bottles, a fruit bowl with different types of fruits, etc.). Draw them in your notebook and write their percentage representation.

Period 3

 Teacher: Good morning, everyone.
 SHOU

 Before we begin, let us do a quick warm-up. I will ask some percentage-based questions. Think carefully and answer.
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Teacher: Imagine you have a chocolate bar with 10 pieces. If you eat 5 pieces, what percentage of the chocolate have you eaten?

Students: 50%. Because 5 out of 10 is half, and half is 50%. **Teacher:** Great. Now, if you eat 2 more pieces, what percentage of the chocolate have you eaten in total?

Students: 70%. Because 7 out of 10 is 70%.

Teacher: Excellent thinking. Let us try another one. If a class has 20 students and 10 students are wearing red shirts, what percentage of students are wearing red shirts? **Students:** 50%. Because 10 out of 20 is half, and half is 50%. Teacher: Well done. See how percentages help us compare parts of a whole? Now, let us dive deeper into today's lesson.

to percentage



Fraction to percentage

Conversion from and

A traction with denoming percentage by putting a	ator 100 can be expressed o 1 % symbol along with the ni	umerator.
Example 1: Convert the	e following into percentages	r No. entag nomith nomith
a. <u>37</u> 100	ь. <u>79</u> 100	pe is a particular to a partic
$\frac{37}{100} = 37\%$	$\frac{79}{100} = 79\%$	ICL
if possible. Then	express it as a percentage.	(•
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Teacher: Today, we will learn how to convert fractions into percentages using two different methods.



Teacher: A percentage is a way of

expressing a number out of 100. If the denominator of a fraction is already 100, we can directly write the numerator with a % sign.

Teacher: For example,

•
$$\frac{37}{100} = 37\%$$

• $\frac{79}{100} = 79\%$

•
$$\frac{100}{100} = 792$$

Teacher: But what if the denominator is not 100? Let us learn two methods to convert fractions into percentages. Method 1: Converting to an Equivalent Fraction with 100 as the Denominator

Teacher: In this method, we change the denominator of the fraction to 100 by multiplying both the numerator and denominator by the same number. Let's see an example.

Convert $\frac{7}{10}$ into a percentage.

- The denominator is 10. To make it 100, we multiply both 7 and 10 by 10.
- This gives us $\frac{70}{100}$, which means 70%.

Teacher: Let us try another example. Convert $\frac{17}{95}$ into percentage.

• The denominator is 85. We need to make it 100. What should we multiply 85 by to get 100?

(Pause and let students think, but provide the answer if needed.)

Teacher: We multiply by 20. So, multiplying the numerator 17 × 20 and denominator 85 × 20, we get $\frac{20}{100}$, which is 20%.

(Discuss the other examples given in the book)

Teacher: Now, let us learn the second method.

Method 2: Multiplying by 100

Teacher: In this method, we multiply the fraction by 100 and simplify the result. Let us take the same example.

Convert $\frac{7}{10}$ into a percentage.

- Multiply 7 by $100 \rightarrow 7 \times 100 = 700$
- Now divide by $10 \rightarrow 700 \div 10 = 70\%$

Teacher: Let us try another example: Convert $6\frac{1}{2}$ (which is

 $\frac{13}{3}$ as an improper fraction).

•² Multiply 13 by $100 \rightarrow 13 \times 100 = 1300$

• Now divide by $2 \rightarrow 1300 \div 2 = 650\%$

Teacher: So, $6\frac{1}{2} = 650\%$.

(Discuss the other examples given in the book)

Teacher: Now, let us check if we understand both

methods. If I give you the fraction $\frac{3}{4}$, how can we convert it into a percentage using Method 1?

(Pause to allow students to think. If no response, guide

them step by step.)

Teacher: And what about Method 2? How would we do it?

Teacher: Great effort, everyone.



learnt. Take out your notebooks, we will work on exercise 1. Look at the given fractions.



Teacher: Some fractions already have 100 as the denominator, which makes conversion easy. Others require a few extra steps. Let us go through some examples together.

- The denominator is already 100, so we simply write the numerator with a % sign.
- $\frac{48}{100} = 48\%$

c. $\frac{17}{25}$

• The denominator is 25. To convert it into 100, we multiply both numerator and denominator by 4.

•
$$(17 \times 4) / (25 \times 4) = \frac{68}{100} = 68\%$$

e. 7 $\frac{7}{20}$ (Mixed Fraction)

• First, convert the mixed fraction into an improper fraction:

$$7\frac{7}{20} = \frac{(7 \times 20 + 7)}{20} = \frac{147}{20}$$

• Now, multiply by 100 to convert it into a percentage: (147 ÷ 20) × 100 = 735%

Teacher: Great work, everyone. Now, for your home task, I want you to complete the remaining two questions on your own.

Differentiated Activities

110 km/hr

Convert five different fractions of your choice into percentages without looking at the book. Show your calculations step by step.

80 km/hr

Use small classroom objects (erasers, pencils, or books) to represent fractions. Choose two fractions and create groups to visualize how to convert them into percentages. Write your answers in your notebook.

Example:

- Suppose we take 10 erasers, and 4 out of 10 are red.
- The fraction of red erasers =
- Convert to percentage: $\frac{4}{10} \times 100 = 40\%$

• Answer: 40% of the erasers are red.

40 km/hr

-Work with a partner and use dot diagrams or grids to represent fractions. Convert the fractions into percentages by shading the correct number of parts in a 100-square grid. Discuss your answers with your partner. Students will use a 100-square grid to visualize fractions and convert them into percentages.

Example:

- Suppose a student chooses the fraction $\frac{3}{5}$.
- To convert it to a percentage, we first make the denominator 100: $\frac{3}{5} = \frac{3 \times 20}{5 \times 20} = \frac{60}{100}$ • The student shades 60 out of 100 squares in the grid.
- Answer: 60%

Home Task

Solve the questions b and d of Exercise 1 (Page 75) in your notebook.

Period 4

() Do the Animated Activity from the digital platform to give a quick recap of finding the percentages.

Percentage to fraction



any percentage can be written as a fraction with 100 as the denominator. Step-by-Step Conversion

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Teacher: Let us take an example. Suppose we have 32%. To convert it into a fraction, we follow these steps:

1. Write it as a fraction. Remove the percentage symbol

 \rightarrow Now, it is just a fraction: $\frac{32}{100}$

- 2. Reduce to the lowest terms \rightarrow 32 and 100 have a common factor of 16.
- Divide both by 16: $\frac{32}{100} = \frac{16}{50} = \frac{8}{25}$
- So, 32% as a fraction is $\frac{6}{25}$

Teacher: Did everyone understand this method? Students: Yes, ma'am.

Teacher: Let us try another example. Convert 88% into a fraction. What is the first step?

Students: Write it as
$$\frac{88}{100}$$
.

100 **Teacher:** Good. Now, can we simplify this fraction further? Students: Yes. Both 88 and 100 can be divided by 4.

Teacher: Excellent. Let us divide: $\frac{88}{100} = \frac{22}{25}$

So, 88% as fraction is $\frac{22}{25}$

Exercise 2



Teacher: Now let us practice what we learnt. Take out your notebooks, we will work on exercise 1. Look at the given percentages.



Teacher: Remember the steps—divide by 100, remove the percentage symbol, and reduce to the lowest terms. You may work in pairs to do this. Once you complete, we will discuss the answers.

Students: Okay, ma'am.

(Give time for students to complete the exercise and the discuss the answers with the class.)

Note: You may complete a, b, e in the class and assign the rest as home task for students.

Differentiated Activities

110 km/hr



Write five percentages of your choice (between 1% and 100%) and convert them into fractions.

80 km/hr



Convert the following percentages into fractions by dividing by 100 and then simplifying: 20%, 35%, 50%, 80%, 90%

40 km/hr

- Draw a 100-square grid in your notebook.
- Shade 25 squares and write the fraction for 25%.
- Shade 60 squares and write the fraction for 60%.
- Shade 10 squares and write the fraction for 10%.

Home Task

In your notebook, solve question (c) and (d) of Exercise 2 given on page 76 in the Main Course Book.

Period 5

Decimals to percentage

Decimals to percentage To convert a decimal number to number by 100. Then put the % s	a percentage, multiply symbol.	the given decimal
Example 4: Express the followir a. 7.5	ng as percentage. ь. 4.56 с.	0.097
a. 7.5 = 7.5 × 100% = 750% c. 0.097 = 0.097 × 100% = 9.7%	ь. 4.56 = 4.56 × 100% =	456% (76)



Teacher: Today, we will learn how to convert decimal numbers into percentages.



Teacher: To do this, we simply multiply the decimal number by 100 and add the % symbol. Let us go through an example together.

Teacher: Look at the first number: 7.5.

1. Multiply 7.5 × 100 = 750

Add the % symbol: 750%
 So, 7.5 = 750%.

Teacher: Now, let us try another one: 4.56

- 1. Multiply 4.56 × 100 = 456
- 2. Add the % symbol: 456% So, 4.56 = 456%.

Teacher: Let us do one more. Look at 0.097.

- 1. Multiply 0.097 × 100 = 9.7
- Add the % symbol: 9.7%
 So, 0.097 = 9.7%.

Exercise 3

Convert the following decimals to percentage. Write the answers in your notebook a. 5.7 b. 24.6 c. 68.21 d. 153.12 e. 4386.6

Teacher: Now let us practice what we learnt. Take out your notebooks, we will work on exercise 3. Look at the given decimal numbers.



Teacher: Remember the steps—multiply by 100 and add the percentage symbol (%). You may work in pairs to solve these. Once you complete them, we will discuss the answers together.

Students: Okay, ma'am.

(Give time for students to complete the exercise and the discuss the answers with the class).

Note: You may complete a, b, c in the class and assign the rest as home task for students.

Percentage to decimal

Percentage to decimalTo convert a percentage to a decimal, remove the % symbol. Divide the numberby 100, which means move the decimal point two places to the left.**Example 5:** Express the following as decimals.a. 39%b. 215%c. 55.6%c. 55.6%a. 39% = $\frac{39}{100}$ = 0.39b. 215% = $\frac{215}{100}$ = 2.15c. 55.6% = $\frac{55.6}{100}$ = 0(76)

Teacher: Now, let us learn how to convert a percentage to a decimal. Look at the example given on page 76.



Teacher: The steps are simple. First, remove the % symbol. Then, divide the number by 100. This means we move the decimal point two places to the left. Let us try an example together.

Teacher: If we have 39%, we divide by 100: $39 \div 100 = 0.39$

Teacher: Now, let us try a bigger number. What happens if we have 215%?

 $215 \div 100 = 2.15$

Teacher: Next, let us try a percentage with a decimal. 55.6% becomes:

55.6 ÷ 100 = 0.556

Teacher: Now, let us practice some in our notebooks.

Exercise 4

4) c	onvert the	follow	ing pe	rcentag	ies to c	decimals.	Write	the answers in your noteboo	k	
	a.	54%	b.	82%	c.	143%	d.	266%	e. 385%	(76)	

Teacher: Take out your notebooks we will work on an exercise. Look at the given percentages.



Teacher: Remember the steps—remove the % symbol and divide the number by 100, which means moving the decimal point two places to the left. You may work in pairs to solve these. Once you complete them, we will discuss the answers together.

Students: Okay, ma'am.

(Give time for students to complete the exercise, then discuss the answers with the class.)

Differentiated Activities

110 km/hr



Convert 78%, 245%, and 9.6% into decimals by removing the % symbol and dividing by 100. Show your steps clearly.

80 km/hr



Convert 62% and 35% into decimals by moving the decimal point two places to the left.

40 km/hr



Convert 20% into a decimal and write the answer.

Home Task

In your notebook, solve question (d) and (e) of Exercise 3 given on page 76 in the Main Course Book.

Period 6



Example 6: Find the following. a. 50% of 2500

a. 50% of 2500 = $\frac{50}{100}$ × 2500 = 1250

b. 7.5% of 800 = $\frac{7.5}{100} \times 800 = 60$

ь. 7.5% of 800

 $0 = \frac{7.3}{100} \times 800 = 60$ (76)

Teacher: Today let us learn about finding the value of the percentage of any given number. Open your books to page 76 and look at the example of finding 50% of 2500.

Teacher: First, convert 50% into a fraction:

Teacher: Now, multiply this fraction by 2500: $\left(\frac{50}{100}\right) \times 2500$ = 1250.

Teacher: So, 50% of 2500 is 1250.

Teacher: Now, let us try another example. Find 7.5% of 800.

Teacher: First, convert 7.5% into a fraction: $\frac{7.5}{100}$

Teacher: Now, multiply by 800: $(\frac{7.5}{100}) \times 800 = 60$. **Teacher**: So, 7.5% of 800 is 60.

Finding percentage of one quantity from the total quantity

 FINDING PERCENTAGE OF ONE QUANTITY FROM THE TOTAL QUANTITY

 To find the percentage of one quantity from the total quantity, write the fraction with the given quantity as the numerator and the total quantity as the denominator. Then convert it into percentage.

 Example 7: Find what per cent is the following.

 a. 5 of 25
 b. 47.5 of 950
 c. $\frac{7}{10}$ of 560

 a. 5 of 25= $\frac{5}{2}$ × 100% = 20%
 b. 47.5 of 950= $\frac{47.5}{2}$ × 100% = 5%

c.
$$\frac{7}{10}$$
 of 560= $\frac{7}{10} \times \frac{1}{56} \times 100\% = \frac{7}{560} \times 100\% = 1.25\%$

Teacher: To find what percentage one quantity is of another, we first write the fraction:

(Given quantity) ÷ (Total quantity). Then, we multiply the fraction by 100 to convert it into a percentage.

Teacher: Let us look at an example. What percentage is 5 out of 25?

Step 1: Write it as a fraction $\rightarrow \frac{5}{25}$ Step 2: Multiply by $100 \rightarrow (\frac{5}{25}) \times 100$

Step 3: Solve \rightarrow (5 × 100) \div 25 = 500 \div 25 = 20% So, 5 is 20% of 25.

(Similarly, discuss the other examples given in the book)

Find what per cent is the following. Write the answers in your notebook. a. 7 of 182 b. 21 of 525 c. 16 of 800 d. $\frac{2}{5}$ of 10

Teacher: Take out your notebookswe will work on exercise 5.

Teacher: Remember the steps:

- 1. Write the fraction with the given quantity as the numerator and the total quantity as the denominator.
- 2. Multiply the fraction by 100 to convert it into a percentage.

Teacher: Solve these in your notebooks. Take your time and check your calculations carefully.

Teacher: Well done, everyone. Let us give ourselves a big round of applause for the effort we put in today. See you in the next class.

Differentiated Activities

110 km/hr

Find what percent 12 is of 48 and 25 is of 125 by writing them as fractions and converting them into percentages.

80 km/hr

Find what percent 30 is of 150 and 18 is of 90 by using the fraction method and multiplying by 100.

40 km/hr



(77)

77

MUST DO

ID MIN.

MUST DO

20 MIN.

With a classmate's help, find what percent 7 is of 35 and write the answer in your notebook.

Home Task

Think of any two real-life examples where you can find the percentage of one quantity from the total. Write them in your notebook and solve them.

Example: Attendance in a Class

There are 40 students in a class. On a particular day, 32 students are present. What percentage of students attended the class?

Solution: $\frac{32}{40} \times 100 = 80\%$

So, 80% of the students were present.

Period 7

Open the **Mental Maths** from the digital platform. Ask students to work in pairs to solve the **COULD DO**



100 Therefore, Number of boys in the school = 968

Teacher: When we solve word

problems, we look for clues in the question to determine which operation to use.



Teacher: If the problem involves finding a percentage of a total quantity, what should we do?

Students: We should multiply the percentage by the total and divide by 100.

Teacher: Correct. Let us look at an example together.

Teacher: A school has 2,420 students, and 40% of them are boys. How many boys are there in the school?

Teacher: First, identify the total quantity. Here, the total number of students is 2,420.

Next, we find 40% of 2,420 using the formula: $\frac{40}{100} \times 2420$ = 968

So, the number of boys in the school is 968.

Teacher: Let us try another example together before you practice on your own.

(Discuss exercise 6, 7 and 8 with students. Ask students to work in teams to solve the problem. Discuss the answers with the class)

Play the **Quick Maths** from the digital platform to introduce a few strategies of solving word problems using bar models.



Connecting better

Teacher: Alright, everyone, imagine a scenario. During

recess, Ryan saw the gardener sowing some seeds in the school garden. Jas told Ryan, '35% of the garden is covered with plants.'





Teacher: Ryan then replied, 'Jas, I have read in Science class that by planting more trees, we can control global warming.' Both of them nodded and smiled in agreement. **Teacher**: Now, I want you to work with a partner and come

up with a short conversation between Ryan and Jas. Think about what questions Ryan might ask about percentages and how Jas might explain it to him.

Teacher: Try to use words like 'percentage,' 'fraction,' 'covered,' and 'total area' in your conversation.

Teacher: Once you have practiced with your partner, we will share some of the conversations with the whole class. **Note:** You may ask students to prepare later and present to their thoughts to the class in the next session.

Differentiated Activities

110 km/hr



Create your own percentage word problem on a poster, solve it, and explain the steps.

80 km/hr

6

A school has 500 students. 30% of them are in Grade 5. How many students are in Grade 5? Solve and write the solution.

40 km/hr



A fruit seller has 200 apples. He sells 25% of them in the morning. How many apples did he sell? Solve and write the answer.

Home Task

A library has 1,200 books. 40% of them are fiction books. How many fiction books are there in the library? Write the percentage sentence and solve it in your notebook.

Period 8

Play the **I Explain** from the digital platform to give a quick recap to students on percentage.



Recalling better

Teacher: Let us recall what we have learnt in this chapter in the 'Recalling better' section.



Recalling better CING In this chapter, I have learnt •

The following questions could be asked to recapitulate the concept taught in the lesson:

- How do you convert a fraction into a percentage?
- What steps do you follow to convert a decimal into a percentage?
- How do you change a percentage back into a decimal?
- Find 40% of 1,250 and write the solution.
- If a classroom has 50 students and 20 are girls, what percentage of the students are girls?
- A shop sells 250 apples, and 75 of them are sold. What percentage of apples were sold?

Decoding better



Teacher: Alright, everyone, get ready for a fun hands-on math activity. Today, we are going to explore how to convert fractions into percentages using a simple craft.



77

Teacher: We will form four teams, and each team will get a square sheet of paper and crayons. Your challenge is to follow these steps and complete the activity in 10 minutes.

Activity Steps:

- 1. Fold the square sheet of paper symmetrically a few times and trace the lines.
- Colour different parts using at least two colours of your choice.
- 3. Write the fraction of the sheet that each colour represents.
- Convert the fractions into percentages by multiplying by 100%.

Teacher: Once all teams have completed their work, each group will present their fractions and percentages to the class. The team that correctly converts and presents their work creatively and accurately will earn the title of 'Percentage Masters'.

Are you all ready to start?

Differentiated Activity

110 km/hr



Create your own fractions-to-percentage word problem and solve it. Then, illustrate your problem using a drawing or diagram.

80 km/hr



Take any three fractions (e.g., $\frac{3}{5}, \frac{7}{10}, \frac{4}{8}$) and convert

them into percentages. Show your steps clearly in your notebook.

40 km/hr



Shade a part of a given shape (square, circle, or rectangle) and write its fraction. Then, convert that fraction into a percentage.

Home Task

Complete solving better on page 78 of the main coursebook.

Period 9

Learning better



Teacher: Hello, students. It is time to check how much we have learned about percentages. We will now work



on the end-of-lesson exercises. Let us begin exercise A.

Teacher: Read each question carefully and choose the correct option. Take your time to think before answering. Let us see how well you understand percentages.



Teacher: Look at the table given in Exercise B. Fill in the blanks with missing numbers. Use the methods we learnt in converting the numbers to percentage, fractions and decimal.

Teacher: Let us solve the first one together, then complete the remaining in your books.

() You may show the **HOTS** given on the digital platform.

C Convert the following as a	dire	cted. Write the answers i	n y	our notebook.	
1. 168 to %	2	$\frac{58}{25}$ to %	3.	59% to a fraction	
4. 23.56 to %	5	. 84% of 1200	6.	438% to a decimal	79

Teacher: Now, let us practice converting numbers into percentages and fractions. Solve only questions 1 to 3.



Teacher: Read each question carefully and write the correct answer in your notebook. Once you are done, check your answers with a partner. Let us see how many you got right.

Teacher: Well done, everyone. Let us have a huge round of applause for our hard work today. See you in the next class.

Differentiated Activities

110 km/hr

Create your own percentage word problem involving discounts at a shopping mall. Solve it and write the answer.

80 km/hr



Draw a number line and show 3 jumps of 25 to represent 25% increments. Write the corresponding percentage values.

40 km/hr



Draw a pizza divided into 4 equal parts. If 2 parts are eaten, write the fraction of the pizza eaten and convert it into a percentage.

Home Task

Solve questions 4 to 6 of Exercise C given on page 79 in your notebook.

Period 10

D Solve the following word problems, in your notebook.

- 1. Dinesh purchased a teddy bear. The price of the teddy bear is ₹425. He got it for 15%
- 2. Manju read 45% of a book that had 240 pages, How many pages from the book did she read?
- Surbhi had ₹900 with her. She gave ₹360 to Maya. What percentage of money did Surbhi give to Maya?
- Birju sells 44 L of milk every day. On a rainy day, he could sell only 70% of the milk.
 How many litres of milk did he sell that day?

Teacher: Open your books to page 72. Look at Exercise D. We will solve word problems 1 to 4 together.





(118

Teacher: Carefully read each question and identify the percentage given. Remember to follow the correct steps—convert the percentage into a fraction or decimal and then multiply by the total quantity.

Teacher: Let us solve the first question together, then continue solving the rest on your own.

Teacher: Dinesh purchased a teddy bear for ₹425. He got a 15% discount. Can anyone tell me what we need to find?

Students: We need to find how much Dinesh paid after the discount.

Teacher: Correct. First, we need to calculate 15% of ₹425. How do we do that?

Students: We multiply 15 by 425 and then divide by 100.

Teacher: Yes. Let us do the calculation together: 15% of $425 = 15/100 \times 425 = 63.75$

So, the discount is ₹63.75. Now, how do we find the final price?

Students: We subtract the discount from the original price. **Teacher**: That is right. Now, 425 - 63.75 = 361.25425 - 63.75 = 361.25425 - 63.75 = 361.25

So, Dinesh paid ₹361.25 for the teddy bear. Well done.

Teacher: Now, try solving the next word problems on your own. If you need help, discuss with your partner.

Teacher: Check your answers once you are done and discuss with a partner.

Thinking better

Thinking better

21st CS HOTS

Think and write the answer in your notebook.

Ryan had some marbles. He gave 30% of his marbles to Lina. Then he gave 20% of the remaining marbles to Jas. If Ryan has 56 marbles left after giving marbles to Lina and Jas. 80 how many marbles did he originally have?

Teacher: Open your books to the Thinking Better section. Let us solve this interesting problem together.



Teacher: Ryan had some marbles. First, he gave away 30% of his marbles to Lina. Then, he gave 20% of the remaining marbles to Jas. After that, he was left with 56 marbles. How can we find out how many marbles Ryan originally had?

Students: We need to work backward.

Teacher: Yes. Since 56 marbles are left after giving 20% to Jas, that means 56 marbles represent 80% of the marbles left after giving some to Lina.

Teacher: So, let us find the total marbles Ryan had after giving 30% to Lina. We set up the equation: 80% of remaining marbles = 56

 $\frac{80}{100} \times X = 56$ Solving X, we get: X = 56 $\times \frac{100}{80} = 70$

So, after giving 30% to Lina, Ryan had 70 marbles left.

Teacher: Now, if 70 is 70% of Ryan's original number of marbles, how do we find the total?

Students: We divide by 70% or multiply by 100/70.

Teacher: Exactly.

 $\frac{70}{100} \times Y = 70$ Y = 70 × $\frac{100}{70}$ = 100

So, Ryan originally had 100 marbles.

Teacher: Well done.

Home Task

Creating better

Make a pixel art drawing.

- Take a piece of chart paper. Draw 10 × 10 grids as shown.
 Colour the boxes to create pixel art using only 3 or 4 colours, as shown.
- Count the number of boxes for each colour and write down the percentage of each colour used.
- You can draw other images such as the Sun, a balloon, etc.

Creating better: Make a pixel art drawing.

Period 11

Choosing better

Choosing better

You are excited to play with your friends after school. When you step out, you notice that it's raining heavily.

Which choice reflects a positive approach to adapting to weather changes and welcoming new experiences?

- Putting on rain gear and finding enjoyable activities to do in the rain.
- Feeling disappointed and staying inside because the weather is not what you had wanted.

Teacher: Look at the question in your book. Imagine you are excited to



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80

LSV

80

play with your friends after school, but when you step outside, you notice it is raining heavily. What would you do?

Teacher: Discuss with your partner and choose the best option that shows a positive approach to adapting to weather changes and welcoming new experiences.

Teacher: Would you:

- 1. Put on rain gear and find enjoyable activities to do in the rain?
- 2. Feel disappointed and stay inside because the weather is not what you wanted?

Teacher: Now, share your answers with the class and explain why you made your choice.

(Encourage students to share their choices and lead them into a discussion)

Pledging better



Guide students to connect their learning with Sustainable Development



Goal (SDG) 9: Industry, Innovation, and Infrastructure by encouraging creativity and problem-solving.

- Discuss Innovation: Ask students what it means to be creative and give examples of simple inventions that improve daily life.
- Relate to Learning: Explain how percentages are used in real life, such as in shopping discounts or project planning.
- Student Pledge: Have students complete: 'I pledge to be creative and try new ideas by...'
- Encourage Action: Let students draw or write about a simple idea to improve something at home or school.

Remind them that small ideas can lead to big changes.

Worksheet 1

Theme 4: Why De	e We Need to Think? centage	(Worksheet 1
A. Fill in the blanks.		
1. Per cent is derive	d from the	_word per centum.
2. The symbol of pe	r cent is	
3. 90% in fraction fo	rm can be written as	
4. $\frac{78}{100}$ in percentage	ge form can be written as	
5. To convert a dec	imal to percentage, we mu	Itiply by
B. Express the follow	ving decimals as percentag	es in your notebook.
1. 1.5	2. 21.4	3. 67.34
4. 165.37	5. 317.568	6. 634.88
C. Express the follo	wing fractions as percentag	ges in your notebook.
1. $\frac{23}{100}$	2. <u>67</u> 100	3. 145 100
4. 4/5	5. 3 ¹ / ₄	6. $6\frac{7}{8}$
D. Sristi scored 480	marks out of 600 marks in a	a competitive exam. What
percentage of n	narks did she score in the e	xam? Tick (🗸) the correct answer.
1. 40%	2. 80%	
3. 20%	4. 45%	

Teacher: Open your workbooks to page 28. We will solve worksheet 1. Let us go through each exercise step by step.



Teacher: In Exercise A, read the statements carefully to fill in the blanks given.

Teacher: In Exercise B, express the given decimals as percentages in your notebook.

Teacher: In Exercise C, express the given fractions as percentages in your notebook.

Teacher: In Exercise D, read the given statement carefully and choose the right answer.

Teacher: Solve each exercise one by one. Raise your hand if you have any doubts.

(Discuss the instructions for each exercise and give work time for students to complete the task. Once they finish, discuss and review the answers before moving to the next exercise)

Play the **Slideshow** to introduce the strategy of using bar model to solve percentage problems.

Differentiated Activities

110 km/hr

Create a short story where a character encounters a real-world situation involving percentages. Write it in three to four sentences and explain how the percentage is calculated. Share your story with the class.

80 km/hr

Draw a 'Percentage Flower.' Write a number in the centre and draw petals around it with percentagerelated calculations. Each petal should contain a fraction, decimal, or a percentage conversion related to the central number.

Example: If the centre number is 50, the petals could include:

- 50% of 100 = 50
- 25% of 200 = 50
- 10% of 500 = 50

40 km/hr

Work with a partner. One person picks a percentage and the other picks a number. Then, both work together to find the percentage of that number.

Example: If one student picks 20% and the other picks 150, they work together to find 20% of 150 = 30. Share your answers with the class.

Home Task



Revising better

Revise the concept of conversion of percentages to fractions and decimals in your Little Book. Write five questions each on conversion of percentages to fractions and percentages to decimals and solve them in your Little Book.

Period 12

Worksheet 2

		C	Worksheet 2
A. Find the follo	wing in your notebook.		
1. 8% of 550	2. 12% of 880	3. 25% of 108	C
4. 30% of 1220	5. 50% of 2500	6. 75% of 450	0
B. Express the f	ollowing percentages as de	ecimals in your noteboo	·k.
1. 22%	2. 96%	3. 189%	
4. 5.92%	5. 76.42%	6. 89.3%	
C. Express the	ollowing fractions as perc	entages in your notebo	ok.
1. $\frac{115}{100}$	2. <u>318</u> 100	3. $\frac{6}{25}$	
4. $6\frac{1}{5}$	5. 4 7 10	6. 9 3 12	
). Vanshika re left to read?	ad 40% of a story book wit Tick (🗸) the correct answ	th 240 pages. How man er.	y pages are still
1. 140 pages		2. 144 pages	
3. 120 pages		4. 124 pages	
E. Anita's gard there in the	en has 250 flowers. If 60% garden? Tick (✔) the corre	of them are roses, how ect answer.	many roses are
1. 100		2. 75	
150	\square	4. 125	\square (

29. We will complete Worksheet 2. **Teacher**: In Exercise A, solve the given

problems in your notebook.

Teacher: In Exercise B, express the given percentage as decimals in your notebook.

30 MIN.

Teacher: In Exercise C, express the given fractions as percentage in your notebook.

Teacher: In Exercise D, read the given statement and choose the right answer.

Teacher: In Exercise E, read the given statement and choose the right answer.

Teacher: Work independently, and I will check your answers once you are done.

(Discuss the instructions for each exercise and give work time for students to complete the task. Once they finish, discuss and review the answers before moving to the next exercise) You may generate additional practice worksheets using the **Test Generator** given on digital platform.

Engage students in a Quiz to give a quick recap of the lesson. Instruct students to work in pairs.



Period 13

Chapter 6: Percentage

We Need to Think?

Theme 4: Why Do

A English

Write questions for the answers given below. Choose the correct interrogative pronoun from the box.

What Where Who Which Whose

1. The word per cent is derived from the Latin word per centum.

2. The symbol of per cent is '%'.

B Science

What is the Earth's most abundant greenhouse gas, which contributes about 41–67 percent to the greenhouse effect and remains in the atmosphere for a shorter period of time?

C Social Studies

The British oppressed Indians after establishing their rule. Farmers had to pay high percentages of taxes, even if their crops failed due to floods or droughts. The unfair policies of the British forced the Indians to revolt. One such revolt was the Sepoy Mutiiny. In which year did it start?

Refer to the Book of Holistic Teaching, page 13 under the title 'Percentage.' Complete the activities mentioned in this section and ensure that the



(13)

students complete them. These activities are designed to enhance their holistic understanding and engagement with the topic. Provide any necessary support and materials to help the students successfully finish the activities.

Worksheet 2

			Worksheet 3
Α.	Observe the shaded p your notebook.	parts and write the perc	centage of the following in
1.		2.	3.
4.		5.	6.
Β.	Find the percentage o	f the following in your no	otebook.
1.	7 of 343	2 15 of 750	3 23 of 575
		2. 15 617 56	0. 20 0. 57 5
4.	56 of 1120	5. 75 of 3750	6. 1250 of 5000
ч. С.	56 of 1120 Out of 80 students in a students did not come	5. 75 of 3750 class, 20 students are a to school? Tick (~) the	6. 1250 of 5000 bsent. What percentage of the correct answer.
ц. С. 1.	56 of 1120 Out of 80 students in a students did not come 30%	2. 15 of 7 50 5. 75 of 3750 class, 20 students are a to school? Tick (✔) the 2. 66%	6. 1250 of 5000 bsent. What percentage of the correct answer.
4. C. 1. 3.	56 of 1120 Out of 80 students in a students did not come 30% 84%	2. 15 of 1 30 5. 75 of 3750 class, 20 students are a to school? Tick (✔) the 2. 66% 4. 25%	6. 1250 of 5000 bsent. What percentage of the correct answer.
4. C. 1. 3. D.	56 of 1120 Out of 80 students in a students did not come 30% 84% In a terminal exam, Me she score in Maths? Ticl	5. 75 of 3750 class, 20 students are a to school? Tick (✓) the 2. 66% 4. 25% 4. 25% bena scored 60% out of 50 k (✓) the correct answer.	6. 1250 of 5000 bsent. What percentage of the correct answer.
4. C. 1. 3. D.	56 of 1120 Out of 80 students in a students did not come 30% 84% In a terminal exam, Me she score in Maths? Ticl 32	2. 15 of 1 30 5. 75 of 3750 class, 20 students are a to school? Tick (✓) the 2. 66% 4. 25% ena scored 60% out of 50 k (✓) the correct answer. 2. 40	6. 1250 of 5000 bsent. What percentage of the correct answer.

Teacher: Open your workbooks to page 30. We will complete Worksheet 3.

Teacher: In Exercise A, observe the shaded parts and write the percentage of the following in your notebook.

Teacher: In Exercise B, solve to find the percentage of the numbers in your notebook.

Teacher: In Exercise C, read the given statement and choose the right answer.

Teacher: In Exercise D, read the given statement and choose the right answer.

Teacher: Work independently, and I will check your answers once you are done.

(Discuss the instructions for each exercise and give work time for students to complete the task. Once they finish, discuss and review the answers before moving to the next exercise)

L (What I have learnt)

Teacher: Now, let us reflect on what COULD DO we have learned about percentages today.



30 MIN.

Teacher: Sit with your partner and discuss the key takeaways from this lesson. Think about:

- How to convert fractions and decimals to percentages.
- How to find the percentage of a given number.
- to calculate the percentage of one quantity from the total.

Teacher: After your discussion, each pair will share their points with the class. We will consolidate your ideas on a KWL chart. Once our chart is complete, we will reflect on our learning journey. How do you feel about your understanding of percentages now? Let us share our thoughts.

Project Ideas

Theme 4: Why Do **Chapter 6: Percentage** We Need to Think? ICT PRO 21st CS • Browse the Internet* to find the applications of percentage in real life. • Make a report with examples in the respective areas of application. (8) • Present the report in class.

Teacher: This is a home task. You will explore how percentages are used in real life. Browse the Internet to find various applications of percentages in daily activities, such as shopping discounts, bank interest rates, sports statistics, population growth, or health-related data. Identify relevant examples and explain how percentages help in these situations. Create a well-structured report on MS Word, including real-world examples and, if possible, images or charts to support your findings. Save your report and be prepared to present it in class. If you have any doubts, feel free to ask before starting your research.

Differentiated Activities

110 km/hr



A store is offering a 25% discount on a jacket that costs Rs. 1,200. How much money will a customer save, and what will be the final price of the jacket? Solve and explain your reasoning.

80 km/hr



A school's sports team has 40 players. If 60% of them are boys, how many boys are in the team? Solve and show your steps.

40 km/hr



There are 20 students in a class. If 50% of them are girls, how many girls are there? Write the percentage equation and solve.

Home Task

Practise the concepts discussed in this chapter.

Learning Outcomes

The students will:

Physical Development	 create percentage charts, use dice for problem-solving, and draw visual models to strengthen fine motor skills
Socio-Emotional and Ethical Development	• collaborate with peers to solve real-life percentage problems, conduct surveys, and calculate class data.
Cognitive Development	 apply percentages in real-life scenarios like shopping discounts and surveys, and solve missing value problems.
Language and Literacy Development	 read and interpret percentage-based problems, discuss strategies, and explain reasoning using KWL charts.
Aesthetic and Cultural Development	 use art to represent percentages, and create posters to connect math with creativity.
Positive Learning Habits	 practice percentage conversions creatively, engage in peer discussions, and reflect on learning to develop problem-solving skills.

Starry Knights

How was the learners' response to the lesson? Do you think they are going to use percentage in day-to-day life?

123

Give yourself a STAR for incredibly fabulous.

Lesson-7: Geometry

Theme 4: Why Do We Need to Think?



10 Periods (40 minutes each)

Learn Better (Main Course Book), Stay Ahead (Workbook), Book of Holistic Teaching, Book of Project Ideas, CRM signs, Poster



Animated Activities, Animation, Dictionary, eBook, Explainer Video, HOTS, I Explain, Infographic, Mental Maths, Know it Right, Math Lab, Mental Maths, Quick Maths, Quiz, Slideshow, Toys from Trash, Test Generator

Curricular Goals and Objectives (NCF)

To enable the students to:

- to understand and apply geometric concepts such as lines, angles, polygons and symmetry.
- to develop spatial reasoning by visualising and constructing geometric figures.
- to strengthen logical thinking and problem-solving skills using geometric relationships.

SHOULD DO

S MIN.

- to connect geometry to real-life contexts in nature, art and architecture.
- to engage in collaborative learning through discussions and group activities.
- to communicate mathematical ideas effectively using appropriate vocabulary.
- to foster creativity and curiosity through hands-on geometric explorations.

Methodology

Period 1

Teacher: Good morning students. How are you?

Teacher: Let us start with a quick activity. I will describe a shape and you will identify it.

Teacher: It has three sides and three angles. (Triangle)

Teacher: It has four equal sides and four right angles. (Square)

Teacher: It has no sides or corners. (Circle)

Teacher: It has opposite sides equal and four right angles. (Rectangle)

Teacher: Well done, everyone. Now, let us move to the next part of our lesson.



Affirming better

Affirming better I love adventures.

Teacher: Today, let us remind ourselves of something important–'I love adventures.'

Teacher: Why do you think adventures are exciting?

Teacher: Yes, they help us explore new things and learn from different experiences.

Teacher: Now, everyone, repeat after me - 'I love adventures.'

Teacher: Great! Learning about shapes and geometry is also like an adventure. Let us continue exploring. **Teacher**: We will begin a new



chapter, Geometry. We are going to use a KWL chart to help us organise our thoughts and learning. I have made a KWL format on the blackboard. Please take out your notebooks and draw the same format in your notebooks.

К	W	L

Teacher: Take a few minutes to think and write. If you have any questions, feel free to ask.

Teacher: You all did an amazing work in this activity.

Let us move to Re-KAP activities. We will use Kinaesthetic,

Auditory and Pictorial activities today to make our learning exciting. Let us start with the Kinaesthetic activity.



Kinaesthetic

Form groups of three students each. Two students in each group will create a shape using their hands and fingers. The third member will count the number of sides and corners of the shape, identify the shape and say it out loud.

Teacher: Everybody, please open page 81 in your Main course book. Who will read and explain the activity? **Teacher**: Let us do a fun activity in groups. Form groups of three students each.



(Scaffold the students to complete the activity.)

Teacher: Well done! This activity helped us visualise and understand shapes using our own movements.



Auditory

(

Teacher: Now, listen carefully as I read some questions aloud. Think before answering.

Teacher: Deekshi is drawing different polygons. She draws two polygons: one with 4 sides and another with 5 sides. Name the polygons Deekshi drew.

Teacher: Excellent responses, everyone. Listening

carefully helps us understand and recall information better. Let us move to the next activity.



Pictorial



Teacher: Look at the shapes given in your book. Classify the objects.

() You may show the **eBook** given digital platform.

Teacher: That was an amazing class. You all participated so well today.

Teacher: Let us all give a huge round of applause for everyone's effort. See you next time.

Differentiated Activities

110 km/hr



and write the number of sides in each shape.

80 km/hr



Look around your classroom or home and identify three objects that match the shape categories

S, C or B. Write the names of these objects and

explain why they fit into their respective categories.

40 km/hr



Use clay or paper to create three different shapes - one with only straight lines, one with only curved lines and one with both straight and curved lines.

Home Task

Draw and label five different shapes you see at home, write the number of sides for each, find one real-life object for each shape and colour them neatly.

Period 2



Teacher: Good morning students. How are you?

Teacher: Today, we will play a fun game called 'Shape Movements.' I will call out a shape and you have to make that shape using your hands, arms or body. Ready?

Teacher: Let us start - Make a circle with your arms. Teacher: Well done! Now, make a triangle using your fingers.

Teacher: Excellent. Now, stretch your arms out wide and make a rectangle with your hands.

Teacher: Great! Now, use your fingers to make a square. Teacher: Now, for a tricky one! Stand up and use your whole body to form a star shape.

Teacher: Fantastic! You all did a great work using your body to form shapes. Now, let us begin our lesson on shapes.



Interacting better



Teacher: Take out a sheet of paper and draw a circle.

Teacher: Now, ask your partner to draw one radius inside the circle.

Teacher: Good! Now, draw one diameter inside the circle. Teacher: What is the difference between a radius and a diameter?

Teacher: Yes, the radius is from the centre to the boundary, while the diameter passes through the centre.

Teacher: Great! This activity helps us understand parts of a circle. MUST DO

Teacher: Now, let us move on to our story.





You may show the **Animation** given digital platform. **Teacher**: Before we begin, let us think about the different

Teacher: Look around the classroom. Can you name some objects that have straight sides?

Teacher: Yes, the whiteboard, windows and books have straight sides.

Teacher: Now, can you name objects that have curved edges.

Teacher: Correct, the clock, wheels and some bottles have curved edges.

Teacher: What do we call shapes that are made up of only straight sides?

Teacher: Yes, they are called polygons.

shapes we see around us.

Teacher: Now, let us listen to a short story about Aryan and Riya, who explore different shapes in their surroundings.

(Ask students to read and explain the story.)

Teacher: What did Aryan and Riya see first?

Teacher: Yes, a football. Was the football a polygon? **Teacher**: No, because it has curved edges.

Teacher: What did they see in the school corridor?

Teacher: Correct, the floor tiles, which are polygons.

Teacher: What was the last shape they identified? **Teacher**: Yes, the stop sign, which is an octagon with

eight sides. **Teacher**: Why is it important to understand

different shapes?

Teacher: Yes, because they help us describe and understand objects around us.

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Teacher: Well done. Now, let us learn about some basic geometric terms.

Basic Geometric Terms



(Discuss the Basic Geometric shapes with students.)

Point

Teacher: What is a point?

Teacher: Yes, a point is a tiny dot that shows a location.

Teacher: Can we measure a point?

Teacher: No, a point has no length or size.

Line

Teacher: What happens if we extend a point endlessly in both directions?

Teacher: Correct, it becomes a line.

Teacher: A line never ends. Can we measure it?

Teacher: No, a line has no fixed length.

Ray

Teacher: What if we extend a line in only one direction? **Teacher**: That is called a ray. It has one fixed endpoint and goes on infinitely.

Line Segment

Teacher: What if we take only a part of a line with two fixed endpoints?

Teacher: Yes, that is a line segment.

Teacher: Can we measure a line segment?

Teacher: Yes, because it has a fixed length.

Teacher: Look at the examples in your book. Can you

point out real-life examples? Teacher: Great! Now, let us move on



You may show the **Dictionary** given digital platform.

Remembering better

to remembering better.



Teacher: What happens when we connect two parallel rays in opposite directions?

Teacher: Yes, we get a line.

Teacher: Look at the example in your book. If OA and OB are two rays, what do they form together?

Teacher: That is correct, they form a line AB.

Teacher: What happens if we extend both sides of a line segment?

Teacher: Yes, it becomes a line.

Teacher: Can a ray be measured?

Teacher: No, it extends infinitely in one direction.

Teacher: For your home task, draw a point, a line, a ray and a line segment.

Teacher: Label them and write one real-life example for each.

Teacher: Excellent work today. Give yourselves a huge round of applause. See you in the next class.



Differentiated Activities

110 km/hr

Explain the difference between a line, a ray and a line segment using real-life examples. Draw and label them.

80 km/hr

Match the terms - point, line, ray and line segment - with their correct definitions and draw one example for each

40 km/hr



Draw a point, a line, a ray and a line segment in your notebook and label them correctly.

Home Task

Draw a point, a line, a ray and a line segment, label them, and write one real-life example for each.

Period 3



Teacher: Good morning students. How are you?

Teacher: Let us begin with a quick quiz. I will ask a question and you have to answer as quickly as possible.

Teacher: What do we use to measure a line segment? Teacher: Yes, a ruler.

Teacher: What is a shape with four equal sides called? Teacher: Correct, a square.

Teacher: What is a curve that starts and ends at the same point?

Teacher: Right, a closed curve.

Teacher: How many sides does a hexagon have? Teacher: Yes, six.

Teacher: What do we call a figure that extends endlessly in both directions?

Teacher: Correct, a line.



Teacher: Well done, everyone. Now, let us move forward with today's lesson.

Measuring Line Segments



Teacher: Look at the image in your book. What is the length of the pen?

Teacher: Yes, it is 6 cm long.

Teacher: What is the first step when measuring a line segment?

Teacher: Correct, place one end of the object at 0 cm on the ruler.

Teacher: What is the second step?

Teacher: Yes, read the measurement at the other end.

Teacher: Let us practise measuring line	segments.	
(Guide the students to measure the	MUST DO	\bigcap
line segment.)	S MIN.	\bigcup
Drawing Line segment		



Teacher: Open your book to page 83 and look at Drawing a Line Segment.

Teacher: What is the first step to draw a line segment?

Teacher: Yes, mark a point A at 0 cm.

Teacher: What is the second step?

Teacher: Correct, move along the ruler and draw a 4 cm line.

Teacher: What is the last step?

Teacher: Yes, mark a point B at 4 cm.

Teacher: Draw a line segment of length 5 cm in your notebook.

Polygons

POLYGONS A polygon is a closed shape made up of three or more line segments. Polygons can be regular or irregular in shape

Polygons that are equal on all sides are called regular polygons. Polygons that have unequal sides are called irregular polygons.

	Types of polygons							
Name	Triangle	Quadrilateral	Pentagon	Hexagon	Heptagon	Octagon	Nonagon	Decagon
Number of sides	3	4	5	6	7	8	٩	10
Figure	\triangle	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc	083

Teacher: Open your book to page 83 and look at the section Polygons.

Teacher: What is a polygon?



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Teacher: Yes, a closed shape made of three or more straight lines.

Teacher: What do we call polygons with equal sides?

Teacher: Correct, regular polygons.

Teacher: What about polygons with unequal sides? Teacher: Yes, irregular polygons.

Teacher: Look at the table in your book. How many sides does a pentagon have?

Teacher: Five. Now, how many sides does a heptagon have?

Teacher: Yes, seven.

Teacher: Draw any two polygons in your notebook.

2 (I	Look at the image. Classify the follow	wing as ray, line and line segment. $rac{1}{2}_{P}$
LO	a. Ray	-
	ь. Line	
(84)	c. Line segment	

(@ You may show the Toys from Trash given the digital platform.

Teacher: Open your book to page 84 and look at Exercise 1.

Teacher: Look at the image in your book. Classify the figures as a ray, a line or a line segment.

Teacher: Discuss with your partner before writing your answers in your notebook.



Teacher: Open your book to page 84 and look at Exercise 2.

Teacher: Draw a line segment of the given measurements in your notebook.

Teacher: The measurements are 3 cm, 6 cm, 7 cm and 10 cm.

Teacher: Compare your drawings with MUST DO your seatmate to check if they match the given lengths.

A Measure the following line segments using a ruler. Write the answer in your notebook. (84) d. _

Teacher: Open your book to page 84 and look at Exercise 3.

Teacher: Use a ruler to measure the given line segments. Teacher: Write the correct length in your notebook.

Teacher: Check your partner's answers and discuss any differences.



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Remembering better



Teacher: Open your book to page 84 and look at the 'Remembering better' section.

Teacher: What is an open curve?

Teacher: Yes, a curve that does not start and end at the same point.

Teacher: What is a closed curve?

Teacher: Correct, a curve that starts and ends at the same point.

Teacher: Identify the given curves as open or closed and write your answers in your notebook.

Understanding better



Teacher: Open your book to page 84 and look at 'Understanding better'.

Teacher: Say yes or no.

Teacher: An angle whose measure is less than 90° is called a right angle.

Teacher: No, that is incorrect.

Teacher: An angle whose measure is 180° is called a straight angle.

Teacher: Yes, that is correct.

Teacher: Discuss these questions with your partner and explain your reasoning

Teacher: Well done, everyone. You have worked very hard today.

Teacher: Give yourselves a huge round of applause for your effort and teamwork.

Differentiated Activities

110 km/hr



Measure three different objects in your

surroundings using a ruler. Write their lengths and compare them.

80 km/hr



Draw a quadrilateral, a pentagon and a hexagon. Write the number of sides for each.

40 km/hr



Identify three objects around you that have straight edges and three that have curved edges. Write their names.

Home Task

Solve Exercise 4 given on page 84 in the Main Course Book.

Create a project by following the given instruction:

Take a piece of chart paper, matchsticks and glue. Create different types of polygons using the matchsticks. Glue the matchstick polygons onto the chart paper. How many polygons did you make? Be ready to share your project in the end of this chapter.



Period 4



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are you? Teacher: Let us begin with a quick recap of what we learnt in the last class.

Teacher: I will give clues and you have to guess the correct polygon.

Teacher: This polygon has three sides and three angles. Teacher: Yes, a triangle.

Teacher: This polygon has four sides and all its sides are equal. Teacher: Correct, a square.

Teacher: This polygon has six sides.

Teacher: Right, a hexagon.

Teacher: This polygon has eight sides.

Teacher: Yes, an octagon.

Teacher: This polygon has unequal sides and is not a regular shape.

Teacher: Correct, an irregular polygon.

Teacher: Well done, everyone. Now, let us move forward to learning about angles.

You may show the **Explainer**

Video given digital platform.

Angles

Teacher: Open your book to page 84 and look at the section Angles.

Teacher: When two rays meet at a point, what do they form?

Teacher: Yes, they form an angle.

Teacher: What is the name of the point where the rays meet?

Teacher: Correct, it is called a vertex.

Teacher: How do we name an angle?

Teacher: Yes, the vertex is always written in the middle, like $\angle ABC$ or $\angle CBA$.

Teacher: Look at the diagram in your book. Identify the arms and the vertex of the given angle.



Measuring angles

Teacher: Open your book to page 85 and look at the section Measuring Angles.

Teacher: What tool do we use to measure angles?

Teacher: Yes, a protractor.

Teacher: What are the two scales on a protractor called?

Teacher: Correct, the inner scale and the outer scale. Teacher: How many degrees is a full protractor

divided into?

Teacher: Yes, 180 degrees.

Teacher: What is the first step to measure an angle using a protractor?

Teacher: Correct, place the reference point of the protractor on the vertex of the angle.

Teacher: What is the second step?

Teacher: Yes, align the baseline of the protractor with one of the arms of the angle.

Teacher: What is the final step?

Teacher: Right, read the degree mark where the other arm crosses the scale.

Teacher: Use your protractor to measure the given angle in your book.



You may show the Maths Lab given digital platform.

Types of Angles



Right angle

Teacher: Open your book to page 85 and look at the Types of Angles section.

Teacher: We will learn about four types of angles. As we discuss each one, draw it in your notebook and label it. Teacher: First, a right angle. It measures exactly 90°. It looks like the corner of a square. Draw and label a right angle.

Acute angle

Teacher: Now, an acute angle. It is smaller than a right angle, measuring less than 90°. Draw and label an acute angle.

Obtuse angle

Teacher: Next, an obtuse angle. It is wider than a right angle but less than 180°. Draw and label an obtuse angle.

Straight angle

Teacher: Finally, a straight angle. It measures exactly 180° and looks like a straight line. Draw and label a straight angle.

Teacher: Compare your drawings with your partner to check if they look correct.

Teacher: Well done, now let us move on to the next task.

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() You may show the **Infographic** given digital platform.









Teacher: Let us all look at the poster on the wall.

Teacher: Look at the images of different yoga poses. Each pose forms a specific type of angle.

Teacher: Identify whether each pose forms a right angle, acute angle, obtuse angle or straight angle.

Teacher: In groups, discuss your answers and write them next to each pose in your notebook.

Teacher: Compare your answers with another group to see if they match.



Laughing better



Teacher: Open your book to the 'Laughing better' section on page 85.

Teacher: Read the conversation between Diley and Hopper.

Teacher: What does Hopper say about being acute? Teacher: Yes, he makes a joke about the word 'acute.' **Teacher**: Mathematics can be fun when we look at it in different ways.

Doubt session

Teacher: Now, let us clear any doubts.

Teacher: Do you have any questions about angles or how to measure them?

Teacher: Is there any step in using the protractor that you find confusing?

Teacher: What is the difference between an obtuse angle and a right angle?

Teacher: Great discussion. Give yourselves a huge round of applause. See you in the next class.

Differentiated Activities

110 km/hr

Identify three different angles in your surroundings, measure them using a protractor and classify them as acute, right, obtuse or straight angles.

80 km/hr



Draw three different angles in your notebook, measure them with a protractor and label their types.

40 km/hr



Find three objects around you that have right, acute or obtuse angles and write their names.

Home Task

Find and list four objects around you that show different types of angles - right, acute, obtuse and straight. Write their names and the type of angle they form. Draw four different angles - right, acute, obtuse and straight. Measure and label each correctly.

Period 5

Teacher: Good morning, students. How are you today?

Teacher: Let us begin with a quick quiz based on what we learnt in the last class.



Teacher: Whatdowe call an angle that measures exactly 90°? Teacher: Yes, a right angle.

Teacher: What type of angle is smaller than a right angle? Teacher: Correct, an acute angle.

Teacher: What type of angle is larger than 90° but less than 180°?

Teacher: Yes, an obtuse angle.

Teacher: What do we call an angle that measures exactly 180°?

Teacher: Right, a straight angle.

Teacher: Which tool do we use to measure angles? **Teacher**: Correct, a protractor.



Teacher: Well done, everyone. Now, let us move forward.



Teacher: Open your book to page 86 and look at Drawing Angles with a Protractor.

Teacher: What is the first step when drawing an angle using a protractor?

Teacher: Yes, draw a ray.

Teacher: What is the second step?

Teacher: Correct, keep the baseline of the protractor on the ray and place the centre at the starting point.

Teacher: What do we do next?

Teacher: Yes, use the inner scale to measure the required angle and mark a point.

Teacher: What is the last step?

Teacher: Right, join the marked point with the starting point to form the angle.

Teacher: Follow these steps to draw a 75° angle in your notebook.

(Guide students in drawing different angles using the protector.)



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You may show the **I Explain** given digital platform.



Teacher: Open your book to page 86 and look at Exercise 5.

Teacher: Measure the given angles using a protractor and write their measurements in your notebook.

(Guide students to complete the Exercise.)

Teacher: Compare your answers with your partner and discuss any differences.

PMD

a. 27°



) You may show the **Know it Right** given digital platform.

6 Draw the following angles using a protractor, in your notebook.

c. 93° d. 140° e. 180° **86**)

Teacher: Open your book to page 86 and look at Exercise 6.

Teacher: Draw the given angles - 27°, 42°, 93°, 140° and 180°- using your protractor.

Teacher: Label each angle correctly.

ь. 42°

Teacher: Check if your angles match the given measurements.

(Guide students to complete the Exercise.)



Intersecting Lines

Teacher: Open your book to page 87 and look at Types of Lines.

Teacher: Let us start with intersecting lines. What happens when two lines cross each other at a point?

Teacher: Yes, they form intersecting lines.

Teacher: Can you think of any examples of intersecting lines in real life?

Teacher: Correct, roads that cross each other at

junctions. The place where they cross is called the point of intersection.

Teacher: Look around the classroom. Can you spot any intersecting lines?

Teacher: Yes, the edges of a window frame or the legs of a pair of scissors.

Teacher: Now, draw two intersecting lines in your notebook. Mark the point of intersection.

Parallel Lines

Teacher: Now, let us talk about parallel lines. What do we call two lines that are always the same distance apart and never meet?

Teacher: Yes, they are called parallel lines.

Teacher: Can you give some examples of parallel lines in real life?

Teacher: Correct, railway tracks are parallel because the two metal rails never meet.

Teacher: What about inside our classroom? Can you spot parallel lines here?

Teacher: Yes, the edges of the whiteboard and the top and bottom edges of your notebook pages are parallel. **Teacher**: Now, draw two parallel lines in your notebook. Label them as parallel.

Perpendicular Lines

Teacher: Now, let us discuss perpendicular lines. What happens when two lines meet at a right angle (90°)?

Teacher: Yes, they form perpendicular lines.

Teacher: Can you think of real-life examples of perpendicular lines?

Teacher: Correct, the corner of a book or the edges of a table where the legs meet the surface.

Teacher: Look at the classroom walls. Do you think the walls and the floor are perpendicular?

Teacher: Yes, they form a right angle.

Teacher: Now, draw two perpendicular lines in your notebook. Label the right angle.

Teacher: Well done, everyone. You worked very hard today.

Teacher: Give yourselves a huge round of applause. See you in the next class.

You may show the **Slideshow** given digital platform.

Differentiated Activities

110 km/hr

Identify three sets of parallel, perpendicular and intersecting lines in your surroundings and write them names.

80 km/hr

Draw one example each of parallel,

perpendicular and intersecting lines and label them.

40 km/hr



Draw one example each of parallel, perpendicular and intersecting lines and label them.

Home Task

Use a protractor to draw the following angles in your notebook: 35°, 75°, 120° and 150°. Label each angle correctly.

Period 6

Teacher: Good morning, students. How are you today?



Teacher: Let us begin with an activity using our hands. We will revise the different types of lines from the last class.

Teacher: Stretch out both your arms straight in front of you, keeping them parallel. What type of lines have you made?

Teacher: Yes, parallel lines because they never meet.

Teacher: Now, cross your arms to make an 'X' shape. What type of lines are these?

Teacher: Correct, intersecting lines because they cross each other.

Teacher: Now, place one arm straight and hold the other at exactly 90° to it. What type of lines have you formed?

Teacher: Yes, perpendicular lines because they meet at a right angle.

Teacher: Well done, everyone. Now, let us explore circles.

Circles

CIRCLES A circle is a closed curve. Every point of the circle lies at an equal distance from a fixed point inside the circle. Look at the image of the circle to understand the parts of a circle.



Teacher: A circle is a special shape. Can anyone tell me what makes a circle different from other shapes? **Teacher**: Yes, a circle is a closed curve



and all points on its boundary are at an equal distance from the centre.

Teacher: Now, take your hands and make a big circular shape in the air. Imagine you are drawing a giant circle.

Teacher: Look around the classroom. Can you find any objects that are circular in shape?

Teacher: Yes, a clock, a bangle and a bottle cap are all circles.

Centre

Centre

The fixed point in the middle of a circle is called centre. A circle has only one centre. Point O in the figure is the centre.

Teacher: Every circle has a special point in the middle called the centre. What do you think the centre does?

Teacher: Correct, it is the fixed point from which we measure many things in the circle.

Teacher: Touch the middle of your palm. Imagine this is the centre of a circle. Now, move your finger outward to different points around your palm's edge. What do you notice?

Teacher: Yes, the distance from the centre to the edge remains the same.

Teacher: Now, let us mark the centre of a circle in our notebooks.

Radius

Radius

The radius of a circle is the line segment from the centre to any point on the circle. A circle has an infinite number of radii (plural of radius). All of them are equal in length.

(87)

OA, OB, OC are radii of the circle.

Teacher: What is the radius of a circle?

Teacher: Yes, it is the line that connects the centre to any point on the circle.

Teacher: Stretch one hand out and imagine touching the centre of an invisible circle. Now, move your hand outward to any point on the edge of the circle. You just created a radius.

Teacher: In your notebook, draw a small circle and mark its radius.

Chord

Chord

A line segment joining any two points on a circle is called a chord of the circle. Here, AB and EF are the chords of the circle.

Teacher: Now, L us talk about two important line segments inside a circle - the chord and the diameter.

Teacher: A chord is a line that joins two points on the circle but does not necessarily pass through the centre. Can anyone find an example of a chord in real life?

Teacher: Yes, the strings of a guitar stretched across the round sound hole form chords.

Diameter



Teacher: Now, what is the diameter?

Teacher: Correct, the diameter is the longest chord of a circle and it passes through the centre.

Teacher: Remember, the diameter is always twice the length of the radius.

Teacher: In your notebook, draw a circle and mark a chord and a diameter.

Circumference

Circumference

The perimeter or boundary of a circle is called its circumference. Here, AEBCA is the circumference. (87)

Teacher: What do we call the boundary of a circle? **Teacher**: Yes, it is the circumference. It is the curved path that makes up the outer edge of the circle.

Teacher: Imagine tracing the edge of a plate with your finger. The path you follow is the circumference.

Teacher: Can you think of a way to measure the circumference of a real object?

Teacher: Yes, you can use a thread to wrap around the circular object and then measure the length of the thread.

Semicircle

Semicircle

A semicircle is the half circle formed by dividing a circle into two equal parts. Each part is called a semicircle. Here, AEB and ACB are the semicircles.

Teacher: If I cut a circle into two equal halves, what do I get?

Teacher: Correct, a semicircle. Each half is called a semicircle because 'semi' means half.

Arc

Arc Any part of the circumference of a circle is an arc of the circle. It is denoted by three points – two endpoints and a point between them. Here, AEF is a arc.

Teacher: What if I take just a small curved part of the circle instead of half?

Teacher: Yes, that is called an arc. An arc is just a section of the circle's boundary.

Teacher: Can anyone think of an arc in real life?

Teacher: Yes, a rainbow is a great example. It forms a big arc in the sky.

Teacher: In your notebook, draw a circle and mark a semicircle and an arc.



MUST DO

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You may show the **Animated Activities** given digital platform.

Classify the given lines as intersecting, parallel and perpendicular lines. Write the answers in the blanks.
 a. b. c. _____



Teacher: Open your book to Exercise 7 on page 88. **Teacher**: Identify whether the given lines are intersecting,

parallel or perpendicular. **Teacher**: Discuss your answers with your partner and write them in the blanks.



Teacher: Open your book to Exercise 8 on page 88.

Teacher: Observe the given circle and write the correct names for the labelled parts: diameter, radius, chord, centre, circumference and arc.

Teacher: Check your answers with a SHOULD DO partner.

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You may show the **Quick Maths** given digital platform.





Teacher: Open your book to the 'Giving better' section on page 87.

Teacher: Read the instructions about making awareness posters on saving water and energy.

Teacher: In groups, discuss why saving water and energy is important.

Teacher: Think of three ways we can conserve them.

Teacher: Plan a poster layout with a slogan and images.



Teacher: Prepare the poster at your home.

Teacher: Take a compass and draw a circle with a 3 cm radius in your notebook.

Teacher: Mark and label the centre, radius, diameter and a chord inside your circle.

Teacher: Compare your drawing with your partner's and check if the measurements are correct.

Differentiated Activities

110 km/hr

Measure the diameter of three round objects in the classroom using a ruler and calculate their radius.

80 km/hr



Draw a circle in your notebook and label its centre, radius, chord, diameter and circumference.

40 km/hr



Draw a circle in your notebook and label its centre, radius, chord, diameter and

circumference. Discuss with a partner.

Home Task

As part of your 'Giving better' activity, prepare a poster on saving water and energy with a slogan and images. Bring your poster tomorrow.

Period 7

Teacher: Good morning, students. How are you today?



How are you today? **Teacher**: Yesterday, you created

posters on saving water and energy.

Let us begin by sharing our work.

Teacher: Hold up your posters so that everyone can see them.

Teacher: Look at your classmates' posters. What message stands out to you?

Teacher: Now, turn to your partner and describe the key message of your poster in one sentence.

Teacher: Who would like to share their slogan with the class?

Teacher: Excellent work. Your posters show creative ways to conserve water and energy.

Teacher: Let us now move on to today's lesson.



Connecting better



Teacher: Open your book to the 'Connecting better' section given on 88.

Teacher: Ryan and his friends are talking about global warming. What do they say?

Teacher: Yes, they discuss rising temperatures, droughts and ocean levels.

Teacher: Why do you think global warming is connected to our topic?

Teacher: Correct, it affects our environment and shapes like ice caps, which are melting and changing their structure.

Grasping better



Teacher: Open your book to the 'Grasping better' section. Let us revisit the word 'dimensionless'.

Teacher: The word given is 'dimensionless.' What does it mean?

Teacher: Yes, it means something that has no length, width or height.

Teacher: Can you think of an example?

Teacher: Correct, a point in geometry is dimensionless because it has no size.

Teacher: Now, use 'dimensionless' in a sentence.



Recalling better



Teacher: Open your book to the 'Recalling better' section on page 88. Let us review what we have learnt. **Teacher**: What is a polygon?

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Teacher: Great. A polygon is a closed shape made up of three or more line segments. It can have different numbers of sides and angles.

Teacher: How is an angle formed?

Teacher: Well done. An angle is formed when two rays meet at a point. We use a protractor to measure angles in degrees.

Teacher: What are intersecting lines?

Teacher: Excellent. Intersecting lines are two lines that cross each other at a certain point. The place where they meet is called the point of intersection.

Teacher: How are parallel lines different from intersecting lines?

Teacher: Wonderful. Parallel lines are always the same distance apart and never meet, while intersecting lines cross each other at some point.

Teacher: Can you name an example of parallel lines? Teacher: Fantastic. Railway tracks and the opposite edges of a book are examples of parallel lines.

Teacher: What are perpendicular lines?

Teacher: Great thinking. Perpendicular lines meet at exactly 90 degrees, forming a right angle. We see them in the corners of a book or where the walls meet the floor. Teacher: What is special about a circle?

Teacher: Well said. A circle is a closed curve where every point on its boundary is at an equal distance from a fixed point called the centre.

Teacher: What do we call the outer boundary of a circle? Teacher: Excellent observation. The boundary of a circle is called its circumference. We can measure it using a thread wrapped around the circle and then measuring the length of the thread.

Teacher: Well done, everyone. You have recalled the key concepts of this chapter very well. Now, let us move forward.



(🕮) You may show the **Quiz** given on the digital platform.

Decoding better



Teacher: Open your book to the 'Decoding better' section, given on page 89.

Teacher: Today, we will learn how to use an isometric dot paper to draw different parts of a circle.

(Guide students to complete the activity.)



Solving better

J)	Solvi	ng be	etter							LOTS
	How A	many	acute K	angle	s are th	ere in	each l	etter?	7	
2	How	many i	right a	ngles	are the	re in th	nese le	tters?	L	
(3)	H	ify the	L letters	havin	⊺ a both	curve	E d and :	straiat	I ht lines. Write the answers i	'n
	your	notebo	ook.							(89)
	м	G	Ρ	J	Е	V	Y	S		9

Teacher: Open your book to 'Solving better.'

Teacher: Look at the given letters. Some contain acute angles and others contain right angles.

Teacher: Identify and count the number of acute angles in each letter.

Teacher: Next, find the right angles and write your answers in your book.

Teacher: Now, look at the second set of letters. Identify which ones have both curved and straight lines.

5 MIN.

(Guide students to complete the questions.)

Teacher: Well done. Let us have a MUST DO huge round of applause.

Learning better

Ecarning Detter	CBA
A Tick (/) the correct answer.	
 A polygon with four sides is called a 	
a. triangle b. heptagon c. quadrilateral d. pentagon	
2. A line has directions.	
a. four b. two c. one d. six	
 Two straight lines intersect at point. 	
a. four b. one c. five d. three	
4. The is the longest chord in a circle.	
a. centre b. diameter c. radius d. arc	
5. The measure of a right angle is	
(89-90) a. 180° b. 45° c. 60° d. 90°	

Teacher: Open your book to the 'Learning better' section. Let us do some questions given on page 89.

Teacher: Read each question carefully and tick the correct answer.

Teacher: Let us go through some of the questions together. Teacher: What do we call a polygon with four sides? Teacher: Great, it is a guadrilateral.

Teacher: Now, complete the remaining questions in pairs. (Guide the students to complete the exercise.)

Teacher: Compare your answers with your partner before we discuss them as a class.

Teacher: Well done, everyone. Give yourselves a big round of applause. See you in the next class.

Differentiated Activities

110 km/hr



Write two real-life examples for each - acute, obtuse, right and straight angles.

80 km/hr



40 km/hr



Identify objects in the classroom that have right angles and list them in your notebook.

Home Task

Solve Exercise B given on page 90 in the Main Course Book.

Period 8



Teacher: Good morning, students. How are you today?

Teacher: Let us begin with a quick revision. Yesterday, we worked on different types of angles and their measurements.

Teacher: Stretch both arms straight in front of you. What type of angle do they form?

Teacher: Great, a straight angle.

Teacher: Now, bend one arm to form an L shape. What angle is this?

Teacher: Well done, it is a right angle.

Teacher: If you make a smaller bend, what kind of angle does it become?

Teacher: Correct, an acute angle.

Teacher: And if you stretch it wider than a right angle but not fully straight?

Teacher: Yes, an obtuse angle.

Teacher: Well done. Now, let us move on to today's exercises.



Learning better

 C
 Draw the measure of the following angles using a protractor, in your notebook.

 1. 25°
 2. 59°
 3. 90°
 4. 136°
 5. 176°
 89

Teacher: Open your book to Exercise C on page 90.

Teacher: You will draw the angles given in the exercise using a protractor.

Teacher: What is the first step in drawing a 25° angle?

Teacher: Correct, draw a base line and mark a point.

Teacher: What is the next step?

Teacher: Yes, place the protractor on the baseline and mark the 25° point.

Teacher: Now, complete question 1,2 and 3 of Exercise C.

Teacher: Well done. Now, let us move to the next exercise.

MUST DO

Teacher: Open your book to Exercise D on page 90.

Teacher: Look at the lines give n in the exercise. Identify whether they are intersecting, parallel or perpendicular. **Teacher**: What do we call two lines that cross at a point? **Teacher**: Great, they are intersecting lines.

Teacher: What about two lines that are always the same distance apart and never meet?

Teacher: Correct, those are parallel lines.

Teacher: And what do we call lines that meet at 90 degrees?

Teacher: Well done, they are perpendicular lines.

Teacher: Now, complete the first three questions by writing the correct answers in the space provided.



D Identify the intersecting, parallel and perpendicular lines. Write your answers in the space given.



Teacher: Open your book to Exercise E on page 90.

Teacher: You will now classify the given angles as acute, right, obtuse or straight.

Teacher: Look at the first image. Is the angle smaller than 90°?

Teacher: Yes, so it is an acute angle.

Teacher: Look at the second one. It is exactly 90°. What do we call it?

Teacher: Well done, it is a right angle.

Teacher: Continue classifying the rest of the angles and write your answers in the blanks.

You may show the **HOTS** given digital platform.



E Classify the following as acute, right, obtuse and straight angle.



Teacher: Open your book to Exercise F on page 90.

Teacher: You will use your protractor to measure the angles given in the exercise.

Teacher: Place your protractor correctly and find the measurement of each angle.

Teacher: Write the values in your book.

Teacher: Once you are done, compare your answers with your partner.



Book of Holistic Teaching





(Refer to the Book of Holistic Teaching, page 14 under the title 'Geometry.' Complete the activities mentioned in this section and ensure that the students complete them. These activities are designed to enhance their holistic understanding and engagement with the topic. Provide any necessary support and materials to help the students successfully finish the activities.)

Teacher: Well done, everyone. Give yourselves a big round of applause. See you in the next class.

Differentiated Activities

110 km/hr

Observe five different objects in the classroom and sketch their outlines. Mark and label any visible angles (acute, right, obtuse or straight) in the objects.

80 km/hr



Create a small maze on graph paper using only straight lines. Ensure that it contains at least one pair of parallel lines, one set of intersecting lines and one right angle.

40 km/hr

Use straws or sticks to form two different types of angles on your desk. Show them to your teacher and identify their types.

Home Task

Solve questions 4 and 5 of Exercise C given in the Main Course Book. Bring your 'little book' for the revising better activity. Be ready to share your project in the next class.

Period 9

Teacher: Good morning, students. How are you today?

Teacher: Let us begin with a quick reflection on our previous lesson.

Teacher: Yesterday, we worked on identifying and

measuring angles. Think of a place where you saw a right angle today.

Teacher: Now, look around the classroom. Where do you see an obtuse angle?

Teacher: Great observations. Angles are everywhere around us. Now, let us move on to today's activities.



SHOULD DO

5 MIN.

Creating better

(😸) Creating better

Making a photo frame

- Take 4 ice cream sticks. Paste them together as shown to make a photo frame with right angles.
- Colour the ice cream sticks.
- Paste a picture of your family in the frame.
- Your family photo frame is ready.



Teacher: Open your book to the 'Creating better' section. Teacher: Today, we will make a photo frame using ice cream sticks.

(Guide students to complete the activity.)



Thinking better



Teacher: Open your book to the 'Thinking better' section. Draw a baseline BC in your notebook.

Teacher: Mark a 30° angle at point A using a protractor.

Teacher: Now, draw a 60° angle opposite to A to form angle DBC.

Teacher: Measure angle DBA and write the answer.

Teacher: Now, look at the given times on a clock - 6:00, 9:15, 5:00 and 2:20.

Teacher: What angle is formed at 6:00?

Teacher: Correct, 180° (straight angle).

Teacher: What about 9:15?

Teacher: Yes, 90° (right angle).

Teacher: Measure the angles for 5:00 and 2:20, then write your answers.

Teacher: Well done. Now, let us move forward.



LSV

(91)

Choosing better

(-g.) Choosing better

Imagine your best friend is moving to a new city and you will not be able to see them as often as before. How would you respond to this change in your life?

I would feel sad but try to stay positive. I would keep in touch with my friend through calls and messages.

• I would feel upset and ignore my friend. I will find new friends instead.

Teacher: Read the given situation. Your best friend is moving to another city and you will not see them as often. Teacher: Think about how you would respond to this situation.

Teacher: Would you stay in touch and support your friend or would you react differently?

Teacher: Now, choose the option that best represents how you would handle the situation.



Revising better



Teacher: Open your Little Book to complete the 'Revising better' section.



Teacher: Who will tell me the different types of angles we have learnt in this lesson?

Teacher: Draw one example of each angle - acute, right, obtuse and straight - in your notebook.

Teacher: Label each angle and write its measurement.

Teacher: Observe the objects around you and find one real-life example for each angle.

Teacher: Once finished, compare your drawings with your partner.

Teacher: Well done, everyone. Now, COULD DO let us move to the next task.



Book of Project Ideas



(Discuss the project assigned in the 3rd period, focusing on helping students understand the objectives and addressing any challenges they faced.)

110 km/hr

Create a mini booklet with drawings and descriptions of at least four different types of angles and their real-life examples.

80 km/hr



Find three objects in the classroom that have different types of angles. Draw them and label the angles.

40 km/hr



Observe different shapes in newspaper paper (triangle, rectangle and pentagon). Identify and mark the angles inside each shape.

Home Task

Find and draw two real-life objects that contain a right angle and an obtuse angle. Label the angles in your notebook.

Period 10

Teacher: Good morning, students. How are you today?



Teacher: Today is our final class on this chapter. Before we begin, let us quickly revise some important topics.

Teacher: I will ask some questions and you have to think and answer.

Teacher: What is the longest chord in a circle?

Teacher: Great, it is the diameter.

Teacher: What do we call a shape with eight sides? Teacher: Well done, an octagon.

Teacher: What kind of angle is exactly 90 degrees?

Teacher: Correct, a right angle.

Teacher: Which type of lines never meet?

Teacher: Yes, parallel lines.

Teacher: What do we call two lines that cross at a right angle?

Teacher: Excellent, perpendicular lines.



Teacher: Wonderful work, everyone. Now, let us complete our worksheets.





Teacher: Open your book to Worksheet 1 on page 31.

Teacher: Fill in the blanks using the correct words in Exercise A.

Teacher: Classify the given lines as intersecting,

perpendicular or parallel in Exercise B.

Teacher: Name the arms and vertex of each given angle in Exercise C.

Teacher: Once you are done, check your answers with your partner.



Teacher: Great work, let us move to the next worksheet You may generate additional practice worksheets using the **Test Generator** given on digital platform.

Worksheet 2



Teacher: In Exercise A, match the correct geometric terms with its diagram.

Teacher: In Exercise B, identify and name the polygons given in the boxes.

Teacher: In Exercise C, classify the angles as right, obtuse, acute or straight and write the correct letter in the box.

Teacher: Complete each section carefully and revise the

concepts while solving them. **Teacher**: Well done, everyone. Let us now summarise our learning.



Teacher: Now, let us fill in the last column of the KWL chart. **Teacher**: In this column we will write what we have learnt in this chapter.

Teacher: Think about the topics, have we learnt and write them in the 'L' column of the chart.

(Wait for students to fill in the chart.)

Teacher: Let us all give a huge round of applause to everyone for their hard work and creativity. Great work, everyone. See you in the next class. Have a wonderful day ahead.

Differentiated Activities

110 km/hr

Create a mind map showing all the key concepts learnt in this chapter, including angles, lines and porygons.

80 km/hr



Create a quiz with five questions on angles, lines and polygons. Swap your quiz with a partner and answer each other's questions.

40 km/hr



Draw three different shapes (triangle, rectangle, pentagon) and mark the angles inside each.

Home Task

Solve the Worksheet 3 given in the Main Course Book.

Learning Outcomes

The students will:

Physical Development	 accurately draw and measure angles using a protractor. demonstrate improved hand-eye coordination by constructing geometric shapes with precision. classify and differentiate between various geometric figures based on their attributes.
Socio-Emotional and Ethical Development	 actively participate in group discussions and collaborative activities related to geometric concepts. demonstrate patience and persistence while solving geometric puzzles and problems, take responsibility for completing individual and group tasks efficiently.
Cognitive Development	 correctly classify angles, lines and polygons based on their properties. solve real-life problems using geometric concepts such as measurement and spatial reasoning. identify and explain relationships between geometric figures using logical reasoning.
Language and Literacy Development	 use mathematical vocabulary such as vertex, perpendicular and obtuse in discussions and written responses.read and interpret geometry-based problems, diagrams and instructions with clarity. effectively communicate geometric concepts through verbal and written explanations.
Aesthetic and Cultural Development	 create visually appealing posters, models or patterns using geometric principles, identify and appreciate geometric shapes and symmetry in art, architecture and cultural designs.
Positive Learning Habits	 demonstrate curiosity and enthusiasm for learning about geometry through active participation. independently complete assigned geometry exercises and projects with focus and accuracy. reflect on learning progress and apply feedback to improve understanding.

Starry Knights

Was it interesting to teach angles using different activities? Could you use some other activities along with the ones mentioned? If yes, please share with the other teachers.

Reward yourself with a star.