## Lesson-4: Fractions

## Theme 4: Why Are We Different?



13 Periods (40 minutes each)

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



Animated Activities, Animation, Dictionary, eBook, Explainer Video, HOTS, I Explain, Infographic, Maths Lab, Mental Maths, Quiz, Toys from Trash, Slideshow

## Curricular Goals and Objectives (NCF)

#### To enable the students:

- to develop number sense and mathematical reasoning skills.
- to represent and compare commonly used fractions in daily life (such as  $\frac{1}{2}, \frac{1}{4}$ ) as parts of unit wholes.
- to apply fractions in practical contexts like dividing a set of objects.
- to use visual representations to aid the comprehension of fractions.
- to engage with peers in cooperative learning activities to solve fraction problems.
- to promote interdisciplinary learning by applying concepts in English, Science and Social studies.

## **Methodology**

## Period 1



Teacher: Good morning students. How are you?

Teacher: Today, we will begin our chapter on fractions. Before we start, let us do a quick warm-up activity.

Teacher: I will say a number and you will tell me if it is a whole number or a part of a whole. Ready?

Teacher: 3?

Teacher: Yes, it is a whole number.

## Teacher: -?

Teacher: Correct, it is a part of a whole. Well done. Fractions represent parts of a whole.

Teacher: Let us try some more.

Teacher: What about 4?

Teacher: Yes, that is a whole number.

**Teacher**: How about  $\frac{1}{3}$ ?

Teacher: Correct, it is a part of a whole.

**Teacher**: If I say  $\frac{1}{5}$ , what do you think?

Teacher: Yes, that is equal to 1, so it is a whole number.

### Confirming better



Teacher: Today, our important affirmation is 'I keep my

things neatly.' Can anyone tell me why it is important to keep our things neat?



Teacher: Yes, that is correct. Keeping our things neat helps us find what we need quickly and makes us feel organised. Teacher: What else happens when we keep our belongings tidy?

Teacher: Absolutely, it makes our classroom look nice and helps us focus better on learning. How do you feel when your desk is tidy?

Teacher: Yes, you feel good and ready to learn. Keeping things neatly also teaches us responsibility. Well said, students. Let us continue with our fractions activity.

Teacher: We will begin a new chapter, Fractions. 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 SHOULD DO notebooks and draw the same format in your notebooks.



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



#### Kinaesthetic



Teacher: Open your books to page



44 Teacher: Let us read and understand

the kinaesthetic activity.

Teacher : Perform an activity in groups of three.

Teacher: Excellent teamwork. This activity shows how we divide a whole into fractions.

Let us proceed to the auditory activity.

(🕮) You may show the **Toys from Trash** given on the digital platform to explain the meaning of fraction.

#### Auditory

Auditory\*



Teacher: Listen carefully as I read the auestions aloud. Think and answer.



(44)

Teacher: In a kitchen, a chef measured

half a cup of flour and a quarter cup of sugar to bake a delicious cake, filling the air with sweet aromas. Rewrite the sentence and convert words representing fractions to numbers.

Teacher: Great effort, everyone, Now, let us explore the pictorial activity.

(💷) You may show the **Dictionary** given on the digital platform to discuss the key terms.

#### Pictorial



on the digital platform to show the activity on screen.

Teacher: Now, look at the picture of biscuits on page 44. Who will explain what to do in this activity?

Teacher: Write the answer in the box given.

Teacher: Well done, everyone. You all worked hard today. Let us end the session with a big round of applause for your efforts. See you in the next period. Keep practising.

#### Differentiated Activities

#### 110 km/hr



Shade  $\frac{3}{5}$  of a rectangle,  $\frac{2}{6}$  of a hexagon and  $\frac{4}{8}$ of a circle.

#### 80 km/hr



Draw a square, divide it into 4 equal parts and shade 2 parts. Write the fraction.

#### 40 km/hr



Draw a circle and shade half of it. Write the fraction.

#### Home Task

Draw three objects in your notebook, divide them into fractions and shade  $\frac{1}{2}$ ,  $\frac{1}{4}$  and  $\frac{1}{3}$  of each respectively.

## Period 2



Teacher: Good morning students. How are you?

Teacher: Today, let us start with an exciting activity. I will describe a situation and you will tell me what fraction represents it.

Teacher: If a pizza is divided into 6 equal slices and I eat 2 slices, what fraction of the pizza have I eaten?

**Teacher**: Correct,  $\frac{2}{6}$ , which can be simplified to  $\frac{1}{3}$ .

Teacher: If a class has 20 students and 5 of them wear glasses, what fraction of students wear glasses?



Teacher: Open your books to page 45. Look at the image on the page.

Teacher: Work with your partner to shade parts of the rectangle.

**Teacher**: Write the simplest fraction for the shaded area. Teacher: Well done. Let us move to the next activity.



Teacher: Open your books to page 45 Teacher: Let us read the short story. Teacher: Correct, they shared it equally and each had one-third of it.

**Teacher**: What fraction of the meal did they eat in total? **Teacher**: Yes, adding all three one-thirds together makes a whole.

**Teacher**: Why do you think fractions were important in this story?

**Teacher**: Correct, fractions helped them share food fairly. **Teacher**: Can you think of other situations where fractions are used in daily life?

**Teacher**: Yes, while dividing chocolates, sharing a cake or distributing work equally.

**Teacher**: If you had to divide something among four friends, what fraction would each get?

Teacher: Right, each would get one-fourth of the whole.

You may show the **Animation** given on the digital platform.

#### Fraction



**Teacher**: Open your books to page 45. Let us understand fractions.

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**Teacher**: A fraction represents a part of a whole.

**Teacher**: Look at the yellow part of the circle in your book. **Teacher**: What fraction of the whole is shaded?

**Teacher**: Yes,  $\frac{1}{3}$ . This means one out of three equal parts is shaded.

Teacher: Why do you think fractions are useful?

**Teacher**: Yes, they help us divide things equally and compare parts of a whole.

#### You may show the **Explainer**

Video given on the digital platform.



TYPES OF FRACTIONS

- $\blacktriangleright$  Fractions with the same denominator are called like fractions. For example,  $\frac{2}{7}, \frac{5}{7}, \frac{7}{7}, \frac{7}{7}$
- $\blacktriangleright$  Fractions with different denominators are called unlike fractions. For example,  $\frac{3}{5},\frac{8}{9},\frac{17}{11},\frac{32}{35}$
- ▶ Fractions where the numerator is less than the denominator are called proper fractions. For example,  $\frac{3}{7}, \frac{6}{8}, \frac{12}{17}, \frac{27}{32}$
- Fractions where the numerator is greater than or equal to the denominator are called improper fractions. For example,  $\frac{7}{4}$ ,  $\frac{12}{9}$ ,  $\frac{45}{16}$ ,  $\frac{19}{19}$
- > Proper fractions with 1 as the numerator are called unit fractions. For example,  $\frac{1}{3}, \frac{1}{5}, \frac{1}{7}, \frac{1}{15}$
- $\blacktriangleright$  A combination of a whole number and a proper fraction are called mixed fractions. For example,  $1\frac{3}{5},2\frac{\mu}{7},5\frac{7}{q},9\frac{13}{15}$

#### Teacher: Open your books to page 46.

**Teacher**: Let us explore different types of fractions together.

Teacher: What are like fractions?

**Teacher:** Correct, fractions with the same denominator, ... 2 ... 3

like  $\frac{2}{5}$  and  $\frac{3}{5}$ .

Teacher: What are unlike fractions?

**Teacher**: Yes, fractions with different denominators, like  $\frac{1}{4}$  and  $\frac{2}{3}$ .

Teacher: What are proper fractions?

Teacher: Good, fractions where the numerator is smaller

than the denominator, like  $\frac{2}{5}$ 

Teacher: What are improper fractions? Teacher: Exactly, fractions with a numerator equal to or

larger than the denominator, like  $\frac{1}{7}$ 

Teacher: What are mixed fractions?

Teacher: Correct, a combination of a whole number and

a fraction, like  $2\frac{1}{3}$ 

**Teacher**: Well done students. Let us have a huge round of applause. See you in the next class.

#### Differentiated Activities

110 km/hr

Draw an apple sliced into 8 pieces and show proper, improper and mixed fractions by shading different numbers of slices. Label each fraction clearly.

#### 80 km/hr

You have an apple pie that was originally divided into 8 equal slices. You eat 3 slices. What fraction of the pie do you have left? Simplify the fraction if possible.



(46)

#### 40 km/hr

Identify if the following fractions are proper or improper:  $\frac{3}{2}$ ,  $\frac{1}{11}$  and  $\frac{7}{7}$ . Explain why.

#### Home Task

Identify and draw one example each of like, unlike, proper, improper and mixed fractions from things at home. Explain why each example fits its fraction type.

## Period 3

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



Teacher: Let us start with a simple warm-up.

**Teacher**: I will say a number and I want you to show me that many claps.

Teacher: Ready?

Teacher: Three claps. [Students clap three times] Teacher: Now, five claps. [Students clap five times] Teacher: Great. Let us get ready for the lesson.

#### **Equivalent Fractions**



**Teacher**: Today we are learning about equivalent fractions. Everyone please open page

46 in your Main Course Book.

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**Teacher**: Equivalent fractions are fractions that are different but represent the same amount.

**Teacher**: For example,  $\frac{1}{2}$  and  $\frac{2}{4}$  are equivalent.

**Teacher**: Can anyone think of another example of equivalent fractions?

Teacher: Let us try this one.

**Teacher**:  $\frac{3}{6}$  and  $\frac{1}{2}$  – are they equivalent?

Teacher: Yes, they are.

**Teacher**: We can find equivalent fractions by multiplying or dividing both the top and bottom by the same number. **Teacher**: For example, multiplying both the top and

bottom of  $\frac{1}{2}$  by 2 gives  $\frac{2}{4}$ .

(Discuss examples 1 and 2 with the students.)



#### Test for equivalence

Test for equivalence

To check whether the given fractions are equivalent or not, we can either multiply or divide the numerator as well as the denominator of the first fraction by the same number to obtain the second fraction. **46** Check the 'Graphing Better' section to learn the meaning of the word.

**Teacher**: Now, we will check whether two fractions are equivalent.

**Teacher**: For example, let us consider  $\frac{36}{54}$  and find an

equivalent fraction with denominator 9.

**Teacher:** Since 36 and 54 share common factors, we divide both by their common factor 9. So, 36  $\div$  9 is 4 and

54 ÷ 9 is 6. Thus, the equivalent fraction is  $\frac{4}{2}$ .

**Teacher**: Let us now look at another example:  $\frac{2}{2}$ . We need

to find an equivalent fraction with denominator 14.

**Teacher**: To do this, multiply both the numerator and denominator by 7. So,  $2 \times 7$  is 14 and  $3 \times 7$  is 21. Hence, the equivalent fraction is  $\frac{14}{21}$ .

**Teacher**: Now, I want you to test other fractions. Check whether  $\frac{7}{14}$  is equivalent to  $\frac{1}{2}$ . Think carefully and apply the same method.

## Understanding better

**Teacher**: Let us move to converting unlike fractions into like fractions.

**Teacher**: Turn to page 46 in your Main Course Book. We will begin with  $\frac{5}{6}$  and  $\frac{2}{3}$ .



Teacher: The least common

denominator for these fractions is 6. So,

we leave  $\frac{5}{6}$  as it is and we convert  $\frac{2}{3}$  by multiplying both the numerator and denominator by 2. So,  $\frac{2}{3}$  becomes  $\frac{4}{6}$ . **Teacher**: Now, let us look at  $\frac{1}{4}$  and  $\frac{2}{6}$ . The least common denominator for these fractions is 12.

**Teacher**: To convert  $\frac{1}{4}$  to a fraction with denominator 12, multiply both the numerator and denominator by 3. This gives us  $\frac{3}{12}$ .

**Teacher**: For  $\frac{2}{6}$ , multiply both the numerator and denominator by 2. This gives us  $\frac{4}{12}$ .

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**Teacher**: Now we have  $\frac{3}{12}$  and  $\frac{4}{12}$ . These fractions are now like fractions.

Teacher: Open your books to page 47 and look at Exercise

1. We are going to complete the equivalent fractions shown using the visual examples.





Teacher: Let us start with the first one. Look at the circle. What happens if we multiply both the numerator and denominator by 2? Yes. These fractions are equivalent. (Similarly discuss the other questions of the Exercise 1)



Teacher: Now, let us move on to Exercise 2 on the same page. In this exercise, we need to check whether the given fractions are equivalent or not.



**Teacher**: Let us look at the first pair:  $\frac{1}{5}$  and  $\frac{3}{15}$ . Are these equivalent? Yes,  $\frac{3}{15}$  simplifies to  $\frac{1}{5}$ . So, these fractions are equivalent.

(Discuss the question (b) in similar way.)

Teacher: Well done students. Let us have a huge round of applause. See you in the next period.

#### **Differentiated Activities**

#### 110 km/hr

What are three fractions that are equivalent to  $\frac{3}{9}$ 

and how can it be shown that they are equivalent?

#### 80 km/hr



with another fraction?

#### 40 km/hr

• How can a fraction bar be used to show that  $\frac{2}{11}$  is equivalent to  $\frac{1}{2}$ ?

#### Home Task

Solve questions (c) and (d) of Exercise 2 given on page 47 in your Main Course Book. Write the answers neatly in your notebook.

## Period 4

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



Teacher: Today, we are going to explore equivalent fractions. Let us start with a fun activity to warm up your minds.

Teacher: I will show you a fraction and I want you to think about whether it is the same as another fraction I will give you. Ready?

**Teacher**: The first fraction is  $\frac{1}{2}$ .

**Teacher**: Now, think about  $\frac{2}{4}$ . Are these two fractions the same or different?

**Teacher**: They are the same.  $\frac{1}{2}$  is equivalent to  $\frac{2}{4}$ . We can say that  $\frac{1}{2}$  and  $\frac{2}{4}$  are equivalent fractions.

Teacher: Let us try one more.

**Teacher**: The fraction is 
$$\frac{4}{2}$$
.

**Teacher**: Now, think about  $\frac{1}{2}$ . Are these equivalent fractions?

**Teacher**: Yes, they are equivalent.  $\frac{4}{8}$  can be simplified to  $\frac{1}{2}$  by dividing both the numerator and denominator by 4.

Teacher: Now that we are warmed up, we are going to learn how to create equivalent fractions on our own. Let us dive into this chapter and explore more.

#### Poster



Teacher: Let us take a moment to look at the poster on the wall.

(Display and discuss the poster prominently in the classroom to reinforce the learning about fractions.



Encourage students to observe the poster and discuss the visual representation of different fractions.)

#### **Reducing A Fraction To Its Lowest Term**

**Teacher**: Today, we will focus on reducing fractions to their lowest terms. A fraction is in its simplest form when the numerator and denominator



do not share any common factors except 1.

Teacher: Open your books to page 45. We will start with

an example. Consider the fraction  $\frac{4}{12}$ 

**Teacher**: What can we divide both the numerator and denominator by?

Teacher: We can divide by 4.

**Teacher**: 4 divided by 4 is 1 and 12 divided by 4 is 3. So,  $\frac{4}{12}$  becomes  $\frac{1}{3}$ . This is the simplest form of  $\frac{4}{12}$ .

**Teacher**: Now, let us explore the two methods for reducing a fraction to its lowest terms. Write the answers in your notebook.

(Explain both the methods with the help of explanation given on page 48 in Main Course Book.)

**Teacher**: Let us now try an activity. In pairs, pick any fraction from the board and reduce it to its lowest term using either of the methods.



**Teacher**: Discuss with your partner how you simplified the fraction and write the result in your notebook.

Teacher: You have 5 minutes. Start now.

(Write any 5 fractions on the board like  $\frac{48}{10}$ .)

**Teacher**: Open your books to Exercise 3 on page 48. Read the Exercise and explain what does it mean?



**Teacher**: The first fraction is  $\frac{25}{30}$ . Divide both the numerator and denominator by 5.

**Teacher:** 25 divided by 5 is 5 and 30 divided by 5 is 6. The simplified fraction is  $\frac{5}{2}$ 

simplified fraction is  $\frac{5}{6}$ .

(Explain the question on board.)

**Teacher**: The second fraction is  $\frac{24}{72}$ . What can we divide both by?

Teacher: We can divide it by 24.

**Teacher**: 24 divided by 24 is 1 and 72 divided by 24 is 3. The simplified fraction is  $\frac{1}{2}$ 

simplified fraction is  $\frac{1}{3}$ .

**Teacher**: Complete the remaining questions in Exercise 3 and write your answers in your notebook. Raise your hand if you

STO (1	Reduce the following fractions by finding the HCF of the numerator and the denominator. Write the answers in your notebook.					
Ē	a. 18 63	ь. <u>66</u> 110	c. $\frac{72}{216}$	d. 125 50	e. $\frac{100}{250}$	(48)

**Teacher**: Let us now move to Exercise 4 on page 48. Who will explain what to do in this exercise?



**Teacher**: Yes, the first fraction is  $\frac{18}{63}$ . What can we divide both by?

Teacher: Correct, we divide by 9.

**Teacher**: 18 divided by 9 is 2 and 63 divided by 9 is 7. The simplified fraction is  $\frac{2}{7}$ .

(Guide students to complete questions (a) and (b) of Exercise 4.)

#### Differentiated Activities

#### 110 km/hr



8	72	150
54	96	200

Show the steps involved in simplifying each fraction.

80 km/hr

Reduce the following fractions to their simplest form:

45	56	24
75	84	36

#### 40 km/hr



Simplify the following fractions by dividing by the common factor:

18	20	42
54	40	56

## Home Task

Solve questions (c) to (e) of Exercise 4, given on page 48 in your Main Course Book. Write the answer neatly in your notebook.

Create a Project on Fractions. Here are the steps to follow: Take a piece of cardboard. Draw a circle of radius 4 cm and cut it out from the cardboard. Divide the circle into 6 equal parts. Colour each part with a different crayon. Push a stick through the centre of the circle. Paste a piece of paper on the stick such that it does not come off the board. On each part write the name of different types of fractions with two examples. Your magic spinner is ready. Spin it fast to revise names and examples of different fractions. Bring your magic spinner to class in the last period of this chapter to share and discuss with your classmates.

## Period 5



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How are you today? Teacher: Let us start with a guick warm-up activity to recall some previous knowledge.

Teacher: I will show you two fractions and you will tell me which one is greater. Ready?

**Teacher**: The fractions are  $\frac{3}{5}$  and  $\frac{4}{5}$ .

Teacher: Which fraction is greater?

**Teacher**: Yes,  $\frac{4}{5}$  is greater because the numerator is larger

and both fractions have the same denominator.

**Teacher**: Now, let us compare  $\frac{1}{4}$  and  $\frac{2}{4}$ . Which is greater?

**Teacher**: Yes,  $\frac{2}{\mu}$  is greater because the numerator is larger.

Teacher: Great. Now that we have refreshed our memory, let us move on to comparing and ordering fractions.

#### **Comparing And Ordering Fractions** Comparing like fractions

COMPARING AND ORDERING FRACTIONS Comparing like fractions We compare like fractions by comparing the numerators. The fraction with the greater numerator is greater. Example 5: Arrange  $\frac{8}{14}, \frac{7}{14}, \frac{4}{14}$  and  $\frac{9}{14}$  in ascending order. Here, 4 < 7 < 8 < 9. So, the ascending order of the fractions is  $\frac{4}{11}$ ,  $\frac{7}{11}$ ,  $\frac{8}{11}$ ,  $\frac{9}{11}$ . (48)

Teacher: Open your books to page 48. We are going to start by discussing how to compare like fractions. Look at Example 5.

Teacher: In the example, we are asked to arrange the following fractions in ascending order:

 $\frac{8}{14}$ ,  $\frac{7}{14}$  and  $\frac{9}{14}$ 

Teacher: What do you notice about these fractions?

Teacher: Yes, they all have the same denominator. So, we compare the numerators.

**Teacher**: 7 < 8 < 9, so the ascending order of the fractions

is  $\frac{7}{14}$ ,  $\frac{8}{14}$  and  $\frac{9}{14}$ .

#### Comparing unlike fractions

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Comparing unlike fractions
With the same numerator: The fraction with the smaller denominator is greater.
Example 6: Compare \frac{1}{5} and \frac{1}{8}.
 Since the numerators are same, compare the denominators: 5 < 8
                                                                                           48
 Thus, \frac{1}{5} > \frac{1}{8}
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Teacher: Let us now move on comparing unlike fractions.

Teacher: Now, let us compare fractions with the same numerator. Open to Example 6 in your book.

**Teacher**: The fractions we are comparing are  $\frac{1}{5}$  and  $\frac{1}{8}$ .

Teacher: Since the numerators are the same, what do we compare?

Teacher: Yes, we compare the denominators.

**Teacher**: 5 is smaller than 8, so  $\frac{1}{5}$  is greater than  $\frac{1}{8}$ .

Teacher: In Example 7, we are asked to arrange the following fractions in descending order:

$$\frac{5}{8}, \frac{7}{6} \text{ and } \frac{2}{3}.$$

Teacher: To compare these fractions, we first need to convert them into like fractions.

Teacher: Let us find the LCM of the denominators 8, 6 and 3. The LCM is 24.

Teacher: Now, we convert each fraction to have the denominator of 24.

$$\frac{5}{8} \text{ becomes } \frac{15}{24}.$$

$$\frac{7}{6} \text{ becomes } \frac{28}{24}.$$

$$\frac{2}{3} \text{ becomes } \frac{16}{24}.$$

Teacher: Now that all the fractions have the same denominator, we compare the numerators:

15 < 16 < 28, so the descending order of the fractions is  $\frac{7}{6}, \frac{2}{3} \text{ and } \frac{5}{8}$ 

#### **Giving better**



**Teacher:** Let us talk about giving back to the community. How can we help others in a meaningful way?



Teacher: One way is by picking up

litter at a nearby park. It is a simple act, but it makes a big difference.

Teacher: Imagine you and your friends decide to clean up the park. You put on gloves and a mask to stay safe and you work together to make the park cleaner for everyone. **Teacher:** Now, who would like to share other ways they think they could help in their local community?

Teacher: Wonderful ideas. Remember, no effort is too small when we all work together. Let us make sure to always do



our part in caring for the environment and helping others. Let us practise questions now.

$$\begin{array}{c} \hline \textbf{S} \quad \textbf{Compare and put >, < or = in the boxes.} \\ \hline \textbf{4q} \quad a. \quad \frac{4}{11} \quad \Box \quad \frac{8}{11} \quad b. \quad \frac{2}{8} \quad \Box \quad \frac{2}{19} \quad c. \quad \frac{4}{9} \quad \Box \quad \frac{5}{10} \quad d. \quad \frac{4}{15} \quad \Box \quad \frac{8}{13} \end{array}$$

**Teacher**: Now, open your books to Exercise 5, page 49. Let us solve the first question together.



**Teacher**: The question asks us to compare the following fractions and put >, < or = in the boxes:

Teacher: What do we notice about these fractions?

**Teacher**: Yes, the denominators are the same. So, we only need to compare the numerators.

**Teacher**: 4 is smaller than 8, so we write:  $\frac{4}{11} < \frac{8}{11}$ .

**Teacher**: Now, try to do the next question in pairs. Raise your hand if you face any difficulty.

You may show the **Infographic** given on the digital platform.



Teacher: Let us move on to Exercise 6. Open your books to page 49. Teacher: Let us solve the question : Arrange the following fractions in ascending order:

4 11 5

#### 9'13'11

**Teacher**: We need to compare these fractions. First, let us find a common denominator.

**Teacher**: The denominators are 9, 13 and 11. What do we do next?

**Teacher**: We find the Least Common Multiple (LCM) of the denominators.

Teacher: The LCM of 9, 13 and 11 is 1287. Now, we convert

each fraction to have the denominator of 1287.  $\frac{4}{2}$ 

becomes  $\frac{572}{1287}$ .  $\frac{11}{13}$  becomes  $\frac{913}{1287}$ .  $\frac{5}{11}$  becomes  $\frac{585}{1287}$ 

**Teacher**: Now that we have the same denominator, we compare the numerators: 572 < 585 < 913, so the ascending order is  $\frac{4}{9}$ ,  $\frac{5}{11}$ ,  $\frac{11}{13}$ . Write the answers in the

notebook. while the diswers in the

**Teacher**: Now, try to do the next question in pairs. Raise your hand if you face any difficulty.

(Guide students to solve other questions of this exercise in similar way.)

 Arrange the following fractions in descending order. Write the answers in your notebook.  $(49)^{a} \cdot \frac{8}{11}, \frac{8}{7}, \frac{8}{10}, \frac{8}{5} \cdot \frac{8}{5}, \frac{1}{5}, \frac{1}{2}, \frac{12}{20} \cdot \frac{1}{7}, \frac{11}{14}, \frac{14}{14}, \frac{17}{28}$ 

**Teacher**: Let us now solve Exercise 7. Open your books to page 48.



**Teacher**: We will discuss questions : Arrange the following fractions in descending order:  $\frac{8}{-7}$ ,  $\frac{7}{-5}$ 

**Teacher**: We need to compare these fractions. First, let us find a common denominator.

**Teacher**: The denominators are 11, 10 and 8. What is the LCM of these denominators?

**Teacher**: The LCM is 110. Now, we convert each fraction to have the denominator of 110.

$$\frac{8}{11}$$
 becomes  $\frac{80}{110}$ .  $\frac{7}{10}$  becomes  $\frac{77}{110}$ .  $\frac{5}{8}$  becomes  $\frac{68}{110}$ .

**Teacher**: Now that all the fractions have the same denominator, we compare the numerators:

$$80 > 77 > 68$$
, so the descending order is  $\frac{8}{11}, \frac{7}{10}, \frac{5}{8}$ 

**Teacher**: Now, try to do the next question in pairs. Raise your hand if you face any difficulty.

**Teacher**: Well done students, Let us have a huge round of applause. See you in the next class.

**Teacher**: Excellent work today, everyone. Let us give a big round of applause for your effort and focus.

#### Differentiated Activities

#### 110km/hr



80 km/hr



Compare the following fractions and place the correct sign (> or <) between them:

4	_	5	
7	·	8	
3		2	
6		3	

#### 40 km/hr

Compare the following like fractions:

2	_	3	
6		6	
5		4	
٩		٩	

#### Home Task

Solve question (c) of Exercise 6 and 7 given on page 49 in Main Course Book. Write the answers neatly in your notebook.

## Period 6



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

Teacher: Let us begin with a quick warm-up.

**Teacher**: I will say a fraction and you will tell me if it is greater than, less than or equal to one-half. Ready?

**Teacher**:  $\frac{3}{\mu}$  – is it greater than, less than or equal to  $\frac{1}{2}$ ? Teacher: Yes, it is greater than.

**Teacher**: What about  $\frac{1}{2}$ ? **Teacher**: Yes,  $\frac{1}{4}$  is less than  $\frac{1}{2}$ .

Teacher: Good work, everyone. Let us now move forward to today's lesson.

#### Addition of Fraction

#### Adding like fractions

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ADDITION OF FRACTIONS
Adding like fractions
To add two or more like fractions, add the numerators only. The denominator
remains the same. Finally, reduce the fraction to its lowest term, if possible.
  Example 8: Add.
  \alpha. \quad \frac{6}{4} + \frac{13}{4}
                                                                                         b. \frac{12}{16} + \frac{7}{16} + \frac{3}{16}
\frac{12}{16} + \frac{7}{16} + \frac{3}{16} = \frac{12 + 7 + 3}{16} = \frac{22}{16}
Thus, \frac{12}{16} + \frac{7}{16} + \frac{3}{16} = \frac{22}{16} = \frac{13}{18}
        \frac{6}{4} + \frac{13}{4} = \frac{6+13}{4} = \frac{19}{4}
       Thus, \frac{6}{10} + \frac{13}{10} = \frac{19}{10}
                                                                                                                                                              (49)
```

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Teacher: Today, we are going to focus on adding fractions and we will start by adding like fractions. Everyone please open page 49 in your Main Course Book.

**Teacher**: When the fractions have the same denominator. we simply add the numerators.

For example, in Example 8 from your book, we are asked to add  $\frac{6}{11}$  and  $\frac{13}{11}$ .

Teacher: Since the denominators are the same, we add the numerators directly:

6 + 13 = 19, so  $\frac{6}{4} + \frac{13}{4}$  equals  $\frac{19}{4}$ .

Teacher: This is how we add like fractions - simply add the numerators while keeping the denominator the same.

#### Adding unlike fractions

![](_page_8_Figure_14.jpeg)

Teacher: Now, let us discuss adding unlike fractions. When we add unlike fractions, we must first convert them into like fractions. This requires finding the Least Common Multiple (LCM) of the denominators and adjusting both fractions to have the same denominator.

Teacher: For example, in Example 9, we are asked to add  $\frac{2}{\epsilon}$  and  $\frac{3}{q}$ . The LCM of 6 and 9 is 18. To convert both

fractions to have a denominator of 18:  $\frac{2}{6}$  becomes  $\frac{6}{18}$ .  $\frac{3}{2}$ becomes  $\frac{6}{10}$ 

Teacher: Now that both fractions have the same denominator, we add the numerators:

$$\frac{6}{18} + \frac{6}{18} = \frac{12}{18}.$$

**Teacher**: Finally, we reduce 
$$\frac{12}{18}$$
 to its lowest term:

12 ÷ 6 = 2 and 18 ÷ 6 = 3, so 
$$\frac{12}{18}$$
 simplifies to  $\frac{2}{3}$   
**Teacher:** So,  $\frac{2}{6} + \frac{3}{9}$  equals  $\frac{2}{3}$ .

#### Adding mixed fractions

![](_page_8_Figure_23.jpeg)

Teacher: Next, let us talk about adding mixed fractions. We first convert mixed fractions into improper fractions, add them and then convert the result back to a mixed fraction.

Teacher: For example, in Example 10, we are asked to add 6  $\frac{1}{12}$  + 7  $\frac{2}{3}$ .

Teacher: First, we convert the mixed fractions into improper fractions:

$$6\frac{2}{12} \text{ becomes } \frac{73}{12}.$$

$$7\frac{2}{3} \text{ becomes } \frac{23}{3}, \text{ which equals } \frac{92}{12}.$$

Teacher: Now that we have improper fractions, we add them.

$$\frac{73}{12} + \frac{92}{12} = \frac{165}{12}.$$

**Teacher**: Finally, we convert  $\frac{165}{12}$  into a mixed fraction: 165 ÷ 12 = 13, remainder 9, so the mixed fraction is  $13 \frac{9}{12}$ which simplifies to  $13 - \frac{3}{13}$ Understanding better

![](_page_8_Figure_31.jpeg)

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Teacher: Now, let us work on converting unlike fractions into like

fractions. Read the questions of Understanding better given on page 49.

#### Teacher:

**Teacher**: The first step is to find the Least Common Multiple (LCM) of the denominators.

For 
$$\frac{5}{6}$$
 and  $\frac{2}{3}$ , the LCM of 6 and 3 is 6. To make these fractions like fractions, we will convert  $\frac{2}{3}$  into  $\frac{4}{6}$ .

Teacher: Now, we can add them:

$$\frac{5}{6} + \frac{4}{6} = \frac{9}{6}$$
. This simplifies to  $1\frac{1}{2}$ .

8 Add the following fractions. Write the answers in your notebook.  
a. 
$$\frac{6}{q} + \frac{5}{q}$$
 b.  $\frac{4}{5} + \frac{7}{8}$  c.  $1\frac{2}{3} + 5\frac{1}{4}$  d.  $\frac{1}{6} + \frac{8}{q} + \frac{12}{3}$ 

**Teacher**: Open your books to Exercise 8, page 50. Let us solve the first two questions together.

**Teacher:** (a) Add  $\frac{6}{9} + \frac{5}{9}$ . Since the

denominators are the same, simply add the numerators:

6 + 5 equals 11, so  $\frac{6}{9} + \frac{5}{9}$  equals  $\frac{11}{9}$ .

(Guide the students to complete the next question.)

**Teacher**: Write the answers neatly in your notebooks. Let us move to Word Problems.

#### Word Problems

WORD PROBLEMS Example 11: Amrita bought $1\frac{1}{2}$ kg apples and Vandana bought $\frac{3}{4}$ kg apples. H many kilograms of apples did they buy in all?	ow
Weight of apples bought by Amrita = $l_2^{\perp}$ kg Weight of apples bought by Vandana = $\frac{3}{\mu}$ kg Total weight of apples they bought together = $l_2^{\perp}$ kg + $\frac{3}{\mu}$ kg = $\frac{3}{2}$ kg + $\frac{3}{\mu}$ kg	
LCM of 2 and 4 is 4. $\frac{3}{2} \times \frac{2}{2} = \frac{6}{4}$ and $\frac{3}{4} \times \frac{1}{1} = \frac{3}{4}$	
$\frac{6}{4} + \frac{3}{4} = \frac{6+3}{4} = \frac{9}{4} = 2\frac{1}{4}$ They bought $\frac{9}{4}$ or $2\frac{1}{4}$ kg of apples in all.	(50

**Teacher:** Now, let us apply what we have learnt to solve some word problems. Everyone please open page 50 in your Main Course Book. We will solve example 11. (Discuss the example 11 with students.)

![](_page_9_Figure_16.jpeg)

**Teacher:** Now, let us move on to question a from Exercise 9. Who will read and explain the question?

 Teacher: To solve this, we need to add

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 the two fractions:

$$\frac{1}{10}$$
 km and  $\frac{4}{5}$  km

**Teacher**: The denominators are different, so we must first find the LCM of 10 and 5, which is 10.

**Teacher**: Now, convert  $\frac{4}{5}$  to have a denominator of 10. To do this, multiply both the numerator and denominator

of 
$$\frac{4}{5}$$
 by 2:

$$\frac{4}{5} = \frac{8}{10}$$

(50)

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Teacher: Now, we can add the two fractions:

$$\frac{1}{10} + \frac{8}{10} = \frac{9}{10}$$

**Teacher:** So, the total distance from Simran's home to her

school is  $\frac{9}{10}$  km.

(Explain the next part in similar way.)

**Teacher**: Excellent work today, everyone. Let us give a big round of applause for your hard work and dedication. Keep practising and I look forward to seeing your progress in the next period.

#### Differentiated Activities

#### 110 km/hr

Add the following fractions and simplify the results:

7	3
8	16
5	_ 7
12	18

#### 80 km/hr

Add the following fractions:  $\frac{4}{9} + \frac{1}{9}$   $\frac{5}{8} + \frac{3}{8}$ 

#### 40 km/hr

![](_page_9_Picture_38.jpeg)

Add the following simple fractions with the same denominator:

![](_page_9_Figure_40.jpeg)

### Home Task

Solve questions (c) to (d) of Exercise 8 and question (c) of Exercise 9 given in your Main Course Book. Write the answers neatly in your notebook.

## Period 7

![](_page_9_Picture_44.jpeg)

How are you today? **Teacher:** Let us begin with a quick warm-up. Today, we will focus on adding like fractions, but in a fun way. Imagine

Teacher: Good morning, students.

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you are eating healthy food. For every healthy food item you add to your plate, you are adding a fraction. Let us start.

**Teacher:** What is  $\frac{3}{5} + \frac{1}{5}$ ?

**Teacher:** Excellent.  $\frac{3}{5} + \frac{1}{5}$  equals  $\frac{4}{5}$ . This means you added a bit healthier food to your plate.

**Teacher:** Now, what is  $\frac{7}{9} + \frac{2}{9}$ ? **Teacher:** Yes,  $\frac{7}{9} + \frac{2}{9}$  equals  $\frac{9}{9}$ , which is the whole plate of food. Well done.

**Teacher:** Lastly, what is  $\frac{5}{8} + \frac{3}{8}$ ? **Teacher:** Great.  $\frac{5}{8} + \frac{3}{8}$  equals  $\frac{8}{8}$ , so now your plate is full of healthy food. Keep up the great work

healthy food. Keep up the great work.

**Teacher:** Now that we are warmed up, let us talk about subtracting fractions – but this time, think of subtracting food you might not want from your plate. Ready?

#### Subtraction of Fraction Subtracting like fraction

 SUBTRACTION OF FRACTIONS

 Subtracting like fractions

 To subtract two or more like fractions, subtract the numerators only. The denominator remains the same. Finally, reduce the fraction to its lowest term, if possible.

 Example 12: Subtract  $\frac{7}{21}$  from  $\frac{16}{21}$ .

  $\frac{16}{21} - \frac{7}{21} = \frac{16 - 7}{21} = \frac{9}{21} = \frac{3}{7}$ 

**Teacher:** Today, we will be learning how to subtract fractions. Everyone please open page 51. We will start by subtracting like fractions, then move

![](_page_10_Picture_10.jpeg)

on to subtracting unlike fractions and finally, subtracting mixed fractions.

Teacher: Let us begin with subtracting like fractions.

**Teacher:** When fractions have the same denominator, we subtract the numerators and keep the denominator the same. Finally, we simplify the fraction, if needed.

**Teacher:** Let us look at Example 12. We need to subtract: 16 7

21 21

**Teacher:** Since the denominators are the same, we simply subtract the numerators.

**Teacher:** 16 – 7 equals 9, so 
$$\frac{16}{21} - \frac{7}{21}$$
 equals  $\frac{9}{21}$ .

**Teacher:** We can simplify  $\frac{9}{21}$  by dividing both 9 and 21 by 3.

**Teacher:** 
$$9 \div 3 = 3$$
 and  $21 \div 3 = 7$ , so  $\frac{9}{21}$  simplifies to  $\frac{3}{7}$ .

**Teacher:** Therefore, the answer is  $\frac{3}{7}$ 

**Teacher:** So, think of it like subtracting 7 pieces of junk food from your plate of 16 healthy pieces. You are left

with 
$$\frac{3}{7}$$
 of the plate of healthy food.

#### Subtracting unlike fraction

Subtracting unlike fractions Convert the unlike fractions to like fractions by finding the LCM of their denominators. Then, multiply both the numerator and denominator of the given fractions with a number that gives the same denominator. Subtract the like fractions and reduce the fraction to its lowest term, if possible.	51
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----

**Teacher:** Now that we understand subtracting like fractions, let us move on to subtracting unlike fractions.

**Teacher:** In everyday life, we often need to deal with different quantities, like measuring food portions, where we need to subtract unlike fractions.

**Teacher:** To subtract unlike fractions, we first find the LCM (Lowest Common Multiple) of the denominators.

**Teacher:** Then, we multiply both the numerator and denominator of each fraction by a number that gives the same denominator. Finally, we subtract the like fractions and simplify if necessary.

Teacher: Let us look at Example 13. We need to subtract:

**Teacher:** 
$$\frac{8}{11} - \frac{4}{7}$$
.

**Teacher:** The LCM of 11 and 7 is 77. To get 77, multiply 11 by 7 and 7 by 11.

**Teacher:** Now, let us convert both fractions to have a denominator of 77.

$$\frac{\binom{8}{11} \times \binom{7}{7}}{\binom{4}{7}} = \frac{56}{77}$$
$$\frac{\binom{4}{7} \times \binom{11}{11}}{\frac{44}{77}} = \frac{44}{77}$$

Teacher: Now, we subtract the fractions:

$$(\frac{56}{77}) - (\frac{44}{77}) = \frac{12}{77}$$

**Teacher:** Therefore, the answer is  $\frac{12}{77}$ **Subtracting mixed fraction** 

Subtracting mixed fractions Convert the mixed fractions to improper fractions and then convert the improper fractions to like fractions by finding the LCM of the denominators. Finally, subtract the like fractions and change the difference to a mixed fraction.

![](_page_10_Figure_38.jpeg)

**Teacher:** Now, let us work on subtracting mixed fractions. Think of this as subtracting larger portions of food, like sharing a pie.

**Teacher:** To subtract mixed fractions, we first convert them into improper fractions, then convert the improper

fractions into like fractions and finally subtract them. After subtracting, we will convert the answer back into a mixed fraction.

Teacher: Let us look at Example 14.

(Continue explaining example 14 and 15 in similar way.)

![](_page_11_Picture_3.jpeg)

Teacher: Now, let us practise solving Exercise 10. Please open your books to Exercise 10, page 51.

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Teacher: For question (a), I will explain

it to you and for question (b), you will work in pairs.

**Teacher:** (a) Subtract  $\frac{18}{19} - \frac{7}{19}$ . Since the denominators are the same, we subtract the numerators: 18 - 7 = 11, so

the final answer is  $\frac{11}{2}$ 

Teacher: Please work with your partner to solve question (b). Raise your hands if you face any difficulty.

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

#### Word Problems

![](_page_11_Picture_14.jpeg)

Teacher: Now, let us move on to word problems. Please open your books to page 52, Example 16.

![](_page_11_Picture_16.jpeg)

Teacher: In a normal fraction problem, we just work with

the numbers given, like  $\frac{16}{21} - \frac{7}{21}$ . The question is straight forward and we just perform the operation directly.

Teacher: However, in a word problem, we are presented with a situation or a story that involves fractions. The task is to understand the scenario, identify which fractions are involved and then perform the subtraction. (Discuss example 16 with students.)

 $\underset{\frown}{11}$  Solve the following word problems, in your notebook.

- a. Tanya spent  $\frac{3}{5}$  of her money to buy storybooks and spent  $\frac{2}{7}$  of her money on stationery. What fraction of her money is left?
  - b. A vegetable seller has a sack of  $20\frac{1}{2}$  kg of onions. He sells some onions. If he still has  $6\frac{1}{\mu}$  kg of onions, how much onions did he sell?

c. On her birthday, Harshita bought 121 toffees. She distributed  $\frac{5}{11}$  of the toffees (52) among her friends. How many toffees is she now left with?

Teacher: Now, let us move on to Exercise 11. Please open your books to Exercise 11, page 52.

![](_page_11_Picture_25.jpeg)

Teacher: We will solve word problems

of fractions in groups. Please form groups of three. Each group will address the problems displayed on the board and share solutions with the class.

**Teacher:** Discuss in your group how to solve these problems. Each group will explain their process and answer.

Teacher: Ensure everyone understands the solution before presenting. Begin now and ask if you need assistance. (Discuss the questions with students.)

Teacher: Excellent work today, everyone. Let us give ourselves a big round of applause for all your effort. See you in the next period.

#### Differentiated Activities

#### 110 km/hr

![](_page_11_Figure_33.jpeg)

 $\frac{7}{10} - \frac{2}{5}$ 

#### 80 km/hr

Subtract the following fractions:

4	_	2	
7		5	
4	_	1	
7		7	

#### 40 km/hr

Subtract the following fractions:

2	2_	1
6	5	6
ŗ	5	2
1	0	10

#### Home Task

Solve questions (c) to (d) of Exercise 10 and question (d) of Exercise 11 given in your Main Course Book. Write your answers neatly in your notebook.

## Period 8

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

![](_page_11_Figure_45.jpeg)

Teacher: Let us begin with a quick warm-up.

Teacher: Imagine you are making a fruit bowl for your breakfast. You have  $\frac{3}{4}$  of an apple and you decide to

add  $\stackrel{l}{\_}$  more of the apple. How much apple will you have in total?

**Teacher:** Yes,  $\frac{3}{11} + \frac{1}{11}$  equals  $\frac{4}{11}$ , which is 1 whole apple.

**Teacher:** Now, what if you have  $\frac{3}{4}$  of a banana and you decide to give  $\frac{1}{4}$  of it to your friend. How much banana will you have left?

**Teacher:** Correct,  $\frac{3}{4} - \frac{1}{4}$  equals  $\frac{2}{4}$ , which simplifies to  $\frac{1}{4}$ .

Teacher: You are doing a great work. Keep in mind that eating fruits like apples and bananas gives you energy to stay active and strong throughout the day.

#### **Multiplication Of Fractions**

#### Multiplying a fraction by a whole number

![](_page_12_Picture_7.jpeg)

Teacher: Today, we will learn about multiplying fractions. We will first

![](_page_12_Figure_9.jpeg)

discuss how to multiply a fraction by a whole number and then how to multiply one fraction by another. Teacher: Everyone please open page 52 in your Main

Course Book. Let us begin with multiplying a fraction by a whole number.

(Discuss the steps with students. Explain how the steps are followed in Example 17.)

#### Multiplying a fraction by a fraction

![](_page_12_Figure_14.jpeg)

**Teacher:** Now, let us move to multiplying one fraction by another.

**Teacher:** When multiplying fractions, we multiply the numerators and the denominators separately.

**Teacher:** Let us look at Example 18: Multiply  $\frac{8}{5} \times \frac{2}{3}$ .

**Teacher:** Multiply the numerators:  $8 \times 2 = 16$ . **Teacher:** Multiply the denominators:  $5 \times 3 = 15$ .

**Teacher:** So,  $\frac{8}{5} \times \frac{2}{3} = \frac{16}{15}$  or  $\frac{11}{15}$ .

(Discuss the example 19 in similar way.)

#### **Understanding better**

Teacher: Now, let us practise converting mixed fractions to improper fractions in 'Understanding better' section. Everyone please open page 52.

**Teacher:** Convert  $1\frac{3}{4}$  into an

improper fraction. Who will explain the way to solve it?

![](_page_12_Picture_25.jpeg)

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Teacher: Yes, first we multiply the whole number 1 by the denominator 4:

$$1 \times 4 = 4.$$

Teacher: Add the numerator 3 to this result: 4 + 3 = 7.

**Teacher:** So, 
$$1 \frac{3}{4} = \frac{7}{4}$$
.

(Discuss the other question in a similar way.)

$$\begin{array}{c} \textbf{(2)} \\ \textbf{Multiply the following fractions. Write the answers in your notebook.} \\ \textbf{a.} \quad \frac{4}{5} \times \frac{5}{6} \qquad \textbf{b.} \quad \frac{4}{8} \times 3 \qquad \textbf{c.} \quad l\frac{1}{2} \times 2\frac{1}{3} \qquad \textbf{d.} \quad 6 \times \frac{2}{3} \times \frac{1}{8} \qquad \textbf{e.} \quad \frac{36}{15} \times \frac{18}{12} \times \frac{4}{5} \\ \textbf{53} \end{array}$$

Teacher: Now, let us work on Exercise 12. Please open your books to Exercise 12, page 53.

Teacher: For question (a), we need to

multiply 
$$\frac{5}{6} \times \frac{4}{5}$$
.

Teacher: Let us do this together.

**Teacher:** Multiply the numerators:  $5 \times 4 = 20$ .

**Teacher:** Multiply the denominators:  $6 \times 5 = 30$ .

**Teacher:** So, 
$$\frac{5}{6} \times \frac{4}{5} = \frac{20}{30}$$
.

**Teacher:** Now, let us simplify  $\frac{20}{30}$ . Both the numerator and denominator can be divided by 10.

**Teacher:**  $20 \div 10 = 2$  and  $30 \div 10 = 3$ .

**Teacher:** So, 
$$\frac{5}{6} \times \frac{4}{5} = \frac{2}{3}$$
.

**Teacher:** Now, please work on the remaining questions in Exercise 12. Discuss your solutions with a partner to make sure everyone understands the steps. Raise you hand if you face any difficulty.

#### Word Problems

WORD PROBLEMS	
Example 20: If the cost of 1 pencil is $\sqrt[3]{7}\frac{1}{2}$ , what will be the cost of 96 pencils	?
Cost of 1 pencil = $₹7\frac{1}{2}$ ; Cost of 96 pencils = $₹7\frac{1}{2} \times 96$	
$7\frac{1}{2} = \frac{15}{2}; \frac{15}{4} \times \frac{46}{15} = 15 \times 48 = 720$	$\frown$
Z Z ZZ  I Thus, the cost of 96 pencils will be ₹720.	53

**Teacher:** Let us now move on to word problems. These help us connect fractions to real-life situations.

**Teacher:** Please open your books to page 53, Example 20. (Discus the example with students.)

![](_page_13_Figure_2.jpeg)

- a. A tailor used  $2\frac{4}{7}$  m of cloth to stitch a kurta. How much cloth does he need to stitch 8 such kurta?
- b. If the cost of one eraser is  $\sqrt[8]{7}\frac{1}{2}$ , what will be the cost of 84 erasers?
- c.  $2\frac{1}{2}$  L of colour is needed to paint a wall. How much paint is required to colour  $3\frac{1}{2}$  portion of the walls in a room?

**Teacher:** Now, let us work on Exercise 13. Please open your books to page 53.

![](_page_13_Picture_7.jpeg)

Teacher: Discuss the question (a)

within your groups and decide on a clear strategy to solve it.

**Teacher:** I will be moving around the room to check your progress and answer any questions.

**Teacher:** Excellent work today, everyone. Let us give ourselves a big round of applause for all your effort. See you in the next period.

#### Differentiated Activities

#### 110 km/hr

Multiply the following fractions and simplify:

$$\frac{4}{7} \times \frac{5}{6}$$

10 4

80 km/hr Multiply the following fractions:

![](_page_13_Figure_19.jpeg)

#### 40 km/hr

Multiply the following fractions:

![](_page_13_Figure_23.jpeg)

### Home Task

Solve question (b) and (c) of Exercise 13 given on page 53 in Main Course Book. Write the answers neatly in your notebook.

## Period 9

Teacher:Good morning, students.SHOULD DOHow are you today?DS MIN.

Teacher: Let us begin with a warm-

![](_page_13_Figure_29.jpeg)

up activity based on multiplication of fractions. We have recently practised this, so it will be easy.

**Teacher:** Imagine you have  $\frac{1}{2}$  of a cup of orange juice and you want to use  $\frac{3}{4}$  of it to make a fruit drink. To find how much orange juice you will use, multiply  $\frac{1}{2}$  by  $\frac{3}{4}$ .

**Teacher:**  $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$ . So, you will use  $\frac{3}{8}$  of a cup of orange juice.

**Teacher:** Now, let us think about another example. If you have  $\frac{2}{3}$  of a bowl of fruit and you want to use 1/2 of it for your fruit salad, multiply  $\frac{2}{3}$  by  $\frac{1}{2}$ .

**Teacher:**  $\frac{2}{3} \times \frac{1}{2} = \frac{2}{6}$ , which simplifies to  $\frac{1}{3}$ . So, you will use  $\frac{1}{2}$  of the fruit for the salad.

**Teacher:** Remember, eating fruits like oranges and mixed fruit gives you lots of energy to stay active. Let us now continue with the lesson.

#### **Division of Fractions**

![](_page_13_Figure_37.jpeg)

**Teacher:** Today, we are going to learn about division of fractions. Before we do that, let us briefly review the concept of multiplicative inverse.

![](_page_13_Picture_39.jpeg)

#### **Multiplicative Inverse**

**Teacher:** The multiplicative inverse of a fraction is simply the reciprocal of that fraction. For example, the inverse of

$$\frac{2}{3} \text{ is } \frac{3}{2} \text{ because } \frac{2}{3} \times \frac{3}{2} = 1$$

**Teacher:** Now, let us move on to dividing a whole number by a fraction.

**Teacher:** If we divide 3 by  $\frac{2}{5}$ , we can write 3 as  $\frac{3}{1}$ . To divide, we multiply  $\frac{3}{1}$  by the reciprocal of  $\frac{2}{5}$ , which is  $\frac{5}{2}$ .

**Teacher:** 
$$\frac{3}{1} \times \frac{5}{2} = \frac{12}{2}$$
. So,  $3 \div \frac{2}{5}$  equals  $\frac{15}{2}$ , which is  $7\frac{1}{2}$ .

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#### Dividing a whole number by a fraction

Dividing a whole number by a fraction step 1: Write the whole number as a fraction. For example, $3 = \frac{3}{1}$ . step 2: Write the multiplicative inverse of the whole number. step 3: Multiply the fraction and the multiplicative inverse. Example 21: Divide $\frac{2}{4}$ by 7. step 1: $7 = \frac{7}{1}$ step 2: Multiplicative inverse of 7 is $\frac{1}{7}$ . step 3: $\frac{2}{4} + \frac{2}{2} + \frac{2}{2} = \frac{2}{2} \times \frac{1}{2} = \frac{2}{2}$		
STEP 1: Write the whole number as a fraction. For example, $3 = \frac{3}{1}$ .         STEP 2: Write the multiplicative inverse of the whole number.         STEP 3: Multiply the fraction and the multiplicative inverse.         Example 21: Divide $\frac{2}{4}$ by 7.         STEP 1: $7 = \frac{7}{1}$ STEP 2: Multiplicative inverse of 7 is $\frac{1}{7}$ .         STEP 3: $\frac{2}{7} + \frac{7}{2} = \frac{2}{2} \times \frac{1}{2} = \frac{2}{2}$ STEP 3: $\frac{2}{7} + \frac{7}{2} = \frac{2}{2} \times \frac{1}{2} = \frac{2}{2}$	Dividing a whole number by a fraction	n
STEP 2: Write the multiplicative inverse of the whole number.         STEP 3: Multiply the fraction and the multiplicative inverse.         Example 21: Divide $\frac{2}{4}$ by 7.         STEP 1: $7 = \frac{7}{1}$ STEP 2: Multiplicative inverse of 7 is $\frac{1}{7}$ .         STEP 3: $\frac{2}{7} + \frac{7}{2} = \frac{2}{2} \times \frac{1}{2} = \frac{2}{2}$	STEP 1: Write the whole number as a fraction $3 = \frac{3}{1}$ .	action. For
STEP 3: Multiply the fraction and the multiplicative inverse.         Example 21: Divide $\frac{2}{4}$ by 7.         STEP 1: $7 = \frac{7}{1}$ STEP 2: Multiplicative inverse of 7 is $\frac{1}{7}$ .         STEP 3: $\frac{2}{7} + \frac{7}{2} = \frac{2}{2} \times \frac{1}{2} = \frac{2}{2}$	STEP 2: Write the multiplicative inverse whole number.	of the
Example 21: Divide $\frac{2}{4}$ by 7. STEP 1: $7 = \frac{7}{1}$ STEP 2: Multiplicative inverse of 7 is $\frac{1}{7}$ . STEP 3: $\frac{2}{4} + \frac{7}{2} = \frac{2}{x} + \frac{1}{2} = \frac{2}{x}$ . STEP 3: $\frac{2}{3} + \frac{2^{24}}{2} = \frac{2^{24}}{x^{2}} + \frac{1}{x^{2}} = \frac{1}{x^{2}}$ .	STEP 3: Multiply the fraction and the m	ultiplicative inverse.
STEP 1: $7 = \frac{7}{1}$ STEP 2: Multiplicative inverse of 7 is $\frac{1}{7}$ . STEP 3: $\frac{2}{4} + \frac{7}{2} = \frac{2}{2} \times \frac{1}{2} = \frac{2}{2}$ . STEP 3: $\frac{2}{3} + \frac{24}{2} = \frac{27}{4} \cdot \frac{1}{2} = \frac{1}{12}$ . STEP 3: $\frac{3}{3} + \frac{24}{2} = \frac{27}{4} \cdot \frac{1}{2} = \frac{1}{12}$ .	Example 21: Divide $\frac{2}{4}$ by 7.	Example 22: Divide $\frac{3}{18}$ by 24.
STEP 2: Multiplicative inverse of 7 is $\frac{1}{7}$ . STEP 3: $\frac{2}{7} + \frac{7}{7} = \frac{2}{2} \times \frac{1}{7} = \frac{2}{7}$ . STEP 3: $\frac{3}{7} + \frac{24}{7} = \frac{27}{7} \times \frac{1}{7} = \frac{1}{7}$ .	STEP 1: $7 = \frac{7}{1}$	STEP 1: $24 = \frac{24}{1}$
STEP 3: $\frac{2}{7} \div \frac{7}{7} = \frac{2}{7} \times \frac{1}{7} = \frac{2}{7}$	<b>STEP 2</b> : Multiplicative inverse of 7 is $\frac{1}{7}$ .	STEP 2: Multiplicative inverse of 24 is $\frac{1}{20}$ .
4 1 4 7 28 118 1 18 24 <sub>8</sub> 144 (34)	STEP 3: $\frac{2}{4} \div \frac{7}{1} = \frac{2}{4} \times \frac{1}{7} = \frac{2}{28}$	STEP 3: $\frac{3}{18} \div \frac{24}{1} = \frac{2}{18} \times \frac{1}{24} = \frac{1}{144}$ (54)

Teacher: Today, we are going to learn about dividing fractions. Everyone please open pae 54 in your Main Course Book. First, let us discuss

![](_page_14_Picture_3.jpeg)

dividing a whole number by a fraction.

Teacher: When dividing a whole number by a fraction, we multiply the whole number by the reciprocal of the fraction.

(Discuss the steps with the students.)

#### **Processing better**

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Processing better	
In multiplicative inverse of a fraction, its numerator becomes the denominator and the denominator	L
becomes the numerator.	54

Teacher: Now, let us look at the concept in the 'processing better' section

Teacher: In the multiplicative inverse of a fraction, its numerator becomes the denominator and its denominator becomes the numerator.

**Teacher:** For example, the multiplicative inverse of  $\frac{2}{5}$  is  $\frac{5}{2}$ 

because multiplying  $\frac{2}{5}$  by  $\frac{5}{2}$  gives us 1.

#### Dividing a fraction by a fraction

Dividing a fraction by a fraction	
STEP 1: Write the multiplicative inverse of the second fraction.	
STEP 2: Multiply the fraction and the multiplicative inverse.	
Example 23: Divide $\frac{2}{3}$ by $\frac{4}{9}$ .	
STEP 1: Multiplicative Inverse of $\frac{4}{9}$ is $\frac{9}{4}$ . STEP 2: $\frac{2}{3} \div \frac{4}{9} = \frac{2}{3} \checkmark \frac{4}{7} = \frac{3}{2}$	
Example 24: Divide $6\frac{2}{7}$ by $5\frac{1}{2}$ .	
Converting mixed fraction into improper fraction. $6\frac{2}{7} \div 5\frac{1}{2} = \frac{14}{7} \div \frac{11}{2}$	
STEP 1: Multiplicative Inverse of $\frac{11}{2}$ is $\frac{2}{11}$ . STEP 2: $\frac{44}{7} + \frac{11}{2} = \frac{44}{7} \times \frac{4}{7_1} = \frac{8}{7}$	54
	34

Teacher: Now, we will discuss dividing a fraction by a fraction.

Teacher: For example, if we want to

divide 
$$\frac{3}{4}$$
 by  $\frac{2}{5}$ , we multiply  $\frac{3}{4}$  by the reciprocal of  $\frac{2}{5}$ ,

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**Teacher:**  $\frac{3}{4} \times \frac{5}{2} = \frac{15}{2}$ , which simplifies to  $1\frac{7}{8}$ .

Teacher: This is the process of dividing fractions by multiplying by the reciprocal. Let us move on to the exercises

(Discuss the example 23 and 24 with the students.)

2 14	Write the multip	licative inverse	e of each fracti	on. Write the a	nswers in your notebook.	
TOJ	а. б	ь. <sup>2</sup> / <sub>5</sub>	c. $\frac{7}{8}$	d. 9 10	e. 29 31	
2 (15)	Divide the follow	wing fractions.	Write the answ	ers in your note	ebook.	
L01	a. $4 \div \frac{1}{5}$	b. $\frac{3}{4} \div \frac{8}{9}$	<b>c.</b> $\frac{6}{7} \div 10$	d. $\frac{5}{6} \div 3\frac{1}{3}$	e. $5\frac{1}{16} \div \frac{3}{4}$	511

Teacher: Now, let us work on Exercise 14, which focuses on multiplicative inverse.

![](_page_14_Picture_24.jpeg)

Teacher: Please open your books to Exercise 14 on page 54.

**Teacher:** We will solve question (a) and (b) together.

Teacher: (a) Write the multiplicative inverse of 6.

(Discuss question (a) and (b) of Exercise 14 and 15 with students.)

#### **Understanding better**

![](_page_14_Picture_30.jpeg)

Teacher: Let us now move to the 'Understanding better' section.

Teacher: 1. What will be the reciprocal of 25?

**Teacher:** The reciprocal of 25 is  $\frac{1}{25}$ 

(Discuss the next question in similar way.) Word Problems

![](_page_14_Picture_35.jpeg)

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given on page 54 in Main Course Book. Word problems are like real life situations.

#### (Discuss example 25 with the students.)

#### (16) Solve the following word problems, in your notebook.

- a. Arpita has bought 7 kg of nuts. She wants to pack them in gift packs of  $\frac{1}{2}$  kg each. How many gift packs will she be able to make?
- b. The cost of 4 <sup>1</sup>/<sub>2</sub> kg of potatoes is ₹225. What will be the cost of 1 kg of potatoes?
- c. How many equal pieces of  $\frac{1}{n}$  m can Vihaan cut from a ribbon of length  $6\frac{1}{n}$  m? (55)

Teacher: Let us solve questions to check our understandings.

![](_page_15_Picture_6.jpeg)

Teacher: We will solve Exercise 16 in small groups. Discuss each question in

group ensuring each member understand the solution of the question

Teacher: Raise your hand if you face any difficulty.

Teacher: Excellent work today, everyone. Let us give ourselves a big round of applause for all your effort.

#### Differentiated Activities

#### 110 km/hr

![](_page_15_Picture_13.jpeg)

LL. 6

#### 80 km/hr

![](_page_15_Picture_16.jpeg)

- 3 1
- 2 4
- ÷ 2
- 6 3

#### 40 km/hr

Divide the following fractions:

2	÷	1
5		2
4	÷	3
٩	-	5

#### Home Task

Solve questions (c) to (d) of Exercise 14 and 15 of your Main Course Book. Write the answers neatly in your notebook.

## Period 10

Teacher: Good morning, students. Are you ready for some fraction exercises?

![](_page_15_Picture_28.jpeg)

Teacher: Can anyone tell us how to divide fractions? Yes, we multiply by the reciprocal of the second fraction.

Teacher: Let us consider an apple. If one whole apple is divided between two people, how much does each person get?

**Teacher:** You are right, each person gets half of the apple. Teacher: Now, think about a watermelon cut into quarters. If you have three-quarters of a watermelon and want to share it equally among three friends, how much does each friend receive?

Teacher: Yes, each friend gets one-quarter of the watermelon. Excellent thinking.

Teacher: What if you have two-thirds of a basket of oranges and need to distribute them into smaller baskets that each hold one-sixth of a basket? How many smaller baskets can you fill?

Teacher:	Correct,	you	can	fill	four	MUST DO	$\square$
smaller be	askets.					OS MIN.	

#### **Connecting better**

	Connecting better
English	In the evening, Sam visits Ryan. Ryan is doing his homework. He writes, "I have learnt to add subtract multiply and divide fractions. Sam then explains, "We put commas to list a series of words in a sentence." Ryan corrects the written statement to "I have learnt to add, subtract, multiply and divide fractions." Ryan replies, "Now, I have understood the placement of commas."

Teacher: Excellent work with the warm-up. Now, let us move to the 'Connecting better' section. Who will read and explain it?

Teacher: Yes, you are correct; commas are needed to separate the verbs. Let me show you how to correct it: 'I have learnt to add, subtract, multiply and divide fractions.'

Teacher: Using commas correctly ensures that our message is clear. It is important because it helps avoid confusion and ensures that everyone understands each list item distinctly.

### Grasping better

Teacher: Now, let us shift our focus to 'Grasping better'. What are equivalent fractions?

**Teacher:** Correct, they are fractions that, although they appear different, have the same value.

Teacher: For instance, one-half is equivalent to twofourths. This is very useful in mathematics.

### **Recalling better**

![](_page_15_Figure_46.jpeg)

different types of fractions we studied?

Teacher: Yes, you are correct. We have learnt about proper, improper and mixed fractions.

**Teacher:** Now, what does it mean to reduce a fraction to its lowest term?

**Teacher:** Exactly, reducing a fraction to its lowest term

means dividing the numerator and the denominator by their greatest common divisor.

**Teacher:** Who remembers what equivalent fractions are? **Teacher:** That is right. Equivalent fractions are fractions that have different numerators and denominators but represent the same value.

Teacher: And how do we compare and order fractions?

**Teacher:** Correct again. We convert them to have a common denominator or convert them to decimals to easily see which is larger or smaller.

**Teacher:** Lastly, how do we add, subtract, multiply and divide fractions?

**Teacher:** Precisely, we ensure the denominators are the same for addition and subtraction and for multiplication and division, we multiply across for the numerators and denominators and multiply by the reciprocal in division.

**Teacher:** Great work, everyone. It is important to keep these concepts in mind as they are foundational for working with fractions.

You may show the **Maths Lab** given on the digital platform.

![](_page_16_Figure_8.jpeg)

![](_page_16_Picture_9.jpeg)

**Teacher:** Now that we have reviewed key fraction concepts, let us move to the 'Decoding better' section where we will learn to multiply fractions in a

fun and interactive way. Are you ready to explore this with a hands-on activity?

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**Teacher:** Today, we will need A4-size paper and coloured pencils. Each pair will receive two fractions to multiply,

such as 
$$\frac{3}{5}$$
 and  $\frac{2}{4}$ .

(Guide the students to perform the activity.)

![](_page_16_Picture_15.jpeg)

Teacher: Now, let us move to the 'Solving better' section

and tackle some fraction exercises. Let us start with question a from Exercise 1. We need to find the

![](_page_16_Picture_18.jpeg)

equivalent fraction of  $\frac{6}{9}$ . Who can tell us how to approach this problem?

**Teacher:** Correct, we simplify the fraction by finding the greatest common divisor of the numerator and the

denominator. So,  $\frac{6}{9}$  simplifies to what fraction?

**Teacher:** Yes, it simplifies to  $\frac{2}{3}$ . Excellent work. Now, could

you write down the answers for different denominators and numerators in your notebook? For a denominator of 45, the equivalent fraction would be...?

**Teacher:** That is right, it would be  $\frac{30}{45}$ . And for a numerator of 72, the equivalent fraction would be  $\frac{72}{108}$ , which simplifies back to  $\frac{2}{108}$ . Great work.

**Teacher:** Now, for questions (b) to (d), I would like you to work in pairs. Make sure you follow the same steps we just discussed. Start by finding a common denominator for the fractions before adding, subtracting or multiplying them. This will help ensure your answers are accurate.

**Teacher:** Once you have solved these, compare your answers with those of another pair.

Teacher: Let us move to 'Learning better' section.

![](_page_16_Picture_28.jpeg)

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![](_page_16_Picture_29.jpeg)

![](_page_16_Picture_30.jpeg)

**Teacher:** Great work on the previous activity. Let us move on to 'Learning better' with some quick questions.

**Teacher:** Look at the first question. It asks, 'A proper fraction with 1 as the numerator is called a/an \_\_\_\_\_\_ fraction.' Which type is it?

Teacher: Correct, it is a 'unit' fraction.

**Teacher:** Please work on the rest of the questions on your own. I will be here to help if you need it. Start with question 2 and take your time to think about your answers.

**Teacher:** If you are unsure, I am here to assist. Let us make sure we understand each step before moving on.

#### **Differentiated Activities**

#### 110 km/hr

![](_page_17_Picture_2.jpeg)

Design a fraction garden. Divide a plot into 10 parts. Allocate  $\frac{1}{5}$  for roses,  $\frac{3}{10}$  for tulips and the

remainder for daisies. Calculate the sections for each and draw your garden.

#### 80 km/hr

![](_page_17_Picture_6.jpeg)

Scale a smoothie recipe for a crowd. Original

fractions are  $\frac{1}{4}$  bananas,  $\frac{1}{3}$  strawberries,  $\frac{1}{6}$ 

apples. Triple each fraction for more servings. Display your scaled-up recipe.

#### 40 km/hr

![](_page_17_Picture_11.jpeg)

like  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$ . Mark your card as I describe

scenarios. First to complete a line wins. Understand each fraction clearly.

#### Home Task

Solve Exercise 2 of Solving better given on page 56. Write the answers neatly in your notebook.

## Period 11

![](_page_17_Picture_17.jpeg)

**Teacher:** Good morning students. How are you?

Teacher: Let us start with a quick fractions exercise.

**Teacher:** Imagine your snack plate is divided into four equal parts. You place apple slices in one part and carrot sticks in another. What fraction of your plate is filled?

**Teacher:** Correct, it is  $\frac{1}{9}$  with apple slices and 1/4 with carrot sticks, totalling  $\frac{1}{2}$  of your plate.

**Teacher:** Now, if you eat the apple slices, how much of your snack plate is still filled?

**Teacher:** Exactly, it is  $\frac{1}{4}$  with carrot sticks. Great work understanding fractions.

Teacher: Let us move to solve exercises.

![](_page_17_Figure_25.jpeg)

**Teacher:** Please turn to page 57 in your books and look at Exercise B. **Teacher:** Let us match the fractions with their equivalent forms. For

![](_page_17_Picture_27.jpeg)

instance, find the equivalent fraction of  $\frac{21}{35}$ , which might

represent portions of a smoothie.

![](_page_17_Picture_30.jpeg)

(Guide the students to complete the Exercise in similar way.)

C Reduce the	following fracti	ons to their lowes	st terms. Write th	e answers in your	
1. $\frac{42}{56}$	<b>2</b> . $\frac{54}{72}$	<b>3</b> . $\frac{112}{120}$	4. $\frac{348}{576}$	5. <u>609</u> 1000	57

**Teacher:** Continue on page 57. We will reduce some fractions to their simplest forms in Exercise C.

**Teacher:** Start with  $\frac{42}{56}$ , perhaps

imagining dividing a watermelon into slices for friends. What is the simplest form?

**Teacher:** Yes, it simplifies to  $\frac{3}{4}$ .

(Guide the students to complete the Exercise in similar way.)

![](_page_17_Picture_38.jpeg)

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

Teacher: Next, let us compare MUST DO fractions in Exercise D.

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(57)

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**Teacher:** Compare  $\frac{1}{9}$  to  $\frac{1}{8}$ ; think of

them as portions of juice servings. Which is smaller?

**Teacher:** Correct, 
$$\frac{1}{2}$$
 is less than  $\frac{1}{2}$ 

(Guide the students to complete the Exercise in similar way.)

$$\underbrace{ \left( \underbrace{F} \right) \text{ Arrange the following fractions in ascending order. Write the answers in your notebook. } \\ 1. \frac{7}{18}, \frac{7}{20}, \frac{7}{25}, \frac{7}{28} \qquad 2. \quad \frac{3}{6}, \frac{14}{24}, \frac{8}{12}, \frac{1}{3} \qquad 3. \quad \frac{7}{10}, \frac{4}{5}, \frac{3}{50}, \frac{10}{20} \qquad \textbf{57} }$$

**Teacher:** Now arrange these fractions in ascending order IN Exercise E. Let us

start with servings of a veggie platter:

$$\frac{7}{18}$$
,  $\frac{7}{20}$ ,  $\frac{7}{25}$ ,  $\frac{7}{28}$ . Which is the smallest serving?

**Teacher:** Right,  $\frac{7}{28}$  is the smallest.

(Guide the students to complete the Exercise in similar way.)

F Solve the follo	wing in your not	ebook.		
1. $\frac{10}{15} + \frac{12}{60}$	2. $3\frac{1}{7} + 1\frac{2}{5}$	3. $\frac{7}{9} - \frac{2}{4}$	4. $2\frac{11}{25} - 1\frac{4}{25}$	
5. $\frac{2}{7} \times 49$	6. $\frac{8}{20} \times \frac{5}{16}$	7. $\frac{3}{6} \div 6$	8. $\frac{44}{99} \div \frac{1}{11}$	57

**Teacher:** Solve the first four problems of Exercise F, imagining they are parts of recipes.

![](_page_17_Picture_54.jpeg)

**Teacher:** Add fractions like  $\frac{10}{15}$  and  $\frac{10}{60}$ . Which common

denominator will you use?

Teacher: Good, 60 is the common denominator.

(Guide the students to complete the questions (1) to (4) of Exercise F in similar way.)

You may show the **Quiz** given on the digital platform. **Teacher:** Now, let us solve some word problems involving

practical scenarios. Please form small groups, as these problems are best solved collaboratively.

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#### G Solve the following word problems, in your notebook.

- 1. Sangita rode  $3\frac{1}{5}$  km from her house to the market on her bicycle. Then she rode  $4\frac{2}{20}$  km from the market to the library. How many kilometres did Sangita ride in all?
- 2. A container contains  $\frac{2}{5}$  L of mango juice. If we pour  $\frac{3}{8}$  L juice into a glass, how much juice will be left in the container?
- s. If it takes  $2\frac{5}{6}$  m of fabric to make a dress, then how many metres of fabric will be required to make 24 such dresses?
- 4. An electrician has a piece of wire that is  $4\frac{2}{3}$  m long. He divides the wire into equal pieces that are  $\frac{2}{3}$  m long. How many pieces does he have? (57).

**Teacher:** Open your books to Exercise G given on page 57. You will work on questions 1 and 2 together.

**Teacher:** The first problem involves calculating the total distance Sangita traveled by combining fractions. Discuss with your group how you would solve the question.

**Teacher:** Share your strategy with the group and ensure everyone understands the process before you calculate the answer.

**Teacher:** Once you have your answer, discuss it within your group to ensure it is correct

**Teacher:** I will walk around to assist and to make sure all groups are on track. Remember, the goal is to learn from each other as well as from the exercise.

**Teacher:** Let us give ourselves a huge round of applause for our teamwork and hard work. Well done. Keep up the great effort. See you in the next period.

#### Differentiated Activities

#### 110 km/hr

Design a fraction mural by dividing a large paper

into 20 sections. Assign fractions for different colours (e.g.,  $\frac{1}{5}$  blue,  $\frac{1}{4}$  red,  $\frac{3}{10}$  green, remaining yellow). Calculate and paint.

#### 80 km/hr

Create a fraction collage. Divide your canvas into 10 equal parts. Use fractions to decide the area for each colour or material (e.g.,  $\frac{1}{3}$  leaves,  $\frac{1}{5}$  newspaper, remainder fabric).

#### 40 km/hr

Make a simple fraction flag. Divide your paper into 4 parts. Colour each part based on simple

fractions (e.g.,  $\frac{1}{4}$  red,  $\frac{3}{4}$  blue). Understand each

fraction as you colour.

#### Home Task

Solve question (5) to (8) of Exercise F and question (3) and (4) of Exercise G given on page 57. Write the answers neatly in tour notebook.

Bring two coloured sheets, cardboard, scissors, glue and markers for our next class, to create a bird in the "Creating better" activity. Bring you 'Little book' for 'Revising better' activity.

## Period 12

**Teacher:** Good morning students. How are you?

![](_page_18_Picture_33.jpeg)

**Teacher:** Today, we will practise multiplying and dividing fractions. Let us start with a practical example.

Teacher: Imagine you are preparing a fruit salad. You

use  $\frac{1}{2}$  of a pineapple. If you need to share this pineapple

equally among four friends, what fraction of the whole pineapple does each friend get?

**Teacher:** Correct, you divide  $\frac{1}{2}$  by 4, which is the same as multiplying  $\frac{1}{2}$  by  $\frac{1}{4}$ . What is the result?

**Teacher:** Yes, it is  $\frac{1}{8}$  of the pineapple for each friend.

**Teacher:** Now, suppose you have  $\frac{3}{4}$  of a watermelon and

you serve it in three equal parts. How much watermelon does each part comprise?

**Teacher:** Right, when you divide  $\frac{3}{4}$  by 3, which equals multiplying  $\frac{3}{4}$  by  $\frac{1}{3}$ . The answer is  $\frac{1}{4}$  of the whole watermelon per part.

**Teacher:** Excellent work. These exercises help us understand how to manage portions effectively when sharing food.

### Creating better

Creating better

- Make a bird using equivalent fractions of  $\frac{1}{2}$ .
- Take a cardboard and two different-coloured sheets.
- Draw two circles of equal radius. Divide them into equal parts as shown.
- Make a bird by using the cut outs of the divided parts.
  Paste googly eye to complete the bird. Write the fraction of each part on the same cut out.
- Paste the bird on the cardboard. Draw the beak and feet Show it to your teacher.

![](_page_18_Picture_51.jpeg)

**Teacher:** Let us move to the 'Creating better' section on page 57. Please open your books.

![](_page_19_Picture_1.jpeg)

Teacher: We will make a bird using equivalent fractions

of  $\frac{1}{2}$ .

(Guide the students to complete the activity.)

**Teacher:** Write the fraction of each colour used on your bird. This activity combines art with math, enhancing your understanding of fractions.

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

## Thinking better

![](_page_19_Picture_8.jpeg)

**Teacher:** Next, look at the diagram in the 'Thinking better' section. **Teacher:** What fraction of the figure

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is shaded? Think about how the segments represent fractions and write your answer.

#### Choosing better

![](_page_19_Picture_13.jpeg)

**Teacher:** Now, let us think about our social skills in the 'Choosing better' section.

![](_page_19_Picture_15.jpeg)

**Teacher:** You notice a classmate who seems upset and lonely during recess. What could you do to help them feel better? Discuss and choose the best approach.

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

#### **Revising better**

Revise the sums on the four operations of fractions from this lesson in your Little Book.

**Teacher:** It is time to revise the sums on the four operations of fractions from this lesson.

![](_page_19_Picture_21.jpeg)

**Teacher:** Review these operations in your Little Book.

**Teacher:** Excellent recall. It is crucial that you understand these operations as they form the basis for many practical tasks.

#### Doubt session

![](_page_19_Picture_25.jpeg)

or doubts about in this chapter? **Teacher:** This is a good time to ask. I am here to help clarify

Teacher: Do you have any questions

any concepts before we conclude.

**Teacher:** Let us give ourselves a huge round of applause for our teamwork and hard work. Well done.

#### Differentiated Activities

#### 110 km/hr

Five pirates share a treasure. If the first pirate takes  $\frac{1}{5}$ , the second  $\frac{1}{10}$ , the third  $\frac{3}{10}$ , the fourth  $\frac{1}{4}$  and

the fifth the remainder, how much does each pirate get?

#### 80 km/hr

![](_page_19_Picture_34.jpeg)

A baker uses  $\frac{3}{4}$  sack of flour daily. If  $\frac{1}{3}$  goes to bread,  $\frac{1}{4}$  to pastries and the rest to cakes, what

fraction of the sack does each category use?

#### 40 km/hr

![](_page_19_Picture_38.jpeg)

A watermelon is cut into 8 slices. If John eats  $\frac{1}{2}$ , Sarah  $\frac{1}{1}$ , how many slices are left?

## Home Task

Solve the worksheet 1 given on 22 in the workbook. Bring your fractions spinner to class for a presentation. Be ready to explain the different fractions to your classmates.

## Period 13

**Teacher:** Good morning students. How are you? **Teacher:** Are we ready to explore fractions today?

![](_page_19_Picture_44.jpeg)

**Teacher:** Imagine you have  $\frac{1}{3}$  cup of nuts. Your friend adds another  $\frac{1}{3}$  cup of dried fruits. How much is the total?

**Teacher:** Yes, 
$$\frac{1}{3}$$
 plus  $\frac{1}{3}$  equals  $\frac{2}{3}$  cup.

**Teacher:** Now, suppose you remove  $\frac{1}{6}$  cup of nuts from our mix. What fraction remains?

**Teacher:** Correct, 
$$\frac{2}{3}$$
 minus  $\frac{1}{6}$  is  $\frac{1}{2}$  cup.

**Teacher:** If we double the mix, multiplying  $\frac{1}{2}$  cup by 2, what is the result?

**Teacher:** Right,  $\frac{1}{2}$  multiplied by 2 gives us 1 cup.

**Teacher:** Let us divide this cup evenly among four friends. What does each friend receive? **Teacher:** Exactly, dividing 1 cup by 4 equals  $\frac{1}{4}$  cup

per friend.

**Teacher:** Well done, everyone. These exercises show us how fractions work in real situations.

#### Worksheet 2

							Works	sheet 2
A.	Match the fo	llowing.						
1.	$\frac{1}{4}, \frac{1}{5}, \frac{1}{6}$	•		a.	mixed frac	tions		
2.	$\frac{2}{5}, \frac{7}{11}, \frac{10}{16}$	•		b.	improper fr	ractions		
3.	$9\frac{3}{5}, 8\frac{9}{10}, 7\frac{2}{3}$	٠		c.	unit fractio	ns		
4.	$\frac{24}{10}, \frac{8}{21}, \frac{17}{35}$	٠		d.	proper frac	ctions		
5.	$\frac{5}{8}, \frac{41}{16}, \frac{74}{67}$	•		e.	unlike fract	tions		
Β.	Reduce the f	ollowing fra	actions to	the	eir lowest tei	rms in your	notebook.	
1.	12 34	2.	21 45		3	3. <u>72</u> 81		
11	100		110			1.21		
ч.	125	5.	190		6	168		
с.	Too Too Complete th	5. 1e following	190 190		e e	168		
с.	Complete th	5. ne following multiply	table.	rato	r and denomin	5. 124 168		
ч. С.	$\frac{\frac{100}{125}}{2}$	5. ne following multiply 4	the numer	rato	r and denomin	5. 124 168 11	15	
1. 2.	$\frac{\frac{100}{125}}{2}$ Complete the $\frac{2}{6}$ $\frac{5}{8}$	5. me following multiply 4	the nume	rato	r and denomin 9	5. 124 168	15	
<ol> <li>T.</li> <li>T</li></ol>	$\begin{array}{c} 100\\ \hline 125\\ \hline \\ \hline$	5. me following multiply 4	table.	rato	r and denomir 9	ator by 11 11 11 11 77	15	
<ol> <li>T.</li> <li>T</li></ol>	$ \frac{100}{125} $ Complete th $ \frac{2}{6} $ $ \frac{5}{8} $ $ \frac{1}{7} $ $ \frac{4}{13} $	5. ne following multiply 4	the nume	rato	r and denomir	11 11 11 11 11 11 11 77	15	

**Teacher:** Please open your workbooks to page 23 to the worksheet we are working on today.

![](_page_20_Figure_6.jpeg)

Teacher: Start with Exercise A, 'Match

the following.' Look at the first set. Determine if these are mixed fractions or another type.

**Teacher:** Now, examine second set under Exercise A. Decide whether these are examples of mixed or improper fractions and make the appropriate match.

(Guide students to complete the exercise.)

Teacher: Moving on to Exercise B, 'Reduce the following

fractions to their lowest terms.' Begin with  $\frac{12}{34}$ . What is the simplest form?

**Teacher:** Continue with each fraction listed in Exercise B, using the greatest common divisor method to simplify them.

Teacher: For Exercise C, 'Complete the following table,'

start by multiplying the numerator and denominator of  $\frac{2}{6}$ 

by 4, as shown in the first column.

**Teacher:** Complete each row in Exercise C by continuing to multiply the numerator and denominator by the values provided. Fill in all required fields.

**Teacher:** After completing Exercises A, B and C, review your answers. If you have any questions or need clarification, please raise your hand so we can address them together.

![](_page_20_Figure_19.jpeg)

								0	Norkshee	et 3
Α.	Tick (√) I	he corre	ct answe	rs.						
1.	Fractions	whose n	umerato fraction:	r is less th	nan the	e deno	minato	r are calle	ed	
	a. like		. prope	r (	c. imp	roper	d	. equivale	ent 🗌	
2.	Which of	the follo	wing is a	pair of e	quivale	ent fra	ctions?			
	a. $\frac{5}{2}$ and	20 8			b. $\frac{8}{6}$ a	$\operatorname{ind} \frac{6}{8}$				
	c. 7/5 and	9			d. $\frac{2}{13}$ d	and $\frac{4}{65}$	$\Box$			
3.	The sum	of $\frac{4}{5} + \frac{3}{8} +$	7 10 is							
	α. <u>17</u> 8		$\frac{21}{9}$		c. 15 8		d	. <u>8</u> 15		
4.	The prod	luct of $\frac{6}{8}$	and its re	ciproco	ıl is			-		
	a. 36 64		». O		c. $\frac{8}{6}$		d	. 1		
5.	$\frac{28}{3}$ divid	ed by $\frac{7}{15}$	is							
	a. 1/20		o. 20		c. 5/4		d	4 25		
Β.	Change your note	the follov ebook.	/ing fract	ions into	an eq	uivaler	nt fracti	on with n	umerator 48	B, in
1.	3 4		2. 47			3	8 13			
4.	192 84		5. 4	80		6	624 897			
c.	Write the	recipro	al of the	followi	ng frac	tions.				
1.	$\frac{3}{6}$	2. 5/8		3. $\frac{1}{7}$		4. <del>8</del> 9		5. <u>10</u>		(2

**Teacher:** Let us continue with our fractions exploration on Worksheet 3. Please turn to page 24 in your workbook.

**Teacher:** Begin with Exercise A. Look at question 1 and identify the type of fractions where the numerator is less than the denominator.

IO MIN.

(Guide students to complete Exercise A.)

Teacher: Well done on Exercise A. Now, let us move to

Exercise B. Convert the given fractions to have a numerator

of 48. Start with the fraction  $\frac{3}{6}$  and find its equivalent.

**Teacher:** Continue with the other fractions listed in Exercise B, applying your knowledge of fraction conversion.

Teacher: Finally, for Exercise C, write the reciprocal for

each fraction given. Begin with  $\frac{3}{\epsilon}$ . What is its reciprocal?

**Teacher:** Complete each fraction in Exercise C, ensuring you write down the reciprocal for each.

**Teacher:** After completing these exercises, please review your answers. If there are any questions or if something is not clear, now is a good time to ask. This is an opportunity to clarify any doubts.

Teacher: Well done on completing another worksheet. Let us appreciate our hard work today.

#### **Book of Holistic Teaching**

![](_page_21_Figure_2.jpeg)

page 11,12 under the title 'Fractions.' Complete the activities mentioned in this section and ensure that the

![](_page_21_Figure_4.jpeg)

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.)

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

### **Project ideas**

#### **Chapter 4: Fractions**

- Take a piece of cardboard.
- Draw a circle of radius 4 cm and cut it out from the cardboard.
- Divide the circle into 6 equal parts. Colour each part with a different crayon. Push a stick through the centre of the circle.

![](_page_21_Picture_12.jpeg)

Theme 3: Why Are

We Different?

- Paste a piece of paper on the stick such that it does not come off the board.
- On each part write the name of different types of fractions with two examples.

Your magic spinner is ready. Spin it fast.

Now, you can easily revise names and examples of different fractions by spinning your magic spinner.

Teacher: Let us begin our presentations. Each of you will

fractions present your spinner, explaining the types of fractions you have included and how you constructed it.

![](_page_21_Picture_19.jpeg)

Teacher: Excellent work. Discussing improper fractions shows a deep understanding. Remember, these have numerators larger than their denominators.

Teacher: Now, let us consider unit fractions. They are important as they represent one part of a whole. Understanding these helps in grasping more complex fractions.

Teacher: Let us reflect on how we can use fractions in

real life problems in cooking, for instance, measuring

ingredients often requires fractions like  $\frac{1}{2}$  or  $\frac{3}{4}$  cup.

Teacher: Great work today. Your projects demonstrate strong comprehension and creativity in using fractions. Thank you for your effort and presentations.

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

![](_page_21_Picture_27.jpeg)

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

![](_page_21_Picture_33.jpeg)

servings. What are the new measurements?

#### 80 km/hr

![](_page_21_Picture_36.jpeg)

If a recipe requires doubling and uses  $\frac{1}{4}$  cup of oil,

what is the new measurement? How would you

#### measure it out?

#### 40 km/hr

![](_page_21_Picture_41.jpeg)

Draw a simple garden scene with four equal parts. Colour 1 part with sunlight, 2 parts with different greens of foliage and 1 part with the soil, symbolising the growth cycle.

#### Home Task

Practise the concepts discussed in this chapter.

(07)

## Learning Outcomes

#### The students will:

Physical Development	• demonstrate understanding of fractions by cutting, folding, and shading fractional parts to represent different fractions accurately.
Socio-Emotional and Ethical Development	<ul> <li>participate in group activities involving fair sharing and distribution of objects using fractions and explain the process to peers.</li> </ul>
Cognitive Development	• solve real-life fraction word problems involving addition, subtraction, multiplication and division, and explain their reasoning.
Language and Literacy Development	<ul> <li>define and explain fraction-related terms (e.g., numerator, denominator, equivalent fractions) and use them correctly in verbal and written explanations.</li> </ul>
Aesthetic and Cultural Development	• identify and represent fractions in real-world scenarios (e.g., food portions, measurement in recipes, geometric patterns in rangoli) and express them using appropriate notation.
Positive Learning Habits	<ul> <li>complete fraction-based exercises independently, demonstrating accuracy, perseverance and the ability to self-correct mistakes.</li> </ul>

Starry Knights Do you think concept of fraction have real life applicability for the learners? List a few incidents where they showed relevant examples of using fractions.

83

Award yourself a STAR!!

## Lesson-5: **Decimals**

![](_page_23_Picture_2.jpeg)

13 Periods (40 minutes each)

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

Animation, Animated Activities, Dictionary, eBook, Explainer video, HOTS, I Explain, Infographic, Maths Lab, Mental Maths, Slideshow

## Curricular Goals and Objectives (NCF)

#### To enable the students:

- to understand the concept of decimals as an extension of the place value system.
- to perform operations on decimals and apply them in real-life contexts.
- to apply decimal concepts in measurement and financial literacy,
- to develop estimation and approximation skills to compare and order decimal numbers.

## Methodology

## Period 1

![](_page_23_Picture_15.jpeg)

Teacher: Good morning students. How are you?

Teacher: Today, we are going to start an exciting new chapter 'Decimals'.

Teacher: Let us discuss why learning decimals is essential. Can anyone tell me where we might encounter decimals in our daily activities?

Teacher: Correct, when dealing with money, such as rupees and paise, we use decimals to indicate parts of a rupee.

Teacher: Now, think about another scenario. Consider when you measure something that is not a whole number, like your height or the weight of an item. Decimals allow us to express these measurements accurately.

Teacher: Decimals are indeed integral to our daily lives! They are crucial for everything from calculating expenses to following recipes accurately and conducting scientific measurements.

**Teacher:** Are you ready to explore how we use decimals in various real-world applications?

**Teacher:** I appreciate your enthusiasm! As we delve into this chapter, let us keep our minds open to the numerous ways decimals make our daily tasks easier and more precise.

#### Confirming better

Teacher: Before we begin, let us SHOULD DO reflect on an important thought - 'I learn new things every day.'

![](_page_23_Picture_26.jpeg)

Confirming bett

(59) Teacher: Why is learning something new every day important? It helps us improve, develop new skills and

I learn new things every day.

understand the world better. Teacher: Every day, we gather new information—whether it is a mathematical concept, a new word, or an interesting fact about nature.

Teacher: When we embrace learning, we become more confident and prepared to solve problems. Just like today, we are learning about decimals, which will help us in reallife situations like handling money, reading measurements and making calculations.

Teacher: Let us keep an open mind and be curious as we move forward in this chapter. With each lesson, we strengthen our understanding and build new knowledge. Teacher: Now, let us begin learning more about decimals.

Teacher: We will begin a new chapter, Decimal. 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

![](_page_23_Picture_34.jpeg)

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 job in this activity. Let us move to Re-KAP activities. We will use Kinaesthetic,

![](_page_23_Picture_39.jpeg)

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

#### Kinaesthetic

![](_page_24_Picture_2.jpeg)

Teacher: Open your books to page 59. Teacher: Let us read and understand the kinaesthetic activity.

![](_page_24_Picture_4.jpeg)

Teacher: Perform an activity in pairs.

Teacher: Excellent teamwork. This activity shows how we divide a whole into fractions. Let us proceed to the auditory activity.

![](_page_24_Picture_7.jpeg)

Auditory\*

Listen to your teacher carefully. Answer the questions.

Teacher: Listen carefully as I read the questions aloud. Think and answer.

![](_page_24_Picture_11.jpeg)

59

Teacher: In a lush garden, Alex planted one-third of his seeds in the morning and 25 hundredths of them in the afternoon, hoping for a colourful bloom in the spring. 1. Identify the decimal number. 2. How can you express it differently in words?

Teacher: Great effort, everyone, Now, let us explore the pictorial activity.

#### **Pictorial**

![](_page_24_Picture_15.jpeg)

You may show the **eBook** given on the digital platform

to show the activity on screen.

Teacher: Now, let us explore decimals using pictures. Look at the given images and prices.

![](_page_24_Figure_19.jpeg)

Teacher: Now, complete the table for all the items. Observe how decimals represent money values and make calculations easier.

() You may show the **Dictionary** given on the digital platform to discuss the key terms of the chapter.

Teacher: Well done, everyone. You all worked hard today. Let us end the session with a big round of applause for your efforts. See you in the next period. Keep practising.

#### Differentiated Activities

#### 110 km/hr

Write the correct fractions next to each decimal number.

- $0.5 \rightarrow ?$
- $0.25 \rightarrow ?$
- $0.75 \rightarrow ?$

#### 80 km/hr

![](_page_24_Picture_30.jpeg)

Look around and find three examples where decimals are used (price tags, weights, or measurements). Write down those decimal numbers in your notebook.

#### 40 km/hr

![](_page_24_Picture_33.jpeg)

Write any three decimal numbers in your notebook. Read them aloud.

#### Home Task

Write the prices of any three objects at home that include decimals, such as a book, a toy, or a food item. Convert these prices into fractions and write them in words.

## Period 2

Teacher: Good morning, students! Today, let us begin by exploring decimals in a fun and interactive way.

![](_page_24_Picture_39.jpeg)

Teacher: Does anyone know what a decimal is?

Teacher: That is correct. A decimal is a way to represent fractions using place values beyond the decimal point. Now, let us play a quick game to understand decimals better.

Teacher: I will call out a decimal and you will tell me what it represents as a fraction. Ready? Let us start with 0.5.

Teacher: Yes, that is right, 0.5 is the same as one half. How about 0.25?

Teacher: Excellent! It is the same as one quarter. Now, let us try something a bit more challenging. What about 0.75? Teacher: Wonderful! It is three quarters. Seeing how decimals can also be represented as fractions helps us understand their value better.

Teacher: Well done, everyone. Let us give ourselves a big round of applause for getting these right.

#### Interacting better

![](_page_25_Picture_1.jpeg)

**Teacher:** Now, let us practise converting fractions into decimals in 'Interacting better' section.

![](_page_25_Picture_3.jpeg)

**Teacher:** Each of you will think of a fraction and say it aloud. Your partner will then convert it into a decimal.

![](_page_25_Picture_5.jpeg)

Teacher: Now that we have explored how fractions can

be converted into decimals, let us see how decimals are used in real-life situations.

![](_page_25_Picture_8.jpeg)

**Teacher:** Look at the story in your book. What are the students discussing?

**Teacher:** Yes, they are talking about temperature differences in different places. The temperature is given in decimals.

**Teacher:** Why do you think we use decimals instead of whole numbers for temperature?

**Teacher:** Yes, because decimals help in giving precise measurements. A difference of even one-tenth of a degree can be important in weather reports, medicine and scientific calculations.

**Teacher:** Look at the question the teacher in the story is asking. She wants the students to find the difference between the maximum and minimum temperatures.

**Teacher:** Let us try this together. The maximum temperature is 40.8°C and the minimum is 25.3°C. What is the difference?

**Teacher:** That is correct! 40.8 - 25.3 = 15.5°C. This shows how subtraction with decimals is useful in real life.

**Teacher:** Can you think of any other situations where we use decimals in a similar way?

**Teacher:** Yes, in calculating distances, weight and even money. This is why learning about decimals is important.

**Teacher:** Well done, everyone. Now, let us move forward to understanding decimals in more detail.

You may show the **Animation** given on the digital platform.

#### **Understanding Decimals**

UNDERSTANDING DECIMALS As we have already studied in our previous class, we use decimals when we want to represent a fraction of the whole or a part of the whole. In a decimal form, the fractional part is separated using a dot from the whole number. This dot is called the decimal point.

**Teacher:** Now that we have seen how decimals are used in real life, let us understand their structure and how they work.

![](_page_25_Picture_23.jpeg)

**Teacher:** A decimal is a way to represent fractions using a decimal point. The number to the left of the decimal point represents the whole number, while the number to the right represents the fractional part.

**Teacher:** Look at the place value chart in your book. As we move right from the decimal point, the value of each digit becomes smaller.

**Teacher:** Let us read the example in the book. The number 2.65 is read as two point six five or two and sixty-five hundredths.

**Teacher:** Let us try reading some decimal numbers together. I will write a few numbers on the board and we will read them as a class.

(Discuss the concept in detail.)

#### Thousandths

You may show the **Explainer Video** given on the digital platform.

THOUSANDTHS							
When $\frac{1}{100}$ or one hundredth is further divided into 10 equal parts, then each part							
is called on	e thousand	dth.					
	c	one tenth	ns 💛	>one hundredths	_	$\rightarrow$ one thouse	andths
	Fra	ctional	l form	Decimal fo	orm	Numbe	r name
One thousanc	ith	1 1000		0.001		Zero point ze or one th	ero zero one ousandth
value of the	e digit bec	omes d	one tei	nths. If we mov	/e two	places, the p	olace value
value of the becomes o thousandths <b>Thousands</b>	e digit bec ne hundred s of the dig Hundreds	omes d dths. Lil git. <b>Tens</b>	one tei kewise Ones	nths. If we move the move the move the move the <b>Decimal Point</b>	ve two hree pla <b>Tenths</b>	places, the p aces, it beco Hundredths	blace value mes one Thousandths
value of the becomes o thousandths <b>Thousands</b> 1000	e digit bec ne hundred s of the dig Hundreds 100	omes d dths. Lil git. <b>Tens</b> 10	one ter kewise Ones 1	nths. If we move th , if we move th Decimal Point (.)	ve two nree plo <b>Tenths</b> 0.1	places, the p aces, it beco <b>Hundredths</b> 0.01	Thousandths
value of the becomes o thousandths Thousands 1000	e digit bec ne hundred s of the dig Hundreds 100 nole numbe	omes o dths. Lil git. <b>Tens</b> 10 er part	One ter kewise	Decimal Point	Tenths	places, the p aces, it beco Hundredths 0.01 Decimal num	Thousandths 0.001
value of the becomes of thousandthe 1000 With Example 1 given figure	Hundreds 100 Write the 'e. How will	omes o dths. Lil git. <b>Tens</b> 10 er part e decir I you re	Ones Ones 1 nal nur ead it?	Decimal Point (.) Decimal point mber for the	Tenths	places, the p aces, it beco Hundredths 0.01 Decimal num	Thousandths 0.001
value of the becomes o thousandths 1000 Example 1 given figure	e digit bec ne hundred s of the dig 100 nole number : Write the re. How will 1 + 1 + $\frac{65}{100}$ whole number	omes of dths. Lil git. Tens 10 er part e decir l you re e = 2,65 decimer r point		nths. If we move the move for the move for the move for the move the the move the mo	Tenths	Hundredths 0.01 Decimal num	Thousandths 0.001 hber part

**Teacher:** Now, let us go a step further and understand thousandths.

![](_page_26_Picture_1.jpeg)

**Teacher:** When one hundredth is divided into ten equal parts, each part is called one thousandth.

**Teacher:** Look at the table in your book. It shows that  $\frac{1}{1000}$ 

is written as 0.001 and read as zero point zero zero one or one thousandth.

**Teacher:** Observe the place value chart. As we move right, the place values become smaller—tenths, hundredths and then thousandths.

Teacher: Let us take an example. What will be the decimal

representation of  $\frac{3}{1000}$ ?

**Teacher:** Yes, it is 0.003, which is read as zero point zero zero three.

![](_page_26_Picture_9.jpeg)

Teacher: Now, let us look at the

section 'Processing better' on page 61.

**Teacher:** It tells us that the number to the left of the decimal point is read as a whole number and the number to the right is read according to the place value of the digit.

**Teacher:** Let us practise reading some decimal numbers using this rule.

**Teacher:** I will write 4.073 on the board. Who can read it correctly?

**Teacher:** Yes, it is four point zero seven three or four and seventy-three thousandths.

**Teacher:** Great job! This method helps us read and understand decimals correctly

#### Poster

**Teacher:** Now, let us look at this colourful poster titled 'Fractions and Decimals'.

![](_page_26_Picture_19.jpeg)

(Please display and discuss the posters prominently in the classroom to reinforce the learning about Decimals and Fractions. Encourage students to observe the poster and discuss it.)

![](_page_26_Picture_21.jpeg)

a. 3.3 3.4 3.5

ь. 15.08 15.09 15.10 \_\_\_\_\_ \_\_\_

MUST DO

5 MIN.

(61)

**Teacher:** Now, let us practise writing decimals. Open your books to Exercise 1 on page 61.

Teacher: Read the first question: 'Write

each of the following decimals in figures.'

**Teacher:** Let us do question (a) together. 'Three hundredths' is written as 0.03.

**Teacher:** Now, complete the rest on your own. I will walk around and check your answers.

**Teacher:** Well done! Now, let us look at Exercise 2. Write the next three decimals in each of the given patterns.

You may show the **Maths Lab** given on the digital platform.

**Teacher:** Well done students. Let us have a huge round of applause. See you in the next period.

#### Differentiated Activities

#### 110 km/hr

![](_page_26_Picture_34.jpeg)

Convert the following fractions into decimals:

$$\frac{5}{6} = ?$$

$$\frac{9}{20} = ?$$

#### 80 km/hr

![](_page_27_Picture_2.jpeg)

Compare the decimal values of 0.875, 0.833 and 0.45. Arrange them in ascending order.

40 km/hr

![](_page_27_Picture_5.jpeg)

Read the decimal numbers aloud: 0.5, 0.25, 0.75

#### Home Task

Solve Question (b) of Exercise 2 given on page 61 in your Main Course Book. Write the answers neatly in your notebook.

## Period 3

![](_page_27_Figure_10.jpeg)

**Teacher:** Good morning students. How are you?

**Teacher:** Let us begin with a quick activity called 'Decimal Hunt.'

**Teacher:** Look around the classroom or think about places where we see decimal numbers in daily life. Can you name some?

**Teacher:** Yes, we see them on price tags, thermometers, weighing scales and height measurements.

**Teacher:** Let us write a few decimal numbers we might see every day. For example, the price of a pen might be ₹12.50, or the temperature today might be 28.6°C.

**Teacher:** Now, think of one decimal number you have seen recently and share it with the class.

**Teacher:** Great! This shows that decimals are all around us. Now, let us learn more about how to convert fractions into decimals.

#### Converting Fractions to Decimals

When the denominator is a multiple of 10, 100 and 1000

![](_page_27_Picture_20.jpeg)

CONVERTING FRACTIONS TO DECIMALS When the denominator is a multiple of 10, 100 and 1000

Example 2: Convert  $\frac{289}{10}$ ,  $\frac{45}{100}$  and  $\frac{7}{1000}$  into decimals.

STEPS	289 10	$\frac{45}{100}$	7 1000
The number of zeros in the denominator gives the number of decimal places.	1	2	3
Write only the numerator.	289	45	7
Move towards the left counting the number of decimal places and add zeros to the left if required.	289	45	607
Put the decimal point.	28.9	0.45	0.007

When the denominator is not a multiple of 10 or 100

Convert the given fraction to its equivalent fraction with denominator 10 or 100. Then, convert it into decimal number.

Example 3: Convert the following into decimals.

![](_page_27_Picture_27.jpeg)

**Teacher:** Now, let us convert fractions into decimals when the denominator is 10, 100, or 1000.

**Teacher:** The number of zeros tells us how many decimal places to move.

**Teacher:** Look at  $\frac{289}{10}$ . One zero means we move the

decimal one place left  $\rightarrow$  28.9.

**Teacher:** Now,  $\frac{45}{100}$ . Two zeros mean moving two places left  $\rightarrow 0.45$ .

**Teacher:** Finally,  $\frac{7}{1000}$ . Three zeros mean moving three

places left  $\rightarrow$  0.007.

**Teacher:** Now, try converting these:  $\frac{56}{10}$ ,  $\frac{9}{100}$ ,  $\frac{123}{1000}$ . Write

the answers in your notebooks.

When the denominator is not a multiple of 10, 100 and 1000

**Teacher:** Great work converting fractions with 10, 100 and 1000 as denominators. But what happens when the denominator is not a multiple of 10?

**Teacher:** In such cases, we first convert the fraction into an equivalent fraction with 10 or 100 as the denominator, then write it as a decimal.

**Teacher:** Look at  $\frac{3}{5}$ . We multiply both numerator and

denominator by 2 to make it  $\frac{6}{10}$ , which gives us 0.6.

**Teacher:** Now, take  $\frac{7}{25}$ . We multiply both by 4 to get  $\frac{28}{100}$ , which equals 0.28.

**Teacher:** Let us practise together. Convert  $\frac{4}{20}$  and  $\frac{9}{50}$  into

decimals. Write your answers in your notebooks.

#### **Converting Mixed Numbers to Decimals**

![](_page_27_Figure_46.jpeg)

**Teacher:** Now that we have learnt how to convert fractions into decimals, let us move one step further.

**Teacher:** What if we have a number that is part whole and part fraction? These are called mixed numbers.

**Teacher:** Look at 3. The whole number is 3 and the fractional part is 0.5. Together, we write it as 3.5.

Teacher: Another example is 12. The whole number 12

remains the same and  $\frac{17}{100}$  becomes 0.17, making it 12.17.

Teacher: Now, let us practise. Convert 4 and 9 into decimals. Write your answers in your notebooks.

#### Exercise 3

3	С	onvert the	following	g to de	cimals. Wri	te the c	answers in y	our not	ebook.				
1	α.	$\frac{5}{10}$	b.	3 <del>8</del> 10	c.	367 100	d.	4691 1000		е.	8 <u>485</u> 1000 (	62	)

Teacher: Now that we have learnt how to convert mixed numbers into decimals, let us practise with some exercises. Teacher: Look at Exercise 3 in your books. You need to convert these fractions into decimals.

**Teacher:** Let us do the first one together.  $\frac{5}{10}$  has one zero

in the denominator, so we move the decimal to one place left. The answer is 0.5.

**Teacher:** Now, try solving the rest.

Teacher: Write the answers in your notebooks. I will walk around and check your work.

#### **Converting Decimals to Fractions**

CONVERTING DECIMALS TO FRACTIONS Example 5: Convert 9.4, 5.39 and 6.275 to fractions.							
STEPS 9.4 5.39 6.275							
The number of decimal places gives the number of zeros in the denominator.	1	2	<sup>3</sup> (62)				

STEPS	9.4	5.39	6.275
Write the number without decimal.	94	539	6275
Write the denominator with the digit 1 followed by as many zeros as decimal places.	94 10	539 100	6275 1000

Teacher: Now, let us reverse the process and convert decimals into fractions.

![](_page_28_Picture_14.jpeg)

Teacher: Look at example 3 on page 62. 9.4. First, write the number without the decimal - 94. Since the decimal is

one place to the right, we divide by 10, so  $9.4 = \frac{94}{10}$ .

Teacher: Now, take 5.39. Write it as 539 and divide it by 100 because there are two decimal places. So, 5.39 = .(Discuss example 5 with the students.)

#### **Expanding Decimal Number**

EXPANDING DECIMAL NUMBERS Example 6: Write the fractional and decimal expansion of 937.471.									
	Hundreds Tens Ones Decimal Point Tenths Hundredths Thousandths								
	9 3 7 . 4 7 1								
937.1 Frac	937,471 = 9 hundreds + 3 tens + 7 ones + 4 tenths + 7 hundredths + 1 thousandth Fractional expansion = 900 + 30 + 7 + $\frac{4}{10}$ + $\frac{7}{100}$ + $\frac{1}{1000}$								
Dec	imal expan	sion =	900 + 3	30 + 7 + 0.4 + 0.0	7 + 0.00	1	63		

Teacher: Now, let us learn how to expand decimal numbers by breaking them down into MUST DO their place values.

![](_page_28_Figure_21.jpeg)

(Discuss expanding decimal numbers with the help of place value table.)

#### Understanding better

![](_page_28_Figure_24.jpeg)

Teacher: Now that we have learnt about expanding decimal numbers, let us test our understanding with a few quick questions.

![](_page_28_Picture_26.jpeg)

Teacher: Look at the 'Understanding better' section. The

first question asks how we write  $\frac{99}{1000}$  as a decimal.

Teacher: Think about how many places we need to move the decimal. Since the denominator is 1000, we move three places to the left. The answer is 0.099.

(Discuss further in a similar way.)

#### Remembering better

![](_page_28_Figure_32.jpeg)

**Teacher:** Now, look at the 'Remembering better' section. It tells us that zeros at the end of a decimal number do not change its value.

Teacher: For example, 0.50 and 0.5 are the same. The extra zero does not change the number.

**Teacher:** Let us now apply this concept in Exercise 4.

4	Co yo	onvert the our notebo	following	to fract	ons. Write	the ansv	vers in
	а.	3.8	b.	4.53	с.	0.07	$\frown$
	d.	934.02	e.	0.001	f.	88.712	(63)

Teacher: Now, open your books to Exercise 4 given on page 63. Convert the given decimal numbers into fractions.

Teacher: Let us do the first one together. 3.8 can be written

as  $\frac{38}{10}$  because there is one decimal place.

Teacher: I will walk around to check your work. Let us begin!

(Guide students to solve questions (a) to (c) in similar way.)

Teacher: Let us solve Exercise 5.

![](_page_28_Picture_43.jpeg)

5	Write the decimal and fractional expansions for each of the following in your notebook.								
	a.	5.4	b.	67.9	c.	51.62			
	d.	321.07	e.	2.005	f.	73.450 (	63)		

Teacher: Look at the first question 5.4. We break it down

into 5 + 
$$\frac{4}{10}$$
.

**Teacher:** Now, complete questions b to c on your own by breaking the numbers into their decimal and fractional forms.

**Teacher:** Write the answers in your notebooks. I will check your work as you solve them.

**Teacher:** Now, let us work in the opposite direction – writing decimals from their expanded forms.

![](_page_29_Figure_6.jpeg)

**Teacher:** Look at Exercise 6 question (a) 7 tens + 8 ones + 5 hundredths + 8 thousandths.

**Teacher:** 7 tens = 70, 8 ones = 8, 5 hundredths = 0.05, 8 thousandths = 0.008. Putting them together, we get 78.058. **Teacher:** Now, solve the next two questions on your own:

• 
$$60 + 7 + \frac{3}{100} = ?$$

• 0.8 + 0.009 = ?

**Teacher:** Write the decimals in your notebooks. Let us check your answers together!

**Teacher:** Well done students. Let us have a huge round of applause for our work. See you in the next period.

#### Differentiated Activities

#### 110 km/hr

Convert the following decimals into fractions and simplify if possible:

• 0.375 = ? • 4.625 = ? • 12.08 = ?

#### 80 km/hr

![](_page_29_Picture_18.jpeg)

Write the decimal expansion of 56.78.

#### 40 km/hr

Fill in the blanks with the correct decimal values:

- 5 ones + 3 tenths = ?
- 9 tens + 6 ones + 8 hundredths = ?

#### Home Task

Solve questions (d) to (f) of Exercises 4 and 5 given on page 63 in Main Course Book. Write the answer neatly in your notebook.

## Period 4

**Teacher:** Good morning, students! How are you today?

![](_page_29_Picture_28.jpeg)

**Teacher:** Before we begin today's lesson, let us quickly revisit the concepts.

**Teacher:** If I give you the fraction  $\frac{1}{2}$ , what is its decimal form?

**Teacher:** Yes! It is 0.5. Now, what about  $\frac{3}{12}$ ?

Teacher: Correct! It is 0.75.

**Teacher:** Now, let us try these: 
$$\frac{1}{5}$$
,  $\frac{2}{10}$  and  $\frac{7}{20}$ . Write the

decimal forms in your notebook.

**Teacher:** Well done! Now, let us explore a new concept – equivalent decimals.

#### **Equivalent Decimals**

equivalent.

![](_page_29_Figure_37.jpeg)

0.2, 0.20 and 0.200 have the same value. Each decimal number has 2 at the tenths place. Thus, 0.2 = 0.20 = 0.2

**Teacher:** We have already learnt about equivalent fractions. Now, let us see how decimals can also be

![](_page_29_Figure_40.jpeg)

**Teacher:** Two decimals are equivalent if they represent the same value, even if they look different.

**Teacher:** Look at this example: 0.2 = 0.20 = 0.200.

**Teacher:** Why do they have the same value? Because adding zeros at the end of a decimal does not change its value.

**Teacher:** Let us try another example: Is 0.50 the same as 0.5?

Teacher: Yes, because both represent five-tenths.

**Teacher:** Now, write two equivalent decimals for 0.7 and 4.6.

**Teacher:** Great! Now, let us move on to understanding like and unlike decimals.

#### Like and Unlike Decimals

LIKE AND UNLIKE DECIMALS

Decimals with the same number of digits after the decimal point are called **like** decimals. For example, 0.37, 46.52, 97.86 are like decimals. Decimals with different number of digits after the decimal point are called **unlike** decimals. For example, 18.5, 88.95, 3.006 are unlike decimals.

Teacher: We know that whole numbers can be grouped

based on their number of digits. Similarly, decimals can be classified as like or unlike decimals.

![](_page_29_Picture_53.jpeg)

Teacher: Like decimals have the same number of digits after the decimal point.

Teacher: For example, 0.37, 46.52 and 97.86 are like decimals because they all have two decimal places.

Teacher: Unlike decimals have different numbers of digits after the decimal point.

Teacher: For example, 18.5, 88.95 and 3.006 are unlike decimals.

**Teacher:** Let us now try to classify these numbers as like or unlike decimals:

- 7.8, 9.63, 5.472
- 23.1, 4.56, 78.00

Teacher: Well done! Now, let us see how we can convert unlike decimals into like decimals.

#### Conversion of unlike decimals to like decimals

Conversion of unlik	e decimals to	like decima	ls	
Unlike decimals can the decimal number	be converted is or by chanai	to like decim	als by placing zer neir equivalent de	os to the right of cimals.
Unlike decimals	26.7	7.19	63.238	
	$\downarrow$	$\downarrow$	$\downarrow$	$\frown$
Like decimals	26.700	7.190	63.238	(64

Teacher: To compare unlike decimals easily, we convert them into like decimals by adding zeros at the end.

Teacher: Look at the example in your book:

- $26.7 \rightarrow 26.700$
- $7.19 \rightarrow 7.190$

Teacher: Did the value change?

Teacher: No, because adding zeros does not change the value of a decimal.

Teacher: Now, convert these unlike decimals into like decimals:

- 4.2, 6.08, 9.105
- 3.7, 12.5, 0.004

Teacher: Great job! Now, let us practise with some exercises.

Write two equivalent decimals for each of the following numbers in your notebook. e. 68.105(64) a. 0.2 b. 82.60 c. 41.2 d. 7

Teacher: Open your books to

MUST DO 5 MIN.

MUST DO

5 MIN.

Exercise 7 given on page 64. Teacher: Write two equivalent decimals for each number.

**Teacher:** Let us do the first one together: 0.2 = 0.20 = 0.200. Teacher: Now, complete questions b and c in your notebook.

Teacher: Well done! Now, let us practise converting unlike decimals into like decimals.

(8) Convert the following sets of unlike decimals to like decimals. Write the answers in your notebook. 5.9, 32.17, 80.04 (64) ь. 7.53.13.4.313.086 a. 6.3. 6.16

Teacher: Open Exercise 8 given on page 64.

![](_page_30_Picture_28.jpeg)

Teacher: Convert each set of unlike decimals to like decimals by adding zeros where needed.

Teacher: Let us do one together: 6.3 and 6.16. Adding a zero, we get 6.30 and 6.16 to match decimal places.

Teacher: Now, solve the rest on your own.

Teacher: Great effort! Now, let us take some time for any doubts.

#### **Doubt session**

Teacher: Now, let us clarify any COULD DO doubts.

![](_page_30_Picture_35.jpeg)

Teacher: Do you have any questions

about equivalent decimals, like and unlike decimals, or converting unlike decimals?

Teacher: Let us go over any examples that need more explanation.

Teacher: If you have finished your work, try explaining one of the concepts to a partner!

#### Differentiated Activities

#### 110 km/hr

![](_page_30_Picture_42.jpeg)

Explain why 0.500 and 0.5 are the same but 5.0 and 0.5 are different. Find two real-life examples where equivalent decimals are used.

#### 80 km/hr

![](_page_30_Picture_45.jpeg)

Write two equivalent decimals for 3.9 and 12.4.

#### 40 km/hr

![](_page_30_Picture_48.jpeg)

• 0.6 = \_\_\_\_ = \_\_\_\_ • 5.3 = \_\_\_\_ = \_\_\_

#### Home Task

Solve questions (d) and (e) of Exercise 7 given on page 64 in your Main Course Book. Write the answers neatly in your notebook.

## Period 5

Teacher: Good morning, students!

![](_page_30_Picture_54.jpeg)

Teacher: Let us start with a guick warm-up activity called 'Decimal Match.'

**Teacher:** I will write some decimal numbers on the board and you will match them with their equivalent forms.

Teacher: For example, if I write 0.3, what could be an equivalent decimal?

Teacher: Yes! 0.30 and 0.300 are also equivalent decimals. Teacher: Now, try matching these: 0.4, 0.50, 0.600. Write their equivalent decimals in your notebook.

Teacher: Great! Now, let us learn how to compare and arrange decimals in order.

#### Comparing and Ordering Decimals

Teacher: Now, let us learn how to compare decimals to determine which number is greater or smaller.

![](_page_30_Picture_62.jpeg)

How are you today?

COMPARING AND ORDERING DECIMALS								
The required steps to be followed to compare decimals are:								
<ul> <li>STEP 1: If the decimals are unlike, change them to like decimals.</li> <li>STEP 2: Compare the whole number parts of the given decimals. If the whole number parts are equal, then go to the decimal number part.</li> <li>STEP 3: Now, compare the tenths place. If the digits are the same, then move to the hundredths place and so on.</li> </ul>								
Example 7: Compare 56.19 and 56.198.								
First, convert the unlike decimals to like decimals. 56.19 = 56.190 Let us compare 56.190 and 56.198.								
56,1/90 56,1980 < 8 Thus, 56.19 < 56.198.								
Example 8: Arrange 6.86, 4.107, 6.986, 3.9 in ascending order.								
6.86 = 6.860; 4.107 = 4.107; 6.986 = 6.986; 3.9 = 3.900								
3.900 < 4.107 < 6.860 < 6.986								
Thus, 3.9 < 4.107 < 6.86 < 6.986.								

(Discuss the steps with the students.).

**Teacher:** Let us look at an example 7 in your book: Compare 56.19 and 56.198.

**Teacher:** First, convert them into like decimals: 56.19 = 56.190. Now compare:

- 56.190
- 56.198

**Teacher:** Since 0 < 8, we get 56.19 < 56.198.

**Teacher:** Let us try another one together. Compare 4.67 and 4.545.

**Teacher:** Yes, 4.670 > 4.545 because 6 tenths is greater than 5 tenths.

**Teacher:** Now, let us arrange numbers in ascending order which are given in Example 8.

Teacher: Arrange 6.86, 4.107, 6.986 and 3.9 in ascending order.

**Teacher:** First, convert them into like decimals:

- 6.86 = 6.860
- 4.107 = 4.107
- 6.986 = 6.986
- 3.9 = 3.900

**Teacher:** Now, arrange them: 3.900 < 4.107 < 6.860 < 6.986. **Teacher:** Well done! Now, let us reinforce this with a fun activity.

**Teacher:** Now, let us play a fun activity called 'Decimal Number Walk.'

![](_page_31_Picture_18.jpeg)

**Teacher:** I will give each of you a card with a decimal number written on it.

**Teacher:** Your task is to find three classmates whose numbers are similar to yours and stand in ascending order. **Teacher:** For example, if three students have 3.45, 3.450 and 3.405, they should arrange themselves as: 3.405 < 3.45 < 3.450.

**Teacher:** After everyone is arranged, we will check if your order is correct!

Teacher: Let us begin!

**Teacher:** Now, open your books to Exercise 9 given on page 64 in your Main Couse Book.

![](_page_31_Picture_24.jpeg)

![](_page_31_Picture_25.jpeg)

**Teacher:** Look at the first question: Compare each pair of numbers using >, <, or =.

**Teacher:** Let us do the first one together: 4.67 \_\_ 4.545. **Teacher:** Since 4.670 > 4.545, we write 4.67 > 4.545.

**Teacher:** Now, complete the rest of the questions in your notebooks. I will walk around and check your answers.

**Teacher:** Now, let us take a short break to refresh our minds.

![](_page_31_Picture_30.jpeg)

**Teacher:** Sit comfortably, close your eyes and take a deep breath.

Teacher: Inhale slowly... hold... and exhale.

**Teacher:** Focus on your breathing and let your mind relax.

Teacher: Now, open your eyes and feel refreshed.

**Teacher:** Well done, everyone! You have learnt how to compare and order decimals today.

**Teacher:** We will continue learning more in our next session. See you in the next period!

#### Differentiated Activities

#### 110 km/hr

![](_page_31_Picture_39.jpeg)

Compare and arrange these decimals in descending order: 12.5, 12.50, 12.450, 12.505

#### 80 km/hr

Compare these decimals using >, <, or =:

- 7.09 \_ 7.090
- 2.450 \_ 2.45
- 5.87 \_ 5.870

#### 40 km/hr

Circle the correct answer:

- Which is greater? 8.45 or 8.405?
- Which is smaller? 2.70 or 2.700?

#### Home Task

Create a project by browsing the internet with the help of an adult to find the role played by different mathematicians in the development of decimals. Prepare a computer presentation on your findings. You will present PowerPoint in the class in the last period of this chapter.

## Period 6

How are you?

![](_page_31_Picture_53.jpeg)

Teacher: Good morning students.

**Teacher:** Before we start today's lesson, let us quickly recall what we learnt about comparing and ordering decimals.

![](_page_31_Figure_56.jpeg)

**Teacher:** I will write some decimal numbers on the board and you will arrange them in ascending order.

Teacher: Here are the numbers: 6.56, 5.93, 7.3, 7.926.

**Teacher:** Yes, the correct order is 5.93 < 6.56 < 7.3 < 7.926. **Teacher:** Now, let us begin learning about the addition of

## Addition of Decimals

#### ADDITION OF DECIMALS

decimals.

- Follow the steps to add decimal numbers.
  - STEP 1: Convert the decimals to like decimals (in case they are unlike decimals).
  - STEP 2: Write all the decimal numbers in columns such that the decimal points are placed one below the other so that the digits are in the same places. STEP 3: Add them as whole numbers and put the decimal point just below the (65)
- decimal point of the given numbers.

# **Teacher:** We know how to add whole numbers, but how do we add decimals?

![](_page_32_Picture_10.jpeg)

(Discuss the steps given on page 65 in Main Course Book.) **Teacher:** Look at this example from your book: 207.348 +

62.14 + 7.4 + 7.926. **Teacher:** First, convert them into like decimals: 207.348,

62.140, 7.400, 7.926 **Teacher:** Now, add them: 284.814.

Teacher: Let us try one more example: 2.53 + 3.268.

- **Teacher:** Convert to like decimals:
- 2.530
- 3.268

Teacher: Now, add them: 5.798.

Teacher: Great job! Now, let us check our understanding.

### Understanding better

![](_page_32_Picture_21.jpeg)

**Teacher:** Open your books to the 'Understanding Better' section. Let us answer these two questions together.

MUST DO

Teacher: Are 1.07, 2.350, 6.2 and 0.78 like decimals?

**Teacher:** No, because they have different decimal places. But we can convert them into like decimals:

• 1.070, 2.350, 6.200, 0.780.

(Discuss the next question in a similar way.)

#### Word Problems

V	NORD PROBLEMS									
	Example 10: At the end of the day, a seller has the following left in his cart:									
	Apples = 6.56 kg		1	1						
	Oranges = 5.93 kg			6		5	6			
	Mangoes = 7.3 kg			5		٩	3			
	Find the total weight of the fruits left with the seller.	+		7		3	0			
	Total weight of all the fruits = $6.56 \text{ kg} + 5.93 \text{ kg} + 7.3 \text{ kg} = 19.79 \text{ kg}$		1	٩		7(	65			
							~			

**Teacher:** Let us solve a real-life problem related to the addition of decimals.

![](_page_32_Picture_31.jpeg)

MUST DO

5 MIN.

5 MIN

**Teacher:** A seller has apples weighing 6.56 kg, oranges weighing 5.93 kg and mangoes weighing 7.3 kg.

**Teacher:** How much total weight of fruits does the seller have?

**Teacher:** First, convert them into like decimals:

- 6.56 = 6.560
- 5.93 = 5.930
- 7.3 = 7.300

**Teacher:** Now, add them: 6.560 + 5.930 + 7.300 = 19.79 kg. **Teacher:** Well done! Let us do one more activity.

Teacher: Now, let us play a quick SHOULD DO game called 'Decimal Addition Relay.'

**Teacher:** I will divide the class into small groups. Each group will receive a set of decimal numbers and they must arrange them in column form and add them.

**Teacher:** The first group to correctly add their decimals and write the correct answer wins!

Teacher: Here are your numbers:

- 1.4.25 + 3.08 + 1.75
- 2. 12.35 + 7.5 + 8.065
- 3. 9.6 + 5.75 + 3.205

Teacher: Work together and I will check your answers!

Teacher: Well done! Now, let us move

on to the exercises.

**Teacher:** Open your books to Exercise 10 given on page 65.

![](_page_32_Picture_50.jpeg)

**Teacher:** Arrange the given decimals in column form and add them.

**Teacher:** Let us solve the first one together: 2.53 + 3.268. **Teacher:** Convert to like decimals:

- 2.530
- 3.268

Teacher: Add them: 5.798.

Teacher: Now, solve question b in your notebooks.

(I) You may show the I Explain given on the digital platform.

Teacher: Now, let us solve a word problem from Exercise 11.

1 Tina had ₹367.50. Her mother gave ₹257.50 and her brother gave her ₹69.50. Hov much money does she have now?

**Teacher:** Tina had ₹367.50. Her mother gave her ₹257.50 and her brother gave her ₹69.50.

Teacher: How much money does she have now?

Teacher: Arrange in column form and add:

• 367.50

- 257.50
- 69.50

Teacher: What is the total?

**Teacher:** Yes, the answer is ₹694.50.

Teacher: Well, done! You all did a great work today. See you in the next period!

#### **Differentiated Activities**

#### 110 km/hr

![](_page_33_Picture_7.jpeg)

Create your own word problem using decimal addition and solve it.

#### 80 km/hr

Arrange and add these decimals in column form:

- 5.68 + 2.07 + 4.995
- 8.2 + 7.03 + 3.615

#### 40 km/hr

![](_page_33_Picture_14.jpeg)

Add these simple decimals:

- 3.2 + 2.5
- 4.07 + 6.3

## Home Task

Solve questions (c) and d) of Exercise 10, given on page 65 in your Main Course Book. Write the answers neatly in your notebook.

## Period 7

How are you today?

![](_page_33_Picture_22.jpeg)

Teacher: Good morning, students!

Teacher: Before we start with subtraction, let us recall

what we learnt in the last period about adding decimals. Teacher: I will say some decimal numbers and you will quickly add them in your notebooks.

**Teacher:** First, add 4.25 + 3.08 + 1.75.

Teacher: Yes, the correct answer is 9.08.

**Teacher:** Now, add 12.35 + 7.5 + 8.065.

Teacher: Correct! The sum is 27.915.

Teacher: Well done! Now, let us move on to the subtraction of decimals.

#### **Subtraction of Decimals**

![](_page_33_Picture_32.jpeg)

Teacher: Just like addition, we can also subtract decimal numbers by arranging them properly in column form.

![](_page_33_Picture_34.jpeg)

(Discuss the steps given on page 65 in Main Course Book.)

Teacher: Let us discuss example 11: Subtract 19.8 from 65.273.

**Teacher:** First, write them in column form:

- 65.273
- 19.800

Teacher: Now, subtract them: 45.473.

Teacher: Let us try one more: 38.65 - 5.46.

Teacher: The answer is 33.19.

Teacher: Well done. Now, let us reinforce our learning with an activity.

Teacher: Let us do a fun activity called COULD DO 'Decimal Subtraction Relay.'

Teacher: I will divide the class into small

![](_page_33_Picture_45.jpeg)

groups. Each group will get a set of decimal subtraction problems. You must solve them and pass the answer to the next member, who will verify it and pass it forward.

Teacher: Here are your problems:

- 1.24.67 5.82
- 2. 18.934 7.56
- 3. 49.28 16.49

Teacher: The group that correctly solves and verifies the answers first wins.

Teacher: Great work. Now, let us move on to solving reallife word problems.

#### Word Problems

decimals.

WORD PROBLEMS					
Example 12: A bucket holds 34.27 L and a drum holds 12.88 L.			3	11	17
How much more quantity does the bucket hold than the drum?		3	14	2	7
Capacity of the bucket = 34.27 L	_	1	2	8	8
Capacity of the drum = $12.88 t$ Difference between the capacities = $31.27 - 12.88$		2	1	3	$\overline{a}$
Thus, the bucket holds $21.39 \mathrm{L}$ more than the drum.					(66)

#### Teacher: Let us solve a real-life

![](_page_33_Picture_56.jpeg)

(Discuss example 12 with the students.)

(12) Subtract the following. Write the answers in your notebook. (66 c. 28.316 - 9.13 d. 80 – 36.76 a. 993.685 - 56.56 ь. 4.836 – 0.89

#### Teacher: Open your books to

Exercise 12 given on page 66 in your Main Course Book.

![](_page_33_Figure_61.jpeg)

Teacher: Work in pairs to solve the given decimal subtraction problems in your notebooks. One partner will solve while the other will check the answer. Then, switch roles.

Teacher: Solve questions a and b in pairs. Discuss and verify your answers with your partner.

#### Exercise 13

(13) Sagar's office is 7.48 km away from his house. He covers 6.35 km by auto and the res 66 on foot. How much distance does he cover on foot?

Teacher: Now, let us solve another word problem from Exercise 13 in pairs.

![](_page_33_Picture_67.jpeg)

Teacher: Sagar's office is 7.148 km away from his house. He covers 6.35 km by auto and the rest on foot.

Teacher: How much distance does he cover on foot?

Teacher: Arrange in column form and subtract: 7.148-6.350

Teacher: Discuss with your partner and verify each other's answers.

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

#### **Differentiated Activities**

#### 110 km/hr

Create your own real-life word problem involving subtraction of decimals and solve it. Find the remaining amount if you have ₹500.75 and spend

#### ₹245.60.

#### 80 km/hr

Arrange and subtract these decimals in column form:

- 64.7 28.35
- 53.09 26.85

#### 40 km/hr

Subtract these simple decimals:

- 9.2 3.5
- 6.75 2.3

#### Home Task

Solve questions (c) and (d) of Exercise 12, given on page 65 in your Main Course Book. Write the answers neatly in your notebook.

## Period 8

![](_page_34_Picture_20.jpeg)

![](_page_34_Picture_21.jpeg)

How are you today? Teacher: Before we begin with multiplication of decimals, let us quickly recall what we learnt about subtraction of decimals in the last class.

Teacher: I will say a subtraction problem aloud and you will solve it in your notebook.

**Teacher:** First, subtract 48.75 – 29.38.

Teacher: Yes, the answer is 19.37.

**Teacher:** Now, subtract 96.4 – 58.62.

Teacher: Correct. The answer is 37.78.

Teacher: Well done. Now, let us move on to multiplication of decimals.

#### **Multiplication of Decimals**

#### Multiplication by a whole number

Teacher: Multiplying a decimal by a whole number is simple if we follow three steps.

![](_page_34_Figure_32.jpeg)

MULTIPLICATION OF DECIMALS Multiplication by a whole number

Follow the steps given below to multiply a decimal number by a whole number. STEP 1: Ignore the decimal point and multiply the numbers.

- STEP 2: Count the number of decimal places in the given decimal number.
- STEP 3: Place the decimal point in the product so that it has the same number of digits after the decimal point as given in the decimal number.

Example 13: Multiply the following.				
a. 81.23 by 5	b.	306 by 0.004		
81.23 × 5 2 decimal places, so the product will have 2 decimal places		306 × 0. <u>00</u> 4	3 decimal places, so the product will have 3 decimal places	
$81.23 \times 5 = 406.15^{(2 \text{ decimal places})}$		306 × 0.004 =	1.224 3 decimal places	(66)

(Discuss the steps given on page 66 in the Main Course Book.)

Teacher: Let us take see example 13: 81.23 × 5.

**Teacher:** Ignore the decimal and multiply:  $8123 \times 5 =$ 40615.

Teacher: The original decimal number 81.23 has two decimal places, so we place the decimal accordingly: 406.15.

**Teacher:** Now, let us try another example: 306 × 0.004.

**Teacher:** Multiply as whole numbers:  $306 \times 4 = 1224$ .

Teacher: Since 0.004 has three decimal places, we adjust the answer: 1.224.

Teacher: Well done. Now, let us move on to multiplication of two decimals.

#### Multiplication of two decimals

Multiplication of two decimals

Follow the steps given below to multiply a decimal number by another decimal number

STEP 1: lanore the decimal point and multiply the numbers.

- STEP 2: Count and add the number of decimal places in both the decimal numbers
- STEP 3: Place the decimal point in the product so that the number of decimal places
- is equal to the sum of the number of decimal places in the decimal numbers. Example 14: Multiply.

α.	2.04 by 0.7	b.	53.78 DY 4.92	
	2.04 × 0.7		53.78 × 4.92	
	204 × 7 = 1428		5378 × 492 = 2645976	
	2.04 × 0.7 = 1.428		53.78 × 4.92 = 264.5976	
	2 1 2 + 1 = 3		2 2 2 + 2 = 4	
	decimal decimal		decimal decimal	(66)
	places place places		places places places	$\bigcirc$

Teacher: When multiplying two decimal numbers, follow

these steps. (Discuss the steps given on page 66 in the Main Course Book.)

Teacher: Let us see example 14: 2.04 × 0.7.

**Teacher:** Multiply as whole numbers:  $204 \times 7 = 1428$ .

Teacher: Now, count the decimal places:

- 2.04 has two decimal places
- 0.7 has one decimal place
- Total decimal places in the result = 3.

Teacher: So, the final answer is 1.428.

Teacher: Well done. Now, let us do a fun activity

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

Teacher: Let us do an interesting activity called 'Multiplication Treasure Hunt.'

![](_page_34_Figure_67.jpeg)

![](_page_34_Picture_68.jpeg)

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**Teacher:** I will give you a set of decimal multiplication problems. Each correct answer will lead you to the next problem, just like a treasure hunt.

Teacher: Solve these:

1.4.5 × 3

2. Take your answer and multiply it by 0.2

3. Add 5 to your answer and then multiply by 1.5

**Teacher:** The team that reaches the final answer first wins. **Teacher:** Great work. Now, let us solve some word problems.

#### Word Problems

#### WORD PROBLEMS

Example 12: A bucket holds 34.27 L and a drum holds 12.88 L.			3		11	17			
How much more quantity does the bucket hold than the drum?		3	K		Ź	7			
Capacity of the bucket = 34.27 L	_	1	2		8	8			
Capacity of the drum = 12.88 L	_		1		0				
Difference between the capacities = 34.27 – 12.88		2	1	•	3				
Thus, the bucket holds 21.39 L more than the drum.						ಲ			

Teacher: Let us solve a real-life multiplication problem.

**Teacher:** Sakshi's father can drive 29.07 km in one hour. How far can he

![](_page_35_Figure_11.jpeg)

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drive in 6 hours? **Teacher:** Multiply:

• 29.07 × 6 = 174.42 km.

**Teacher:** So, Sakshi's father can drive 174.42 km in 6 hours. **Teacher:** Well done. Now, let us solve some exercises.

 Image: Tind the products of the following numbers. Write the answers in your notebook.

 a. 3.4 × 5
 b. 29.5 × 7
 c. 87.9 × 3.6

 d. 9.30 × 48.3
 e. 63.73 × 36.2
 67

Teacher: Open your books to Exercise 14.

**Teacher:** Work in pairs to solve the given decimal multiplication problems. One partner will solve while the other will check. Then, switch roles.

Teacher: Solve questions (a) to (c) in pairs.

(15) The thickness of a storybook is 4.5 cm. What will be the total thickness of 17 such storybooks?

**Teacher:** Now, let us solve another word problem from Exercise 15 in pairs.

**Teacher:** Discuss with your partner and verify each other's answers.

(Discuss the doubts of students.)

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

#### Differentiated Activities

#### 110 km/hr

Solve these decimal multiplication problems:

• 134.8 × 7.5

#### 80 km/hr

Arrange and multiply these decimals in column form:

- 8.7 × 4.9
- 26.3 × 3.8

#### 40 km/hr

Multiply these simple decimals:

![](_page_35_Picture_35.jpeg)

#### Home Task

Solve questions (d) and (e) of Exercise 14, given on page 67 in your Main Course Book. Write the answers neatly in your notebook.

## Period 9

**Teacher:** Good morning students. How are you?

![](_page_35_Picture_40.jpeg)

Teacher: Good morning students. How are you today?

**Teacher:** Let us start with a quick and fun activity to warm up our minds. We will play a game called 'Division Number Chain'

**Teacher:** I will say a number and the next student will divide it by 2, then the next student will divide the result by 2 and so on.

Teacher: Let us begin with 648. Who will start?

**Teacher:** Yes,  $648 \div 2 = 324$ . Next, divide 32.4 by 2.

**Teacher:** Great! The answer is 162. Let us keep going until we reach a very small number.

**Teacher:** Well done, everyone! This was a fun way to get our minds ready for today's lesson. Now, let us move on to division of decimals.

#### **Division of Decimals**

#### Division by a whole number

DIVISION OF DECIMALS Division by a whole number

Follow the steps given below to divide a decimal number by a whole number. step 1: Divide the same way as you would divide other whole numbers. While

dividing decimals by a whole number, divide until there is no remainder.

STEP 2: Place the decimal point in the quotient such that it has the same number of digits as in the dividend.

![](_page_35_Figure_54.jpeg)

**Teacher:** We already know how to divide whole numbers.

![](_page_35_Figure_56.jpeg)

**Teacher:** What happens when we divide a decimal by a whole number?

(Discuss the steps given on page 67 in the Main Course Book.)

Teacher: Let us take an example: 48.8 ÷ 8.

![](_page_35_Picture_60.jpeg)

Teacher: Ignore the decimal and divide normally. **Teacher:** 48 ÷ 8 is 6.

Teacher: Now, place the decimal in the same position. **Teacher:** The final answer is 6.1.

Teacher: Let us try one more: 8.350 ÷ 5.

Teacher: First, divide 8350 by 5.

Teacher: The answer is 1670.

**Teacher:** Now, place the decimal in the correct position. Teacher: The final answer is 1.670.

(Discuss the example 16 with the students.)

Teacher: Now, let us learn how to divide a decimal by another decimal.

#### Division of a decimal number by another decimal number

Division of a decimal number by another decimal number Follow the steps given below to divide a decimal number by another decimal number. STEP 1: Convert the divisor to a whole number by moving the decimal point to the right and count the number of places moved. STEP 2: Move the decimal point in the dividend to the right by the same number of places (67) STEP 3: Now, divide the new dividend by the new divisor. Example 17: Divide 4.587 by 0.11. 4 1 4.587 ÷ 0.11 = 458.7 ÷ 11 58 4 44 (Moving the decimal point by 2 places to the right)

Thus, 4.587 ÷ 0.11 = 41.7

![](_page_36_Picture_11.jpeg)

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Teacher: What if both numbers have decimals?

(Discuss the steps given on page 67 in the Main Course Book.)

**Teacher:** Let us see Example 17: 4.587 ÷ 0.11.

**Teacher:** Move the decimal two places right.

Teacher: Now divide 458.7 ÷ 11.

Teacher: The final answer is 41.7.

Teacher: Well done. Let us apply this to real-life problems.

#### Word Problems

![](_page_36_Picture_20.jpeg)

Teacher: We often use decimal division in daily life. Who will read and explain example 18

![](_page_36_Picture_22.jpeg)

Teacher: Yes, in example 18: A pack of 15 notebooks costs ₹247.50.

Teacher: How do we find the price of one notebook?

**Teacher:** Divide ₹247.50 by 15.

**Teacher:** The final answer is ₹16.50.

(Discuss the long division method on board with the students.)

Teacher: Now, let us solve some exercises.

![](_page_36_Picture_29.jpeg)

given in Exercise 17 in pairs.

Teacher: A wire is 78.18 m long. It is cut

into 12 pieces. Teacher: What is the length of each piece?

**Teacher:** Discuss with your partner and verify your answers. Teacher: Well done, everyone. Let us have a huge round of applause for our hard work today. See you in the next period!

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#### Differentiated Activities

#### 110 km/hr

![](_page_36_Picture_37.jpeg)

Create a real-life word problem and solve it.

![](_page_36_Picture_39.jpeg)

![](_page_36_Picture_41.jpeg)

![](_page_36_Picture_43.jpeg)

Create a word problem in pair and ask your classmate to solve it.

#### 40 km/hr

- Solve the following sums:
- 6.4 ÷ 2
- 9.8 ÷ 4

### <u>Ho</u>me Task

Solve questions (c) and (d) of Exercise 16 and question (b) of Exercise 17, given on page 68 in your Main Course Book. Write the answers neatly in your notebook.

## Period 10

![](_page_36_Picture_52.jpeg)

Teacher: Good morning students. How are you today?

Teacher: Today, we are starting a new concept multiplying and dividing decimals by 10, 100 and 1000. But first, let us think about why this is important.

Teacher: Imagine you are measuring water in millilitres and suddenly, you need to express it in litres. What happens to the numbers?

![](_page_36_Picture_56.jpeg)

Teacher: Correct! The decimal point shifts.

**Teacher:** Another example – if a shopkeeper calculates prices and needs to adjust for a larger or smaller quantity, he uses decimal shifting instead of complex multiplication or division.

**Teacher:** So, instead of manually multiplying or dividing, we can simply move the decimal point. Today, we will learn how and why this works.

**Teacher:** Let us start with multiplying decimals by 10, 100 and 1000.

#### Multiplying Decimals By 10, 100, 1000...

**Teacher:** When we multiply a decimal by 10, 100, or 1000, the decimal point moves to the right.

![](_page_37_Picture_6.jpeg)

MULTIPLYING DECIMALS BY 10, 100, 1000 ...

To multiply a decimal number by 10, 100 or 1000, move the decimal point to the right by as many digits as the number of zeros in the multiplier.

Example 19: Multiply.

a. 83.49 by 10	ь. 2.17 by 100	0	e. 0.6498 by 1	000
steps		83.49 × 10	2.17 × 100	0.6498 × 1000
The number of zeros in t indicates the number of move.	he multiplier places to	1	2	3
Move to the right, count number of decimal place	ting the es.	83.49	2.17	0.6498
Put the decimal point.		834.9	217	649.8 (68)

**Teacher:** The number of places it moves depends on the number of zeros.

**Teacher:** Let us look at example 19: 8.349 × 10 moves one place right, so the answer is 83.49.

**Teacher:** Now,  $2.17 \times 100$  moves two places right, giving 217.

**Teacher:** Try solving 0.6498 × 1000. What do you think the answer is?

**Teacher:** Well done! The answer is 649.8.

**Teacher:** Now, let us see what happens when we divide decimals.

#### Dividing Decimals By 10, 100, 1000...

DIVIDING DECIMALS BY 10, 100, 1000 When a decimal number is divided by 10, 100 or 1000, move the decimal point to the left by as many digits as the number of zeros in the divisor.								
E	а. 27.46 ÷ 10 ь.	00	c. 0.	3 ÷ 1000				
	steps		27.46 ÷ 10	45.9 ÷ 100	0.3 ÷ 1000			
	The number of zeros in the mul indicates the number of places move.	tiplier to	1	2	3			
	Move to the left, counting the number of decimal places. Add zeros if required.	d	27.46	45.9	000.3			
	Put the decimal point.		2.746	0.459	0.0003 69			

Teacher: When we divide decimals by 10, 100 or 1000, thedecimal point moves to the left.MUST DO

**Teacher:** The number of places it moves depends on the number of zeros.

Teacher: Let us look at example 20 given on page: 27.46 ÷

10 moves one place left, so the answer is 2.746.

**Teacher:** Now,  $45.9 \div 100$  moves two places left, giving 0.459.

**Teacher:** Try solving 0.3 ÷ 1000. What do you think the answer is?

Teacher: Well done! The answer is 0.0003.

Teacher: Now, let us practise with some questions.

![](_page_37_Picture_27.jpeg)

Teacher: Open your books to Exercise 18.

**Teacher:** Work in pairs. One student will solve it and the other will check.

![](_page_37_Picture_30.jpeg)

Teacher: Solve questions (a) and (b)

Teacher: Compare your answers with your partner's.

Teacher: Well done! Now, let us move to Exercise 19.

Teacher: Now, let us solve Exercise 19.

Teacher: Solve questions (a) and (b) with your partner.

Teacher: Check your answers with your partner.

**Teacher:** Well done! Now, let us connect this to real life in the 'Connecting better' section.

#### Connecting better

Then switch roles.

![](_page_37_Picture_39.jpeg)

Teacher: While solving decimal problems, Ryan asked his

mother, what is the opposite of addition

![](_page_37_Picture_42.jpeg)

**Teacher:** She replied, the opposite of the addition is subtraction

Teacher Similarly, what is the opposite of multiplication? **Teacher:** Yes, division. Opposites are also called antonyms **Teacher:** Understanding these connections helps us relate decimals to all operations

Teacher: Now, let us recall what we have learnt.

### Recalling better

![](_page_37_Figure_47.jpeg)

Teacher: Let us summarise what we have learnt in this chapter

**Teacher:** What happens when we multiply a decimal by 1000?

![](_page_37_Figure_50.jpeg)

5 MIN.

**Teacher:** Correct, the decimal moves three places to the right

**Teacher:** What happens when we divide a decimal by 100 **Teacher:** Yes, the decimal moves two places to the left

**Teacher:** Now, let us try an interesting activity given in 'Decoding better' section

## Decoding better

![](_page_38_Picture_4.jpeg)

Teacher: We will do an interesting activity mentioned in

'Decoding better' section.

(Guide the students to complete the activity given on page 70 in 'Decoding better' section in the Main

![](_page_38_Figure_8.jpeg)

Course Book.)

You may show the **Mental Maths** given on the digital platform.

## Solving better

3	So	olving better					LOTS
	Ci	rcle the correct	answer.				
	α.	4.2 × 5	21	2.1	0.21	0.021	
	b.	0.93 × 6	55.8	0.558	5.58	558	
	c.	6.532 × 0.7	45724	4572.4	4.5724	0.45724	
	d.	3.16 × 0.04	0.1264	126.4	12.64	1.264	
2	Fil	l in the blanks.					
	a. 351.75 ÷ 10 =			ь. 79.84	÷ =	0.7984	
	c. 2137.5 ÷ 1000 =			d. 125.1	÷=	0.1251	(70)

Teacher: Now, we will solve questions given in the Solving

better' section given on page 70. **Teacher:** I will read a decimal multiplication question and the first

![](_page_38_Picture_15.jpeg)

10

student, who gives answer will get a point.

Teacher: Ready?

Teacher: What is 4.2 × 5?

Teacher: Correct, 21. Mark in your book.

(Guide students to complete the remaining questions in a similar way.)

Teacher: let us fill in the blanks.

Teacher: 351.75 ÷ 10 equals?

Teacher: Well done, the answer is 35.175.

(Guide students to complete the remaining questions in a similar way.)

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

- Solve these decimal operations:
  - 6.25 × 1000
  - 0.064 ÷ 100

• 48.23 × 10

#### 80 km/hr

![](_page_38_Picture_33.jpeg)

• 4.7 × 100

• 0.86 ÷ 10

• 32.5 × 1000

#### 40 km/hr

Solve these decimal operations:

• 2.5 × 10

• 0.4 ÷ 100

• 9.75 × 100

## Home Task

Solve question (c) of Exercise 18 and question (c) of Exercise 19, given on page 69 in your Main Course Book. Write the answers neatly in your book.

Bring your 'Little book' to complete 'Revising better' activity .

## Period 11

**Teacher:** Good morning students. How are you?

![](_page_38_Picture_47.jpeg)

**Teacher:** Let us begin with a quick warm-up to refresh our learning from the previous class.

**Teacher:** I will give you a decimal number and you will tell me what happens if we multiply it by 10, 100, or 1000. Let us start with 3.45.

**Teacher:** Yes, multiplying 3.45 by 10 gives 34.5. Now, what happens when we multiply it by 100?

**Teacher:** Correct, we get 345. Let us try one more. What is 0.06 multiplied by 1000?

**Teacher:** Well done. The answer is 60. This shows how decimal places shift when multiplying by 10, 100, or 1000. Let us move on to our exercises.

### Learning better

![](_page_38_Figure_54.jpeg)

	4. The decimal nu	umber for three	and fifty-	nine thousa	ndths is			
	a. 3.059	ь. 3.590		c. 0.359	d. 3.0059			
5. 5 tens + 6 ones + 2 hundredths =								
	a. 56.002	b. 56.02		c. 0.562	d. 506.2	6		

#### Teacher: Now, let us move to

Exercise A given on page 70. Read the first question. We have to tick the correct answers.

![](_page_39_Picture_3.jpeg)

**Teacher:** What is five hundredths in decimal form? Look at the options carefully.

**Teacher:** Yes, the correct answer is 0.05. Keep going and tick the right answers.

**Teacher:** Once you finish, check if the answers match with your partner's. If not, discuss and find the correct one together.

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B Fill in the blanks.			
1. 24.5 × 100 =	2.	÷ 100 = 0.913	
3. 516.02 ÷ = 5.1602	4.	× 1000 = 14	_
5. 17.32 ÷ 10 =	6.	4.125 × 10 = (	7

**Teacher:** Now, let us do Exercise B together given on page 71.

**Teacher:** Read the first fill in the blank. 24.5 multiplied by 100 gives what?

Teacher: Yes, it is 2450. Let us try another one.

Teacher: What happens when we divide 0.913 by 100?

**Teacher:** Correct, we get 0.00913. Keep working on the rest of the questions.

**Teacher:** Once you finish, look at a classmate's answers. If any are different, discuss and correct them together

© Convert these sets of decimal numbers to like decimals. Write the answers in your notebook.						
1. 4.723, 2.32, 24.07, 56.2	2.	91.88, 124.167, 935.12, 21.293				
3. 62.9, 430.35, 216.915, 122.33	4.	1.047, 222.10, 58.22, 78.7	(71)			

**Teacher:** Now, let us do Exercise C together. Open page 71 in your book.

**Teacher:** Convert these sets of decimal numbers to like decimals and write the answers in your notebook.

![](_page_39_Picture_18.jpeg)

**Teacher:** Look at the first set: 4.723, 2.32, 24.07, 56.2. What changes do we need to make?

**Teacher:** Yes, we add zeros to make them all the same length. Continue solving the rest.

**Teacher:** Once you finish, check with a classmate to ensure you have the correct answers.

![](_page_39_Picture_22.jpeg)

**Teacher:** Open your books to page 71. Let us start with Exercise D.

![](_page_39_Picture_24.jpeg)

Teacher: Add the given decimal numbers carefully. Align the decimal

points and carry over if needed. Solve the first one. **Teacher:** Very good. Now, discuss your method with a

partner and check if your answers match. If there is any difference, explain your approach to each other.

(Guide the students to solve all the questions in the Exercise.)

![](_page_39_Figure_29.jpeg)

Teacher: Now, let us move to Exercise E. Subtract the

decimal numbers carefully. Remember to borrow if necessary. Solve the first question.

![](_page_39_Figure_32.jpeg)

Teacher: Well done. Compare your

answers with your classmates. If there is a difference, discuss how you arrived at your answers.

(Guide the students to solve all the questions in the Exercise.)

F Solve the following. Writ	te the ans	wers in your note	book.		
1. 52.345 × 16	2.	3.537 × 38	3.	0.70 × 0.32	
4. 91.116÷36	5.	192.6 ÷ 0.18	6.	35789.10 ÷ 0.54	(71)

Teacher: Let us now solve Exercise F. These are

multiplication problems with decimals. Read the question carefully and follow the multiplication rules.

![](_page_39_Picture_39.jpeg)

Teacher: Good work. Explain your

solution to someone next to you and see if they got the same answer. If not, try to find the mistake together.

(Guide the students to solve all the questions in the Exercise.)

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

#### Thinking better

Thinking better						
Think and write the answer in your notebook.	0.8		1.1			
Complete the magic square. The sum of decimal numbers along the rows and columns should be 3.0.		0.5				
			1.2	(72)		

**Teacher:** Now, let us move to 'Thinking better' section. Look at the magic square on page 72.

**Teacher:** Fill in the blanks so that the sum of decimal numbers along each row and column equals 3.0.

**Teacher:** Great effort! Check with a classmate to see if your sums match. If not, work together to find any errors.

## Choosing better

![](_page_40_Picture_1.jpeg)

**Teacher:** Next, let us discuss 'Choosing better'. Read the scenario about Aryan and Maya.

**Teacher:** What does this teach us about individual talents and uniqueness?

**Teacher:** Yes, everyone is special in their own way and we all have different talents.

#### **Revising better**

Revise the conversion of fractions to decimals and decimals to fractions from this lesson in your Little Book.

Teacher: Now, let us revise with 'Revising better' section.

**Teacher:** Recall the conversion of fractions to decimals and decimals to fractions. Can anyone explain how

![](_page_40_Figure_9.jpeg)

![](_page_40_Figure_10.jpeg)

Teacher: Yes, we divide 3 by 4, which gives us 0.75.

**Teacher:** Now, let us try another one. How do we convert 0.625 into a fraction?

Teacher: Right, we count the decimal places and write .

Simplifying it gives  $\frac{5}{8}$ .

**Teacher:** Let us quickly revise why like decimals are important when comparing decimal numbers.

**Teacher:** Yes, we add zeros to make the number of decimal places the same, making comparisons easier. Write the important points in your Little Book.

#### **Pledging better**

![](_page_40_Picture_18.jpeg)

**Teacher:** Now, let us reflect on how we can make the world a better place by treating everyone with fairness and kindness.

**Teacher:** Have you ever seen someone being left out because they were different in some way? How do you think that made them feel?

**Teacher:** It is important to remember that everyone deserves equal respect and opportunities, no matter where they come from or what their abilities are.

**Teacher:** What can we do to make sure everyone feels included and valued?

**Teacher:** Yes, we can listen, support and stand up for fairness in our daily lives. Let us now take a pledge together.

**Teacher:** I pledge to respect everyone, no matter how different we are.

**Teacher:** I will celebrate differences and ensure that everyone gets an equal chance to learn and grow.

**Teacher:** I will stand against unfair treatment and always choose fairness in my actions.

**Teacher:** Every small effort counts. When we act with kindness and fairness, we help build a world where everyone feels valued.

**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

![](_page_40_Picture_31.jpeg)

Arrange these numbers in ascending order: 3.67, 3.089, 3.7, 3.09

80 km/hr

6

Convert  $\frac{5}{8}$  and  $\frac{7}{20}$  into decimals and compare

them. Which one is greater?

#### 40 km/hr

![](_page_40_Picture_38.jpeg)

List three decimal numbers you see in daily life and categorize them as like or unlike decimals.

#### Home Task

Complete the Frayer model activity from 'Creating better' section in your book. Follow the given steps, use chart paper and colour each section. Bring your completed model to class for the presentation.

## Period 12

![](_page_40_Picture_43.jpeg)

**Teacher:** Good morning students. How are you?

**Teacher:** Let us begin with a quick Decimal Quiz. I will ask some questions, and you will answer quickly. **Teacher:** What is 0.5 as a fraction?

**Teacher:** Very good. It is  $\frac{1}{2}$ .

Teacher: Which is greater: 0.7 or 0.68? Teacher: Correct. 0.7 is greater than 0.68. Teacher: What is 3.45 × 10? Teacher: Well done. The answer is 34.5.

![](_page_40_Picture_48.jpeg)

Teacher: How many decimal places are there in 0.003? Teacher: Great thinking. It has three decimal places. Teacher: If you subtract 1.2 from 3.4, what do you get? Teacher: Excellent. The answer is 2.2.

Teacher: Well done, everyone. This was a great way to recall decimals. Now, let us move to solve some sums.

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

#### Worksheet 1

Tł	eme 3: Why Are We Dif	ferent?		Worksheet 1		
	5 Decimal	c		·		
1	J. Decima	° –				
۱.	Give two examples for e	each of the follow	ring.			
•	like decimals					
	unlike decimals					
	equivalent decimals					
~	aecimal numbers whose	e sum is 84.54				
•	decimal numbers naving the tenths place	960				
5.	Complete the following	j table.				
	decimal number	÷10	÷ 100	÷1000		
	9.3					
2.	85.6					
3.	98.77					
i.	308.94					
5.	62.331					
	Answer the following a	uestions. Use the	digits 6. 0 and 4			
	Form the smallest decim	al number upto f	hree decimal place	es.		
	Mirita tha number name	of the decimal f	ormood in part 1			
-	while the normber name	or the decimal to	onnea in pair r.			
	Write the decimal expansion of the greatest decimal number upto three					
	decinial places.					
	Find the difference of th	e greatest and a		bers formed above		
	nna me amerence or m	e greatest and st		ibers ronned above		

Teacher: Now, let us complete Worksheet 1. Open page 25 in your workbook. MUST DO

Teacher: Look at Section A. Who will read and explain Exercise A?

Teacher: Yes, we have to give two examples for each type of decimal.

25 MIN

Teacher: Let us do the first one together. What are some like decimals?

Teacher: Yes, 3.45 and 2.67 are like decimals. Now, write your own examples for the rest.

Teacher: Now, move to Section B. You need to complete the table by adding 10, 100 and 1000 to the given decimal numbers.

Teacher: Look at the first number, 9.3. What will it be when we add 10?

Teacher: Yes, 19.3. Now, complete the rest of the table.

Teacher: Section C requires you to use digits 6, 0 and 4 to answer the given questions.

Teacher: The first question asks you to form the smallest decimal number up to three decimal places. What would that be?

Teacher: Yes, 0.046 is the smallest. Continue with the remaining questions.

(Guide the students to complete the Worksheet 1. You may take this worksheet as a revision or assessment.)

Teacher: Once you finish, check your answers with a classmate. Discuss if you have different responses and correct them if necessary.

#### **Doubt Session**

Teacher: If you have any doubts, now is the time to ask.

![](_page_41_Picture_20.jpeg)

**Teacher:** Let us go through any questions that were tricky for you.

Teacher: If anyone finds any difficult question, share it and we will solve it together.

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

![](_page_41_Picture_26.jpeg)

Rohan earns ₹25.75 per hour and Meera earns ₹30.50 per hour. How much more does Meera earn than Rohan? Express the difference as a decimal and a fraction.

#### 80 km/hr

![](_page_41_Picture_29.jpeg)

If one school has 125.75 students on average per class and another has 118.5, what is the difference in the average class size?

#### 40 km/hr

![](_page_41_Picture_32.jpeg)

If a ribbon is 3.5 meters long and you cut off 1.25 meters, how much ribbon is left?

#### Home Task

Solve worksheet 2 given on page 26 in the workbook.

				Worksh	neet
Α.	Write true or false.				
1.	20.05 - 7.05 = 13				
2.	0.77 is smaller than 77.				
3.	0.432 and 2.330 are like	e decimals.			
4.	6.03 and 6.30 are equi	valent decimals.			
5.	Decimal numbers 54.1 54.220 are in descendi	, 54.11, 54.111 ar ing order.	d		
Β.	Complete the following	ng table.			
	decimal numbers	× 10	× 100	× 1000	
1.	9.9				
2.	31.5				
3.	67.70				
4.	988.81				
5.	766.375				
c.	Write two equivalent of	decimals for eac	ch of the followi	ng decimal numb	oers.
1.	3.9				
2.	20.2				
3.	19.4				
4.	45.3				

## Period 13

**Teacher:** Good morning students. How are you?

**Teacher:** Let us start with a quick recap of decimals through a fun activity. I will say a fraction and you have to quickly convert it into a decimal.

SHOULD DO

5 MIN

**Teacher:** What is  $\frac{7}{10}$  as a decimal?

Teacher: Yes, it is 0.7. Well done.

**Teacher:** What about  $\frac{15}{100}$ ?

Teacher: Great, it is 0.15.

**Teacher:** Now, let us move to a slightly tricky one:  $\frac{4243}{1000}$ .

**Teacher:** Yes, 9.243. Fantastic. Now that our minds are active, let us begin today's lesson.

#### Worksheet 3

![](_page_42_Picture_10.jpeg)

**Teacher:** Open your workbooks to page 27.

![](_page_42_Picture_12.jpeg)

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**Teacher:** Look at section A, Fill in the blanks. Read each statement carefully before writing your answer.

**Teacher:** In section B, you will answer questions based on the number 60.35. Think carefully before writing the decimal expansion.

**Teacher:** In section C, you need to convert fractions to decimals. Remember the rules we learnt for division.

## (Guide the students to complete the Worksheet 3. You may take this worksheet as a revision or assessment.)

**Chapter 5: Decimals** HoLL MDA A English Fill in the blanks with the correct ir word. 1. Sam drank 2.5 glasses of water to quench her B Science Jas soaked 0.05 kg of kidney beans in water overnight to observe the cotyledons. Help Jas label the cotyledons in the diagram here. C Social Studies Greenland has an area of about 21.5 lakh square kilometres. Almost 80 per cent of the island is always covered with ice and snow. How long does the winter last in Greenland? (12)

(Refer to the Book of Holistic Teaching, page 12 under the

title 'Decimals' Complete the activities mentioned in this section and ensure that the students complete them. These activities are

![](_page_42_Picture_20.jpeg)

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.)

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

![](_page_42_Picture_23.jpeg)

• Present the PowerPoint in class.

\*Guide the students to refer only to .edu or .org websites to gather information.

(Please discuss the project assigned in period 5. Focus on

helping students to understand the objectives and addressing any challenges they faced while completing the project. Guide students in presentation of their project

students in presentation of their project.) **Teacher:** Now, let us fill in the last scolumn of the KWL chart.

![](_page_42_Picture_29.jpeg)

COULD DO

ID MIN.

7

**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 job, everyone. See you in the next class. Have a wonderful day ahead.

## Differentiated Activities

#### 110 km/hr

![](_page_43_Picture_2.jpeg)

If a car travels 78.6 km in 1.5 hours, how much distance will it cover in 3 hours?

#### 80 km/hr

![](_page_43_Picture_5.jpeg)

Write the decimal expansion of 287.365.

## 40 km/hr

![](_page_43_Picture_8.jpeg)

If a fruit seller sells 4.5 kg of apples in the morning and 2.8 kg in the evening, how much has he sold in total?

## Home Task

Practise the concepts discussed in this chapter.

## Learning Outcomes

#### The students will:

Physical Development	• engage in hands-on activities such as decimal-based games, kinaesthetic exercises and real-life applications to reinforce learning through movement.
Socio-Emotional and Ethical Development	<ul> <li>collaborate with peers in group discussions, problem-solving activities and peer review exercises, fostering teamwork, patience and respect for diverse perspectives.</li> </ul>
Cognitive Development	• apply decimal concepts to solve mathematical problems, compare values, and perform operations, enhancing logical reasoning and problem-solving skills.
Language and Literacy Development	<ul> <li>read, interpret and articulate decimal-related problems, strengthening mathematical vocabulary and communication skills.</li> </ul>
Aesthetic and Cultural Development	• explore decimals in real-world contexts, such as currency, measurements and scientific calculations, fostering an appreciation for their practical significance.
Positive Learning Habits	<ul> <li>develop accuracy and confidence in using decimals through practice, revision and real- life applications, ensuring mastery of the concept.</li> </ul>

#### **Starry Knights**

I am sure you must be feeling exhausted but enthused for the learners' response to the activities and the lesson. Share a few tips on what keeps you going in spite of such a hectic schedule.

Award yourself a STAR for being so persistenet!!

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