

PROFESSIONAL DEVELOPMENT FOR QUALITY EDUCATION

Mathematics Teachers' Guide Lesson Plans

Grade 4



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PREFACE

The Quaid-e-Azam Academy for Education Development (QAED), Government of Punjab, was tasked with developing teacher guides on the Single National Curriculum (SNC) 2020. For this purpose, a team of education experts and teachers from government and non-government institutions was engaged. The subject specialists from Material Development Wing supervised this task. The teams not only critically reviewed the entire guide but also ensured the incorporation of its recommendations.

While developing this guide, the team recognized that instructional settings and availability of resources vary significantly in the province of Punjab. Therefore, considering the important aspects of SNC and active learning, a contextually relevant teaching process has been devised to ensure student learning outcomes.

On behalf of Quaid-e-Azam Academy for Education Development, Government of Punjab, I am deeply grateful to all involved in creating this guide. I hope that this book will be helpful for teachers to teach effectively and enable them to perform their duties properly.

Thank you,
The Director General
Quaid-e-Azam Academy for Educational Development,
Government of Punjab





Mathematics – Teacher Guide

Introduction

The Government of Punjab School Education Department notified Single National Curriculum (SNC) in 2021. To ensure its effective execution, Quaid-e-Azam Academy for Educational Development has taken the following initiatives:

Organized a professional development program for teachers to enhance their understanding of SNC

Develop teacher guides to improve instructions at the school level.

Through these initiatives, the teachers will be able to:

Observe the alignment between SNC, Academic Calendar & Textbooks.

Ensure the achievement of student learning outcomes given in SNC

Equip themselves with new teaching techniques.

Create an interactive learning environment.

Active Learning promotes students to learn by doing through collaborative activities such as problem-solving, role-playing, watching others, arguing, and many more.

Students will not passively acquire material owing to engaging activities and several types of evaluation. The objective is to improve students' capacity to think critically and creatively via the application of innovative instructional strategies and flexible evaluation techniques.

Using this form of instruction, students' knowledge will develop, their social skills will blossom, and their feeling of community will grow.

The course material is designed to have students thinking critically and solving mathematics problems that they'll encounter in the real world. For students to be able to defend their mathematical reasoning and understand the interconnectedness of mathematical ideas, we will arm them with the skills they need to do so.

We hope that they'll learn to apply mathematics not just to their coursework, but also to other areas of life.

To encourage the independence and self-confidence of students as learners, a range of instructional strategies are deployed to create an environment conducive to attaining the desired results.

SNC recommends that teachers utilize a range of materials, not simply the prescribed textbooks and teacher's guides.





SNC emphasizes developing analytical, critical, and creative thinking through a more activities-based approach rather than static teacher-centric learning. Furthermore, it focuses on equipping learners with principles and attributes such as truthfulness, honesty, tolerance, respect, peaceful coexistence, environmental awareness & care, democracy, human rights, sustainable development, global citizenship, personal care, and safety (SNC 2020).

- The SNC is standards, benchmarks, and outcomes-based across all subjects.
The components of the curriculum are given below:
 - **Competency:** A key learning area involving applied skills and knowledge enabling learners to perform successfully in educational, professional, and other life contexts.
 - **Standard:** It defines competency by broadly specifying the knowledge, skills, and attitudes to be acquired by students in a particular key learning area during the first five years of schooling.
 - **Benchmarks:** Further elaborate the expectations about what learners know under each standard, indicating what the students will accomplish at each developmental level to meet the standards.
 - **Student Learning Outcomes (SLOs):** These are built upon the descriptions of the benchmarks and describe (in key points) what students will accomplish at the end of each unit.

Along with standards and benchmarks, the curriculum also provides a progression matrix containing SLOs grade-wise. For further detail, please refer to the SNC 2020 for the specific subject. In addition, this guide includes lesson plans based on student learning outcomes and textbook content developed by Punjab Textbook Board.





Key Components of Lesson Plan:

TEMPLATE FOR LESSON PLAN

Topic

Lesson plan No.	
Grade:	Time:

SLO:

Material / Resources required:

Information for Teachers:

- New concepts
- New ideas
- Teaching tips

Introduction:

- Warm up
- Brainstorming
- Elicitation
- Mind map etc.

Development:

Activity1

Activity2 (Minimum two activities)

Conclusion / Sum up / Wrap up:

Assessment: Focus will be on formative assessment

Follow up:

- home work
- written work
- project

oral assignment etc.





List of Selected Students Learning Outcomes (SLOs)	
Mathematics-IV	
Sr. No	Students' Learning Outcomes
Unit 1: Whole Numbers	
1.	<ul style="list-style-type: none">• Identify place values of digits up to one hundred thousand (100,000).• Read numbers up to one hundred thousand (100,000).• Write numbers up to one hundred thousand (100,000).• Write numbers in words up to one hundred thousand (100,000).• Subtract numbers up to 5 digits.• Solve real life situations involving subtraction of numbers up to 5 digits.• Divide numbers up to 4 digits by numbers up to 2 digits.• Solve real life situations using appropriate operations of addition, subtraction, multiplication and division of numbers up to 2 digits.
Unit 2: Factors and Multiples	
2.	<ul style="list-style-type: none">• Identify and differentiate 2-digit prime and composite numbers.• Determine common multiples of two or more 2-digit numbers.• Differentiate between factors and multiples.• Determines common multiples of two or more 2-digit numbers.
Unit 3: Fractions	
3.	<ul style="list-style-type: none">• Convert improper fraction to mixed fraction and vice versa.• Convert mixed number to improper fraction• Subtract fractions with like denominators.• Multiply two fractions (Proper, improper) and mixed numbers.• Analyze real life situation involving fractions by identifying appropriate number operations.
Unit 4: Decimals	
	<ul style="list-style-type: none">• Express a decimal number as a fraction whose denominator is 10, 100 or 1000.• Denominator of the fraction is not 10, 100 or 1000 but can be converted to 10,100 or 1000.• Add and subtract 3 - digit numbers (up to 2 - decimal places).• Multiply a 2 - digit number with 1 decimal place by a 1-digit number.• Divide a 2 - digit number with 1 - decimal place by a 1 - digit number.• Solve real life situations involving 2 - digit numbers with 1 - decimal place using appropriate operations.• Round off decimal (with 1 or 2 decimal places) to the nearest whole number.
Unit 5: Measurement	
	<ul style="list-style-type: none">• Convert larger to smaller metric units (2 - digit numbers with one decimal place)<ul style="list-style-type: none">• kilometers into meters.• meters into centimeters.• centimeters into millimeters.





- Add and subtract measures of length in same units.
- Convert larger to smaller metric units (2 - digit numbers with one decimal place) liters into milliliters.
- Add and subtract measure of capacity in same units.
- Solve real life situations involving conversion, addition and subtraction of measures of length, mass and capacity.
- Convert hours to minutes and minutes to seconds.
- Convert years to months, months to days, and weeks to days.
- Add and subtract measures of time without carrying and borrowing.
- Solve simple real-life situations involving conversion, addition and subtraction of measures of time.

Unit 6: Geometry

- Recognize an angle formed by intersection of two rays.
- Measure angles using protractor where
 - Upper scale of protractor reads the measure of angle from left to right.
 - Lower scale of protractor reads the measure of angle from right to left.
- Identify right angles in 2-D shapes.
- Find perimeter of a 2-D figures on a square grid.
- Complete a symmetrical figure with respect to a given line of symmetry on square grid/dot pattern.

Unit 7: Information Handling

- Read simple bar graphs given in horizontal and vertical form.
- Interpret real life situations using data presented in bar graphs.
- Interpret real life situations using data presented in Pie Chart.



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NUMBERS UP TO ONE HUNDRED THOUSAND



Duration: 40 Minutes



Students Learning Outcomes :

- Identify place values of digits up to one hundred thousand (100,000).
- Read numbers up to one hundred thousand (100,000).



Materials:

Writing board, chart papers, scissors, markers, etc.

Information for Teachers:

- The number which is greater than three digits, we leave space after every three digits from right side of that number, for example, 34 278
- To get the place value, multiply the number with its place.
- To write the number as sum of place values of its all digits is called expanded form.

Introduction:

- To check the previous knowledge of the students ask them a question.

Q. If a Lion hunts deer and eat 2000 g of meat at a time. How can we read this quantity in words?

- Write the number 2300 on the writing board and ask the students to read it.
- Write the number 78 293 on the writing board and ask the students to read it.
- Tell them that today's we will learn to identify place values of digits and read number up to one hundred thousand (100 000).

**Development:****Activity 1:****(15 min)**

- Write the number "23 456" on the board
- Paste the following table made up of chart paper on the board

Ten Thousands	Thousands	Hundreds	Tens	Ones

- Tell the students how to write the number "23 456" in the above table according to the place value of each digit.
- Write each digit in the correct box.
- Refer to the example on page no. 2 in their book.
- Tell the students, the following steps to find out place value.
- Step 1: "2" is at the ten thousands place and its place value = $2 \times 10\,000 = 20\,000$
- Step 2: "3" is at the thousands place and its place value = $3 \times 1000 = 3000$
- Step 3: "4" is at the hundreds place and its place value = $4 \times 100 = 400$
- Step 4: "5" is at the tens place and its place value = $5 \times 10 = 50$
- Step 5: "6" is at ones place and its place value = $6 \times 1 = 6$
- Tell the students that now they will learn how to write the same number in the expanded form.
- $23\,456 = 20\,000 + 3\,000 + 400 + 50 + 6$

Activity 2:

- On the writing board write the sum $99\,999 + 1 = ?$
- Ask the students to solve this sum on their note books.
- What is the answer? Ask the students to read it out loudly. (The answer will be "one hundred thousand").
- Ask all the students to write any number upto one hundred thousand.
- Select 5 students randomly and ask them to read out the number they have written on their notebooks.

Assessment:

- Divide the students in pairs and ask them to read the numbers they have written within the pairs.
- Extend your help if any student finds difficulty in reading the number.

Conclusion / Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from different students and wrap up the lesson

Follow up:

Ask each students to use a piece of chart paper and make their own place value table on it as explained in the class. Choose any 5 -digit number and write it in the table according to the place value of each digit.

NUMBERS UP TO ONE HUNDRED THOUSAND



Duration: 40 Minutes



Students Learning Outcomes :

- Write numbers upto one hundred thousand (100 000).
- Write numbers in words upto one hundred thousand (100 000).



Materials:

Writing board, Markers

Information for Teachers:

- The number which is greater than three digits, we leave space after every three digits from right side of that number, for example, 34 278
- To get the place value, multiply the number with its place.
- To write the number as sum of place values of its all digits is called expanded form.

Introduction:

To check the previous knowledge of the students ask them a question

- The cost of a mobile phone is Rs. 50 000. How can we read this price in words?
- Write the number 100 000 on the black board and ask the students to read it.
- Tell the students that today they will learn to write the numbers upto one hundred thousand in digits as well as in words.



Development:

Activity 1:

- Draw the same table on the board, as drawn in the previous lesson plan. And ask the students to help you to fill it, recalling the previous lesson.
- Add one more column to the left side and write Hundred Thousands in that column.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
1	0	0	0	0	0

- Tell the students how to write the number "100 000" in the above table according to the place value of each digit.
- Write each digit in the correct box.
- Ask the students to write the same number in their notebook and read it together.
- Tell the students that the above place value table, actually tells us the name of the number in words. For Example, the number 100 000 will be written in the same way as we read it in the above chart i.e. One hundred thousand
- If the number on the extreme left is "1" and all the remaining digits are zeros, then we will look the place value of that "1" only, which is one hundred thousand. So, we will write 100 000 in words as " one hundred thousand".
- Similarly, if we have a number 45 932, we will place it in the place value table and identify the name in words according to it.

Ten Thousands	Thousands	Hundreds	Tens	Ones
4	5	9	3	2

- So we will write "45 932" as Forty-five thousand nine hundred and thirty-two

Activity 2:

- On the black board write any three sums from Q4. Of Exercise 1 (page 5)
- Ask the students to solve these sums on their note books.

Assessment:

- Keep moving in the classroom, go to the students and check their working.
- Guide the students if they find difficulty in writing the number in words.

Conclusion / Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from different students and wrap up the lesson

Follow up:

- Ask the students to make a 5-digit number of their choice and write it in words on notebook.
- Write such a whole number in which no digit is repeated.
- Make a greatest 5-digit number and write it in words.

SUBTRACTION

**Duration:** 40 Minutes**Students Learning Outcome:**

- Subtract numbers up to 5 digits

**Materials:**

Writing board, Markers, Textbook

Information for Teachers:

In math, to *subtract* means to take away from a group or a *number* of things. When we *subtract*, the *number* of things in the group reduces or becomes less.

Introduction:

- To check the previous knowledge of the students ask them a question
- There are 1000 students in a school. If 600 of them are girls, how many are boys?
- Tell the students that today they will learn to subtract numbers upto 5-digits.

Activity 1:

- On the board write a question from the book Ex2

$$\begin{array}{r} \text{T.thh H T O} \\ 43562 \\ - 7356 \\ \hline \end{array}$$

- Tell the students always begin subtracting from ones place.
- Firstly, borrow one ten (10) from tens place to ones place. It becomes $10+2=12$ on ones place
- Now, begin the subtraction.
- In ones place, subtract 6 from 12. $12 - 6 = 6$



- In tens place, after borrowing one ten to ones place, it is left with 5 tens. Now, subtract 5 from 5, it gives: $5 - 5 = 0$
- Now subtract hundreds, it is simple because 3 is smaller than 5. Now, 5 minus 3 gives us 2.
- In Th place, again 3 is smaller than 7. So we borrow one ten thousands (10000) from T.th place. It becomes $3000 + 10000 = 13000$
- Subtract 7 from 13, we get 6 i.e. $13\ 000 - 7\ 000 = 6000$
- In T.th place, after borrowing one ten thousands (10000) to Th place, it is left with 3. There is an empty space below 3. It means 3 has nothing to be subtracted from it. So, 3 comes in the answer as it is.
- Finally, we get the answer 36 206

Activity 2:

- Divide the students in the group of 4-5
- Ask the students to take out their notebooks and subtract the greatest 4-digit number from the smallest 5-digit number.
- Ask the students to solve this sum within their groups.
- Facilitate the students in groups.
- Encourage them.

Assessment:

- Write the answers to the questions on the board.
- Ask the students to check their answers by themselves and identify and correct mistakes (if any).

Conclusion / Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from different students and wrap up the lesson

Follow up:

- Give 5 questions from exercise 2 (page 19) to be solved on neat copy.

SUBTRACTION



Duration: 40 Minutes



Students Learning Outcome:

- Solve real life situations involving Subtraction of numbers up to 5 digits.



Materials:

Board, marker, Textbook

Information for Teachers:

- **Anecdote** is a great way to start your lesson. Use voice modulation, dramatize, body language, gestures and movement while telling a story.

Introduction:

- Start the lesson using the following anecdote.
- Yesterday I went to a birthday party. There were so many kids in the party. I had 1000 chocolates I gave 89 to them. I want to figure out, how many chocolates I am left with. Can you help me out with solving this problem?
- Ask them to brainstorm and share the mathematical operation they think would apply to this problem and how they know they are right.
- Take responses from multiple students.

Development:

Activity 1:

- Tell them that this real-life situation can be solved using the operation of subtraction.
- We use subtraction when we have to find the difference between two quantities.
- Revise the concept of subtraction for 5-digit numbers.
- Solve the question step by step on the board for the students (refer to **page 17** of the Textbook for a solved example).



- Further solve the following example with the involvement of students involving real life problem of subtraction to clear the concept.
- Example: A total of 55 661 people visited the Pakistan Monument in December. In January, 12 255 less people visited as compared to December. How many people visited the monument in January?

Activity 2:

- Divide the students in groups of 4-5
- Assign any word problem to each group from exercise 2 on page 19 of text book.
- Ask them to solve the question within the groups.
- Be a facilitator and move in the class to facilitate the struggling students.
- Ensure active participation of every student in a group.
- Encourage them to complete the activity.

Assessment:

- Write the answers to the questions on the board.
- Ask the students to check their answers by themselves and identify and correct mistakes (if any).

Conclusion / Sum up / Wrap up:

- Sum up the lesson by highlighting all the key points of the lesson.
- Tell the students that the word " How many left " in statement shows to the operation of subtraction.

Follow up:

- Assign 2 questions from the book as homework.
- Make a word problem at their own choice.

DIVISION

**Duration:** 40 Minutes**Students Learning Outcome:**

- Divide numbers up to 4 digits by numbers up to 2 digits

**Materials:**

Writing board, Markers, Textbook

Information for Teachers:

We use the standard long division algorithm to divide four-digit numbers by two-digit numbers, including when there are remainders.

Introduction:

- Ask them to think of any time when they have to divide a number.
- Take multiple responses from students.
- Give them an example let's suppose Fatima has 30 candies. She wants to divide them among her 3 friends. How many candies would each friend get?
- Ask students to think of the Mathematical operation they think would apply to this problem.
- Take responses from multiple students.
- Tell them today they are going to learn about division of 4-digit numbers by 2-digit numbers.

Development:

Activity 1:

- Revise the concept of dividend, divisor, and quotient.
- On the Writing board, write a question $3478 \div 26$
- To solve above question, we first select the digits of the dividend.

$$26 \overline{) 3478}$$

- We choose the same number of digits that the divisor has. In this case, there are two digits.
- The total of the digits we have selected should be greater than the divisor. If this is not the case, we should take another digit.

$$26 \overline{) 3478}$$

$26 < 34 \checkmark$

- We write the first number of the quotient.
 Now we should look for a number that, when multiplied by the divisor (26), is equal to or less than the selected number (34), always looking for the greatest multiple that fits.
 When we find that number, we place it in the quotient.

$$26 \overline{) 3478}$$

1

$26 \times 1 = 26 \checkmark$

$26 \times 2 = 52 \times$

- We divide the first digits:
 We multiply the quotient by the divisor, and we write the result under the dividend. Then, we find the difference.
 (Note! It should always be less than the divisor.)

$$26 \overline{) 3478}$$

1

$$\begin{array}{r}
 26 \overline{) 3478} \\
 - 26 \\
 \hline
 08
 \end{array}$$

$08 < 26 \checkmark$

- We bring down the next digit and repeat steps 2 and 3

$$26 \overline{) 3478}$$

13

$$\begin{array}{r}
 26 \overline{) 3478} \\
 - 26 \\
 \hline
 087 \\
 - 78 \\
 \hline
 09
 \end{array}$$

$09 < 26 \checkmark$

- We end the division



We continue repeating step until we run out of digits to bring down. The last number that we are left with under the dividend is the remainder. Remember that the remainder should always be less than the divisor!

$$\begin{array}{r} 133 \\ 26 \overline{) 3478} \\ \underline{-26} \\ 087 \\ \underline{-78} \\ 098 \\ \underline{-78} \\ 20 \end{array}$$

20 < 26 ✓

Activity 2:

- Write 6 different questions on the board (The number of questions should be according to the number of rows of students in the class).
- Assign each question to each row of the students.
- Ask them to solve the question.
- Be a facilitator and keep moving in the class to help the students.
- Ensure active participation of every student.
- Encourage them to complete the activity.

Assessment:

- Write the answers to the questions on the board.
- Ask the students to check their answers.
- If the answer is not correct, then help them to correct the mistakes.

Conclusion / Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from multiple students and wrap up the lesson.
- Ask the students to solve first six questions of Exercise 2 (page 29) on their notebooks.

MIXED OPERATIONS



Duration: 40 Minutes



Students Learning Outcome:

- Solve real life situations using appropriate operations of addition and subtraction



Materials:

Writing Board, Markers, flash cards of mathematical operations signs (+, -, x, ÷)

Information for Teachers:

- When we solve word problems through basic operations, often we use more than one operation while solving a word problem.

Introduction:

- Start your lesson with two simple questions, such as;
Q.1. I have 40 orange candies and 20 strawberry candies. How many are these altogether?
Q.2. If I distribute 30 of these 60 candies among you all. How many candies are left?
- What two mathematical operations have you applied to find out the final answer?
- Take responses from multiple students while after asking the above questions one by one.

Development:

Activity 1:

- Tell them that this real-life situation can be solved using the operation of addition and subtraction.
- Tell the students that we use addition when we need to find the total quantity of different things.
- Tell them that we use subtraction when we need to find out the left over quantity.
- Solve question no. 6 from Exercise 2 on the board. (Refer to the page 29 of the text book)
Q6. Saad bought 10 washing machines for Rs. 78950 and an oven for Rs. 21550.
a) Find how much money did he spend altogether?
b) How much more amount did he spend on washing machine than an oven?



- Give flash cards of mathematical operations signs (+, -, \times , \div) to the students and ask to show which sign will be used in part (a) and (b)
- To solve part (a), write the two numbers vertically and put the addition sign on the side.
- To solve part (b), write the two numbers vertically and put the subtraction sign on the side.
- Tell the students, this is how we used two operations in the same word problem.

Activity 2:

- Assign different questions to the students in pairs.
- Ask them to solve the question.
- Be a facilitator and move in the class to facilitate the struggling students.
- Ensure active participation of every student in pairs.
- Encourage them to complete the activity.

Assessment:

- Write the answers to the questions on the board.
- Ask the students to exchange the copies and check the work of one another.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the key points of the lesson.
- Recapitulate the concept that word problems may involve more than one mathematical operation.

Follow up:

Ask the students to convert two daily life situation into word problem of addition and subtraction. And solve it on notebook.

MIXED OPERATIONS



Duration: 40 Minutes



Students Learning Outcome:

- Solve real life situations using appropriate operations of multiplication and division



Materials:

Writing Board, Markers, Text book, Flash cards (Write one word problem on each flash card, either related to multiplication or division)

Information for Teachers:

- In daily life, there are many situations, such as cooking, gardening, and playing in which we use the rule of multiplication and division.
- Multiplication is repeated process of addition.
- Division is repeated process of subtraction.

Introduction:

- Start your lesson with two simple questions, such as:
- **Q1.** I have 80 candies and there are 40 students in the class. If I want to distribute these candies equally among them. What Mathematical operation shall I apply?
- **Q2.** If there are 30 students and I want to give 2 candies to each student. How many candies do I need to buy?
- Take responses from multiple students while after asking the above questions one by one.

Development:

Activity 1:

- Tell them that these real-life situations can be solved using the operation of division and multiplication.
- Tell the students that we use division when we need to distribute a number of things.
- Tell them that we use multiplication when we need to find out the total quantity in terms of some multiple.
- Solve question no. 7 from Exercise 2 on the board. (Refer to the page 29 of the text book)



Q7. In 30 bags, 1350 kg rice are packed. Find

a) How many kilograms of rice are in one bag?

b) How many kilograms of rice will be packed in 38 bags?

- To solve part (a), divide 1350 with 30 using long division method. The answer will be 45 kg.
- To solve part (b), multiply 38 by 45 to get 1710 kg.
- Tell the students, this is how we used two operations in the same word problem.

Activity 2:

- Tell the students that they are going to play an interesting game.
- Divide your class in teams of 5.
- Show a multiplication or division word problem already written on a flash card.
- Allow them to do rough work on their copies.
- The team which answers the first gets 2 points.
- The team with the most points wins

Assessment:

- Write one word problem with mixed operations. And ask the students to solve it on notebooks. Write the answer to the question on the board.
 - Ask the students to check their work and correct if there is any mistake.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the key points of the lesson.
- Recapitulate the concept there is a word "each" in the word problem we use division.

Follow up:

- Ask the students to go into their kitchen, garden or play room and try to make their own two word problems relating to their daily life. Solve it on their note books.

PRIME AND COMPOSITE NUMBERS

**Duration:** 40 Minutes**Students Learning Outcome:**

- Identify and differentiate 2 digit prime and composite numbers

**Materials:**

Writing board, Markers, Textbook

Information for Teachers:

A prime number is a number which has exactly two factors i.e. '1' and the number itself only.

Introduction:

- Ask the students to think of any time when they have to divide a number.
- Ask them to think of a number which can be divided by itself only. (i.e, no other number divides it)
- Take multiple responses from students.

Development:

Activity 1:

- Tell the students that today they are going to learn about 2-digit Prime numbers.
- Tell the students that when a number completely divides the other number then the number and answer are called factors of that number. For example $40 \div 8 = 5$, so 8 and 5 are factors of 40, as when we multiply 8 and 5 we get 40.
- Tell them that the numbers greater than 1 which have two factors, 1 and the number itself. Only such numbers are called prime numbers.
- Solve an example
Example: Let's find out the factors of 17
 $17 = 1 \times 17$
The factors of 17 are 1 and 17. So, 17 is a prime number.
- Solve two more examples on the board to give a clear concept about the prime numbers,



Activity 2:

- Divide the students in groups of 4-5
- Ask the group 1 to make a list of Prime numbers from 10 to 30
- Ask the group 2 to make a list of Prime numbers from 31 to 50
- Similarly allot the same activity with different numbers to each group.
- Ensure active participation of every student.
- Encourage them to complete the activity.
- Keep moving in the class

Assessment:

- Go to each group and check their list of prime numbers
- Draw on board and correct if there is any mistake

Conclusion / Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from multiple students and wrap up the lesson.
- Tell them again the difference between prime and composite numbers

Follow up:

- Ask the students to make a list of 2-digit prime numbers on their notebooks.

PRIME AND COMPOSITE NUMBERS

**Duration:** 40 Minutes**Students Learning Outcome:**

- Identify and differentiate 2 digit prime and composite numbers

**Materials:**

Writing board, Markers, Textbook

Information for Teachers:

- A composite number has more than two factors, which means apart from getting divided by 1 and the number itself, it can also be divided by at least one positive integer.
- The digit "1" is neither prime nor composite number.

Introduction:

- Check the previous knowledge of the students about prime numbers.
- Randomly ask the students to tell a 2-digit prime number.
- Ask the students to think of any time when they have to divide a number.
- Ask them to think of a number which can be divided by more than one numbers.
- Take multiple responses from the students.

Development:

Activity 1:

- Tell the students that today they are going to learn about 2-digit composite numbers.
- Tell the students that when a number completely divides the other number then number is called factor of that number. For example $30 \div 5 = 6$, so 5 and 6 are factors of 30, as

$$30 \div 6 = 5$$

- The numbers whose factors are more than two, are called composite numbers.



Solve an example

Example: Let's find out the factors of 21

$$21 = 1 \times 21$$

$$21 = 3 \times 7$$

$$21 = 7 \times 3$$

$$21 = 21 \times 1$$

So 1, 3, 7 and 21 are factors of 21.

Therefore, 21 is a composite number

Activity 2:

- Divide the students in groups of 4-5
- Ask the group 1 to make a list of Prime and Composite numbers from 10 to 30
- Ask the group 2 to make a list of Prime and Composite numbers from 31 to 50
- Similarly allot the same activity with different numbers to each group.
- Ensure active participation of every student.
- Encourage them to complete the activity.
- Keep moving in the class

Assessment:

Draw a line on the board and write heading of prime numbers on one side of the line and composite number on the other side. Ask one student of each group and write his/her answer in proper column.

- Go to each group and check their list of composite and prime numbers
- Correct if there is any mistake

Conclusion / Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from multiple students and wrap up the lesson.
- Tell them again the difference between prime and composite numbers

Follow up:

Give home task to students. Ask them that out of 2-digit numbers from 10 to 100, make separate lists of composite and prime numbers.

FACTORS AND MULTIPLES



Duration: 40 Minutes



Students Learning Outcome:

- Differentiate between factors and multiples.



Materials:

Writing board, Markers, Textbook, Flash cards

Information for Teachers:

- When a number completely divides the other number, then number is called factor of that number

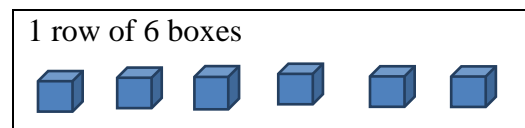
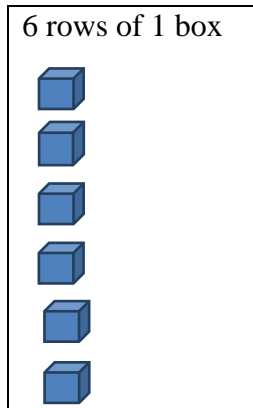
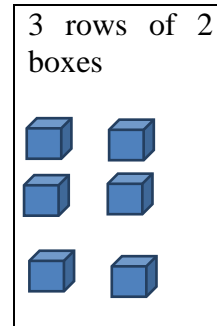
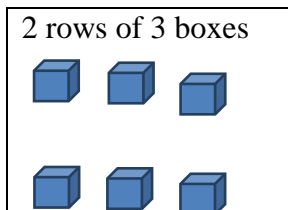
Introduction:

- Ask the students to divide 45 by 9. What will be the answer?
- Take multiple responses from students.

Development:

Activity 1:

- Tell the students that today they are going to learn about factors.
- Tell the students that when a number completely divides the other number then number is called factor of that number. For example, $45 \div 9 = 5$, so 5 and 9 are the factors of 45 as $45 \div 5 = 9$
- Solve an example (refer to page 40)
Example: Fawad wants to put 6 boxes in rows so that each row has equal number of boxes, in how many ways can he do this?
Solution:



- 2 rows of 3 boxes mean $2 \times 3 = 6$, it shows that 2 and 3 are factors of 6
- 3 rows of 2 boxes mean $3 \times 2 = 6$, it shows that 3 and 2 are factors of 6
- 6 rows of 1 box mean $6 \times 1 = 6$, it shows that 6 and 1 are factors of 6
- 1 row of 6 boxes mean $1 \times 6 = 6$, it shows that 1 and 6 are factors of 6
- Finally, we conclude that 1, 2, 3, and 6 divides 6 completely. Therefore, 1, 2, 3, and 6 are factors of 6.
- Note that 6 is their multiple

Activity 2:

- Divide the students in pairs
- Give different questions of flash cards to each pair
- Ask the students to make factors of the given number .
- Ensure active participation of every student.
- Encourage them to complete the activity.
- Keep moving in the class

Assessment:

- Call 4-5 pairs on board and ask to write the factors of the numbers on the board.
- Ask the students to exchange their copies and check the work of one another
- Correct if there is any mistake

Conclusion / Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from multiple students and wrap up the lesson.
- Tell them again that factors of a number divide that number completely



Follow up:

Ask the students to solve question no. 5 (page 43) on their note books. Tell the students that in the next lesson they will the difference between prime and composite numbers.

FACTORS AND MULTIPLES



Duration: 40 Minutes



Students Learning Outcome:

- Differentiate between factors and multiples.



Materials:

Writing board, Markers, Textbook, Flash cards

Information for Teachers:

- Multiple is the product when we multiply one number by another number
- When a number completely divides the other number then number is called the factor of that number.

Introduction:

- Revise the concept of factors.
- Ask the students to write the table of 2 on their notebooks
- Ask the answers they have got on extreme right side.(multiples of 2)
- Take multiple responses from students by asking what is the answer of 2×3 , what is the answer of 2×6 etc.

Development:

Activity 1:

- Tell the students that today they are going to learn about multiples.
- Tell the students that multiple is the product when we multiply one number by another number.

- In the above activity, when you write table of 2, all the answers on the right side are multiples of 2. Because we get these answers by multiplying different numbers by 2.
- Solve an example(refer to page 42)

Example: Let's consider the factors and multiples of 2

Factors of 8	
8 =	1 x 8
8 =	2 x 4
8 =	4 x 2
8 =	8 x 1

1,2,4 and 8 are factors of 8

Multiples of 8	
8 x 1 =	8
8 x 2 =	16
8 x 3 =	24
8 x 4 =	32

8,16,24 and 32 are multiples of 8

Activity 2:

- Divide the students in groups of 4-5
- Assign them different numbers of flashcards and ask to write their factors as well as multiples
- Ensure active participation of every student.
- Encourage them to complete the activity.
- Keep moving in the class
- Write the factors and multiples of the numbers on the board
- Ask the students to check their work by themselves
- Correct if there is any mistake



Assessment:

- Write factors heading and multiple heading on the board. Draw a line between these
- Ask students randomly to come on board and write their answers in related side.

Conclusion / Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from multiple students and wrap up the lesson.
- Tell them again that factors of a number divide that number completely whereas, multiple is the product when we multiply one number by another number.

Follow up:

- Ask the students to write numbers upto 100 in the form of a table. (refer to page 43, Q 4 in the textbook).
- Color the factors of 9 with orange color.
- Color the multiples of 9 with green color.

COMMON MULTIPLES



Duration: 40 Minutes



Students Learning Outcome:

- Determine common multiples of two or more 2-digit numbers.



Materials:

Writing board, Markers, Textbook, copy of crossword puzzle

Information for Teachers:

- A number that is a multiple of two or more numbers is called a common multiple.
- Common multiple is always greater than the given numbers.

Introduction:

- Revise the concept of multiples
- Ask the students to tell the multiples of 4
- Ask the few more students about the multiples of 8
- Take multiple responses from students.
- Ask them, is there any number which is a multiple of 4 as well the multiple of 8?

Development:

Activity 1:

- Tell the students that today they are going to learn about common multiples of two or more 2-digit numbers.
- Write important points on one side of the board during whole teaching- learning process. Do not erase it
- Tell the students that a number that is a multiple of two or more numbers is called a common multiple.
- Solve an example (refer to page 46)
Example: Find the first common multiples of 10, 15 and 12
Solution:
Multiples of 10: 10, 20, 30, 40, 50, 60, 70, 80, 90,
Multiples of 15: 15, 30, 45, 60, 75, 90, 105, 120, 135
Multiples of 12: 12, 24, 36, 48, 60, 72, 84, 96, 108
- Tell the students that there is just one common number in above three lines and that is 60.

- So, 60 is the first common multiple of 10, 15, and 12

Activity 2:

MATH
Crossword Puzzle

Fill in the blanks of each crossword puzzle to make the multiplication equations true.

2 x [] = 6 [] x 5 = 30
[] x 1 = [] [] x 4 = []
[] x 24 = []

[] x 7 = [] 3 x 12 = []
x 11 = [] x [] = []
[] x [] = 42 [] x [] = 90

- Either get this cross-word puzzle photocopied or draw it on the board
- Divide the students in pairs and ask them to solve this puzzle in pairs.
- Ensure active participation of every student.
- Encourage them to complete the activity.
- Keep moving in the class

Assessment:

- Divide the students in group of 4-5
- Give them different pair of numbers and ask them to write their two common multiples
- Ensure class participation
- Write the answers on the board
- Ask the students to check their work by themselves
- Correct if there is any mistake

Conclusion / Sum up / Wrap up:

- Sum up your lessons through important key points already written on the board.
- Tell them again that we can find common multiples of two or more than two numbers.

Follow up:

Ask the students to choose any three of their favourite numbers and write their first ten multiples. Find and circle their common multiples.

CONVERSIONS OF FRACTIONS



Duration: 40 Minutes



Students Learning Outcome:

- Convert improper fraction to mixed fraction



Materials:

Writing board, Markers, Textbook

Information for Teachers:

- The numerator must be greater than the denominator in any fraction to convert into a mixed fraction.
- A mixed number/fraction contains a whole number and a proper fraction

Introduction:

- Revise the concept of proper, improper and mixed fraction
- Take multiple responses from students.
- Tell the students today they will learn about converting an improper fraction into a mixed number

Development:

Activity 1:

- Tell them that an improper fraction is any fraction whose numerator is greater or equal to the denominator. Examples of improper fractions are $16/3$, $81/9$, $525/71$, $4/4$
- Solve an example to show how to convert an Improper fraction into a mixed number

Example: Convert the improper fraction $16/3$ to a mixed number.

1. Divide 16 by 3 such as we get $16 \div 3 = 5$ with remainder of 1
2. The whole number is 5
3. The remainder is 1. Write it with 1 as the numerator and 3 as the denominator. Here the fraction part of the mixed number is $1/3$.



4. The mixed number is $5 \frac{1}{3}$. So $16/3 = 5 \frac{1}{3} = 5 + 1/3$
5. Illustrate the pictorial representation of $21/3$ given on page 57 of the textbook

Activity 2:

- Write 2 improper fractions on the board.
- Ask the students to convert these into mixed numbers on their notebooks
- Ensure active participation of every student.
- Encourage them to complete the activity.
- Keep moving in the class
- At the end ask the students who wants to come and solve these questions on the board? Please raise hands
- Select 3 students and ask them to solve these questions on the board

Assessment:

- Ask students that how many parts of a mixed number/ mixed fraction
Call anyone on the board and ask to solve the question.
- Correct if there is any mistake

Conclusion / Sum up / Wrap up:

- Once again tell them the steps involved in converting an improper fraction into a mixed number
- Step 1: Divide the numerator by the denominator using simple division method.
- Step 2: Write down the result in whole number
- Step 3: Use the remainder as the new numerator over the given denominator. This is the fraction part of the mixed number.

Follow up:

Ask the students to solve Q5 (page 60) on their copies at home.

CONVERSIONS OF FRACTIONS



Duration: 40 Minutes



Students Learning Outcome:

- Convert mixed number to improper fraction



Materials:

Writing board, Markers, Textbook

Information for Teachers:

- A mixed number /mixed fraction consist of a whole number and a proper fraction.
- When we convert a mixed number into improper fraction, its denominator does not change.

Introduction:

- Write some mixed and improper fractions on board
- Ask students to separate these.
- Tell the students today they will learn about converting a mixed number into an improper fraction

Development:

Activity 1:

- Tell them that an improper fraction is any fraction whose numerator is greater or equal to the denominator. Examples of improper fractions are $16/3$, $81/9$, $525/71$, $5/5$
- **Example:** Convert the following mixed number to an improper fraction.

$$3\frac{5}{9}$$

Step 1: Multiply the denominator (the bottom number in the fraction) and the whole number



- $9 \times 3 = 27$
- **Step 2:** Add the answer from Step 1 to the numerator (the top number in the fraction)
- $27 + 5 = 32$
- **Step 3:** Write answer of Step 2 over the denominator such as $32/9$

Activity 2:

- Divide the class into groups of 4-5
- Write 2 mixed numbers on the board.
- Ask the students to convert these into improper fractions.
- Ensure active participation of every student.
- Encourage them to complete the activity.
- Keep moving in the class
- At the end ask the students who wants to come and solve these questions on the board? Please raise hands
- Select 3 students and ask them to solve these questions on the board

Assessment:

- Write a question on the board and ask students to solve individually.
- Check whether these students are solving the questions rightly.
- Correct if there is any mistake
- Ask the students to look at the solutions on the board and check their work

Conclusion / Sum up /Wrap up:

- Once again tell them the steps involved in converting a mixed number Into an improper fraction
- Follow these 3 steps to convert mixed numbers to improper fractions:
 1. Multiply the whole number by the denominator
 2. Add the answer from Step 1 to the numerator
 3. Write answer of Step 2 over the denominator

Follow up:

- Ask the students to solve Q6 (page 60) on their copies at home.

SUBTRACTION OF FRACTIONS



Duration: 40 Minutes



Students Learning Outcome:

- Subtract fractions with like denominators.



Materials:

Writing board, Markers, Textbook, chart papers, scissors

Information for Teachers:

- Fractions with the same denominator are all like fractions.
- In subtraction of fractions having the same denominator, we just need to subtract the numerators of the fractions. While denominator will be remained same.

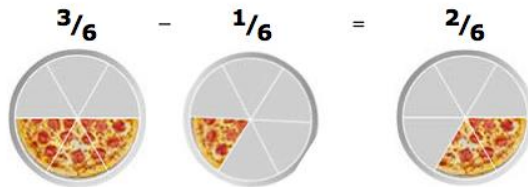
Introduction:

- Revise the concept of like and unlike fraction
- Ask them when do we subtract the numbers
- Write some like and unlike fractions on the board
- Ask students to separate these
- Tell the students today they will learn about subtracting fractions with the same denominator.

Development:

Activity 1:

- Tell the students that subtracting fractions with like denominators is simple! Subtract the numerator of the second fraction from the numerator of the first fraction. Then, keep the denominator the same.
- Prepare the following diagrams on a chart before the lesson starts. And paste it on the board



- Tell the students that originally there were 6 slices in a pizza tray. Each slice is represented by $\frac{1}{6}$ (1 out of 6).
- Someone ate 3 slices and now there are $\frac{3}{6}$ (3 out of 6) slices in the tray
- If he/she eats one more slice i.e $\frac{1}{6}$, the remaining slices will be $\frac{3}{6} - \frac{1}{6}$
- So, we get $\frac{2}{6}$

Activity 2:

- Divide the students in groups of 4-5
- Give one chart paper to each group
- Write a question on the board
- Ask them to make that fraction using these chart papers

Assessment:

- One by one call each group on the board
- Ask them to paste their visual fraction on the board
- Ask them to write the sum using the given diagrams and solve it mathematically.

Conclusion / Sum up / Wrap up:

- Ask the students what they have learned today
- Sum up the main points once again already written on a side of board.

Follow up:

Ask the students to solve Q2 (page 63) on their copies at home.

MULTIPLICATION OF FRACTIONS

**Duration:** 40 Minutes**Students Learning Outcome:**

- Multiply two (Proper/improper) fractions

**Materials:**

Writing board, Markers, Textbook

Information for Teachers:

- In improper fraction, the numerator may be greater or equal to the denominator, e.g. $\frac{3}{3}$ and $\frac{7}{4}$
- In a proper fraction the numerator is always smaller than the denominator
- The product of two mixed numbers will always be mixed number.

Introduction**(05 min)**

- Ask the students what is a proper fraction?
- Ask the students what is an improper fraction?
- Take multiple responses from students.
- Tell the students that we will learn to multiply two proper fractions in this lesson.

Development:

Activity 1:

- Tell the students that the method to multiply the proper and improper fractions is the same.
- Tell the following steps to the students.
- The first step when multiplying fractions is to multiply both of the numerators.
- The second step is to multiply both of the denominators.
- Finally, simplify the new fractions.
- Solve the following example

Example :

$$\frac{3}{4} \times \frac{1}{6} = \frac{1}{8}$$

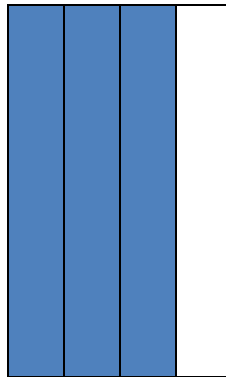
- Tell the students that we divided the numerator and denominator with the common factor; 3 and 6 have 3 as a common factor so we divide 3 and 6 by 3
- Simplifying it gives us $\frac{1}{8}$

Activity 2:

- Solve the question of activity 1, through diagram

$$\frac{3}{4} \times \frac{1}{6} = ?$$

- Step 1: Reflect $\frac{3}{4}$ as

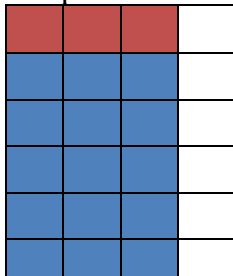


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- Step 2: $\frac{3}{4} \times \frac{1}{6}$ into six parts and

means $\frac{1}{6}$ of $\frac{3}{4}$, So distribute $\frac{3}{4}$ colour pads colour one part out of these six parts ($\frac{1}{6}$)

- Step 3: Distribute blank box into parts as per already distribution such as



Total parts= 24

Coloured Parts= 3

This can be written as $\frac{3}{24}$

$$\text{Hence } \frac{3}{4} \times \frac{1}{6} = \frac{3}{24}$$

- Ask students to verify their answers of activity 1 through activity 2. This concludes that in multiplication of two proper fractions, multiply denominator with the denominator and numerator with numerator.

Assessment:

- Ask the students how do we multiply two proper fractions.
- Ask the students what do we get when we multiply $\frac{2}{4} \times \frac{3}{5}$

Conclusion / Sum up / Wrap up:

- Ask the students what they have learned today
- Sum up the main points once again.



Follow up:

- Ask the students to make their own fractions using their favourite numbers
- Make 2 proper fractions and multiply in their notebook

Make 2 improper fractions and multiply in their notebook

MULTIPLICATION OF FRACTIONS

**Duration:** 40 Minutes**Students Learning Outcome:**

- Multiply two fractions (proper/ improper) and mixed numbers

**Materials:**

Writing board, Markers, Textbook

Information for Teachers:

- In improper fraction the numerator is either greater or equal to the denominator, e.g. $\frac{3}{3}$ and $\frac{7}{4}$
- In a proper fraction the numerator is always smaller than the denominator
- A mixed number is actually an improper fraction. The multiplication (product) of two mixed numbers is always a mixed number.

Introduction:

- Ask the students what is a proper fraction
- Ask the students what is an improper fraction
- Review the concept of mixed numbers
- Tell the students today they will learn about multiplying two fractions and a mixed number

Development:

Activity 1:

- Write an example on the board
- $3\frac{5}{7} \times \frac{9}{13} \times \frac{7}{18}$
- Tell the student that first we will convert the mixed number into improper fraction
- Tell the students to follow these 3 steps to convert mixed numbers to improper fraction
- Multiply the whole number by the denominator i.e. multiplying 3 by 7 we get 21
- Add the answer from Step 1 to the numerator i.e. adding 21 to 5 we get 26



- Write answer from Step 2 over the denominator i.e. $\frac{26}{7}$ is the required fraction
- Now the question takes the form
- $\frac{26}{7} \times \frac{9}{13} \times \frac{7}{18}$
- Dividing one denominator and one numerator with their common factor and continuing the process gives us 1
- So, 1 is the answer

Activity 2:

- Divide the students in groups of 4-5
- Give them different question from Ex 3 Q2 (page 67)
- Keep moving in the class and correct if there is any mistake
- Encourage the students to work with interest

Assessment:

- Check the work of first student from each group who completes the work
- Ask that student to check the work of remaining students of their respective groups

Conclusion / Sum up / Wrap up:

- Ask the students what they have learned today
- Ask one student to sum up the main points

Follow up:

Ask the students to solve Q11 of review exercise (page 70) on note books at home.

MULTIPLICATION AND DIVISION OF FRACTIONS**Duration:** 40 Minutes**Students Learning Outcome:**

- Analyze real life situation involving fractions by identifying appropriate number operations.

**Materials:**

Writing board, Markers, Textbook

Information for Teachers:

- It is important to understand how fractions can be used in real life.
- By breaking a problem into small parts, we can identify which mathematical operation will be applied.

Introduction:

- Ask the students to tell what was their respective age 5 years ago. And what will be their respective ages after 5 years from now.
- Ask them what mathematical operations are needed to solve the above example
- Tell the students that today they will learn about identifying appropriate number operations while solving real life situations involving fractions.

Development:**Activity 1:**

- Tell the students that we Use keywords to identify whether the real life problems involving fractions will be solved using addition, subtraction, multiplication or division.
- Tell them that some keywords that suggest addition are "in total," "altogether," and "combined." For Example, " $\frac{1}{4}$ kg of fertilizer is used in the month of January and $\frac{1}{2}$ kg of fertilizer is used in the month of February for the crops. How much fertilizer has been used altogether?"



- Tell them that some subtraction keywords are "more than," "less than," "excluding," and "remaining." and "combined." For Example, "Faria buys $\frac{9}{10}$ m ribbon for her shirt and $\frac{7}{10}$ m ribbon for her scarf. How much more ribbon does she buy for the shirt?"
- Tell the students that we use multiplication when we take part of part or part of a whole. For Example, Nadia has $6\frac{2}{3}$ kg of birds' grain. Haris takes $\frac{3}{4}$ of it from Nadia. How many kilograms of grain does he take from Nadia.
- Tell them that we use division when we divide an amount equally among groups. And Key words for division are "each", "divide equally" etc. For Example, "Kamal will distribute $4\frac{1}{4}$ packets of candies among 6 children. How many packets of candies will each child get?"
- Revise the concept of addition, subtraction, multiplication and division which students have already learned in the previous lessons.
- Ask the students how to add, multiply, divide and subtract two fractions
- Take responses from different students

Activity 2:

- Solve the following example on the board.
- Example: Komal divides 6.6 kg apples in 3 baskets. How many kilograms of apples are there in each basket?
- Tell the students that in this example, the key word is **each**, So we will divide 6.6 by 3
- So the no. of apples is each basket = $6.6 \div 3 = 2.2$ kg
- Tell the students that in the same way we can use key words to find out which mathematical operation will be used in a word problem
- Divide the students in pairs
- Give them 3 different real life problems involving fractions
- Ask them to identify the key words and solve the word problems
- Keep moving in the class
- Encourage the students to participate actively

Assessment:

- Solve the questions on the board
- Ask the students to check their work

Conclusion / Sum up / Wrap up:

- Ask one student to sum up the main points
- Repeat the key words to solve the word problems once again

Follow up:

Ask the students to solve Q4 and 5 of exercise 3 (page 67) on note books as home work

DECIMAL NUMBERS



Duration: 40 Minutes



Students Learning Outcome:

- Express a decimal number as a fraction whose denominator is 10, 100 or 1000.



Materials:

Writing board, Markers, Textbook

Information for Teachers:

- The word decimal comes from Latin word Decimus that means the tenth part.
- In decimals value of each digit depends upon its place in place value chart
- Decimal number is also known as decimal fraction

Introduction:

- Ask the students that there are mathematics books in 1 out of the 10 cupboards in the library. How can we write it in fraction?
- Take response from 1 or 2 students
- Tell the students that there are $\frac{1}{10}$ cupboards have mathematics books
- Tell the students that today they are going to learn about expressing a decimal number as a fraction whose denominator is 10, 100 or 1000

Development:

Activity 1:

- Tell the students that we can write $\frac{1}{10}$ as 0.1
- Tell the students that in 0.1, whole number is 0, point is called the decimal point and 1 is called the fractional part.
- Solve the following examples to tell the students about the steps to convert a decimal to a fraction
- Example 1: The height of an elephant is 3.2m. Write it as fraction
Solution:

Step 1: Remove decimal point and place 1 in denominator

Step 2: Count the digits after the decimal point in the given number which is 1

Step 3: Then put 0 at the right side of 1 in the denominator.

So, we get $3.2 = \frac{32}{10}$

- Example 2: Convert 5.234 into fraction

Solution:

Step 1: Remove the decimal point

Step 2: Write 1 at the place of decimal point in the denominator

Step 3: Count the digits after the decimal point which are 3 i.e, 2, 3, 4

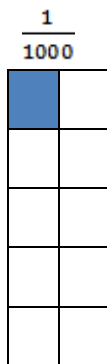
Step 4: So put 3 zeros at the right side of 1 in the denominator

So, we get $5.324 = \frac{5324}{1000}$

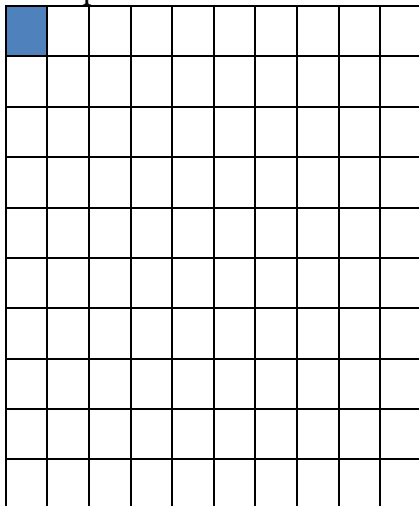
- Tell the students that you can follow the same steps to convert a decimal with digits after the decimal point

Activity 2:

- Paste the following flash cards on the board to tell the students the concept of $\frac{1}{10}$, $\frac{1}{100}$ and



Tell the students to look at this shape, there are 10 equal parts out of which only 1 is coloured. So, we write this in fraction as $\frac{1}{10}$. In decimal we write it as 0.1 and read as zero point one.



Tell the students that in the above shape we have divided a square into 100 equal parts, where only one part is coloured. So we write this in fraction as $\frac{1}{100}$. In decimals, we write it as 0.01, and we read it as zero point zero one.



- Tell the students that if we divide a cube shape into 1000 equal parts and colour one part. We write it in fraction as $\frac{1}{1000}$, and in decimals as 0.001. We read it as " zero point zero zero one.
- Divide the students in groups of 4-5
- Give them different word problems from Ex 2(page 81)
- Keep moving in the class and correct if there is any mistake
- Encourage the students to work with interest

Assessment:

- Check the work of first student from each group who completes the work
- Ask students to check the work of remaining students of their respective groups

Conclusion / Sum up / Wrap up:

- Ask the students what they have learned today
- Ask one student to sum up the main points already written on the board.

Follow up:

Ask the students to solve Q2 of exercise 2 (page 81) on note books as home work.

CONVERSION OF FRACTIONS TO DECIMALS



Duration: 40 Minutes



Students Learning Outcome:

- Convert a given fraction into a decimal if denominator of the fraction is not 10, 100 or 1000 but can be converted to 10, 100 or 1000.



Materials:

Writing board, Markers, Textbook, Flash cards of questions

Information for Teachers:

In converting fractions to decimals, we know that decimals are fractions with denominators 10, 100, 1000 etc.

Introduction:

- Write the fractions with denominators 10, 100 and 1000 on the board.
- Ask the students to convert these into decimals.
- Ask a couple of students to solve these questions on the board
- Tell the students that today they will learn about converting fractions whose denominator is not 10, 100 or 1000 but can be converted into decimals

Development:

Activity 1:

- Tell the students that in order to convert fractions without denominator of 10, 100 or 1000 into decimals, we follow the following steps:
- **Step 1:** Convert the fraction into an equivalent fraction with denominator 10 or 100 or 1000.
- **Step 2:** Then count the number of zeros after 1 in the denominator
- **Step 3:** Count zeros in the denominator
- **Step 4:** Put the decimal point according to the number of zeros in the numerator from the right side.
- Solve the following example



- Example: convert $\frac{4}{25}$ into decimal

Solution: $\frac{4}{25}$ (Converted into equal fraction of $\frac{4}{25}$)

$$\begin{aligned} &= \frac{4 \times 4}{25 \times 4} \\ &= \frac{16}{100} \\ &= 0.16 \end{aligned}$$

Activity 2:

- Divide the students in pairs
- Give them flash cards of different fractions whose denominator is not 10, 100 or 1000
- Ask them to work within the pairs and convert these fractions to decimals
- Keep moving in the class and correct if there is any mistake
- Encourage the students to work with interest

Assessment:

- Collect the answers from students and write the answers on the board
- Ask the students to exchange their work and check
- Ask them to correct their mistakes

Conclusion / Sum up / Wrap up:

- Conclude the lesson by summing up the main points

Follow up:

- Ask the students to solve Q1 of exercise 2 (page 81) on note books as homework.

ADDITION AND SUBTRACTION OF DECIMALS

**Duration:** 40 Minutes

Students Learning Outcome:

- Add and subtract 3 - digit numbers (up to 2 - decimal places).



Materials:

Writing board, Markers, Textbook, blank place value chart

Information for Teachers:

- In any two decimal numbers, the greater number will always have a greater whole number than the other
- Always subtract smaller decimal number from the greater decimal number.
- Use place value table to explain the method of addition and subtraction of decimals in a better way

Introduction:

- Write few decimal numbers on the board and ask the students to count their digits after decimal point, also ask them to find and write greater numbers.
- Call few students in front of the class and ask them to read out these decimals loudly

Development:

Activity 1:

Tell the students that to add the decimals follow these steps

1. write the value at the same place in a column.
2. Add ones in ones, tenths in tenths and hundredths in hundredths
 - **Example: There are 0.45 units of minerals and 0.25 units of water in soil. What will be the quantity of both altogether?**
 - **To find out the quantity of both things in soil, we will add these**



Solution:

Ones	.	tenths	hundredths
		□ 1	
0	.	4	5
+ 0	.	2	5
Answer 0	.	7	0

- Tell the students in order to subtract the decimals follow these steps
- Put point under the point of the other quantity
- Always write the value at the same place in a column.
- Subtract ones from ones, tenths from tenths, hundredths from hundredths
- Solve the following example for the students

Example:

The temperature of Karachi in January is 20.8 degree centigrade and in June it is 40.1 degree centigrade. Which month is cooler and by how many degrees?

tens	ones	.	tenths
3 4	9 0	.	1 0
- 2	0	.	8
Answer 1	9	.	3

Solution:

- Tell the students how to borrow while subtracting and how to carry while adding decimals

Activity 2:

- Divide the students in groups of 4-5
- Provide them with blank place value chart as shown above
- Give them different questions from Ex 3
- Keep moving in the class and correct if there is any mistake
- Encourage the students to work with interest

Assessment:

- Ask the work of first student from each group who completes the work
- Ask that student to check the work of remaining students of their respective groups
-

Conclusion / Sum up / Wrap up:

- Ask the students what they have learned today
- Ask one student to sum up the main points

Follow up:

Ask the students to solve Q2exercise 3 (page 83) on note books as homework

MULTIPLICATION OF DECIMALS



Duration: 40 Minutes



Students Learning Outcome:

- Multiply a 2 - digit number with 1 decimal place by a 1-digit number.



Materials:

Writing board, Markers, Textbook

Information for Teachers:

In multiplication of decimals, the place of decimal point in product is equal to the sum of decimal places of multiplicand and multiplier.

Introduction:

- To revise the concept of multiplication, write few questions of multiplication on the board.
- Ask the students to solve these questions
- Tell them that today they are going to learn about the multiplication of a 2-digit number with 1 decimal place by a 1-digit number

Development:

Activity 1:

- Solve this example on board

Example: 3.4×7

Step: 1- First we place both numbers, then solve the multiplication problem as we normally do with whole numbers.

Step: 2 Starting to right, multiply each digit in the top number by each digit in the bottom number as with whole numbers. Add the products.

$$\begin{array}{r} 3. \overset{1}{4} \rightarrow 1 \text{ Decimal Place} \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \overset{2}{3}.4 \\ \times 7 \\ \hline 23.8 \end{array}$$

Step 3: Count the digits that come after the decimal point

$$\begin{array}{r} \overset{2}{3}.4 \\ \times 7 \\ \hline 23.8 \rightarrow 1 \text{ Decimal Place} \end{array}$$

Step 4: Place the decimal point in the product by counting the same digits as obtained above from its right most place.

$$\begin{array}{r} 3.4 \\ \times 7 \\ \hline 23.8 \end{array}$$

Answer: $3.4 \times 7 = 23.8$

Activity 2:

- Divide the students in groups of 4-5
- Ask them to write one place decimal number and multiply by 1-digit number of their own choice
- Keep moving in the class and correct if there is any mistake
- Encourage the students to work with interest

Assessment:

- Ask the work of first student from each group who completes the work
- Ask that student to check the work of remaining students of their respective groups

Conclusion / Sum up / Wrap up:

- Ask the students what they have learned today
- Ask the students to sum up the main points

Follow up:

- Ask the students to solve Q2 of exercise 4 (page 87) on note books as home work

DIVIDING DECIMAL NUMBERS



Duration: 40 Minutes



Students Learning Outcome:

- Divide a 2 – digit number with 1 – decimal place by a 1 – digit number.



Materials:

Go and Stop Flashcards

Information for Teachers:

- When we divide two numbers, the number that is being divided is the **dividend**, whereas the number by which we divide is the **divisor**. Whereas the obtained answer is called the quotient.
- **Peer assessment** is a formative assessment approach in which students provide feedback to each other on their work under the guidelines provided by teachers.

Introduction:

- Recall by asking how we divide two numbers.
- Call random students on the board and ask them to solve problems such as $85 \div 5$, $99 \div 3$, etc.
- Ask students about 2-digit numbers with 1 – decimal place.
- Tell them today they are going to learn about the division of decimal numbers with a 1-digit number.

Development:

Activity 1:

- Ask them to think of any time when they have to divide a decimal number by a whole number.
- Take multiple responses from students.
- Give them an example let's suppose Komal has 6.6 Kg of apples. She wants to divide them among her 3 friends. How many Kg of apples does each friend get?



- Ask students to share the operation they think would apply to this problem and how they know they are right. (e.g., “I need to divide to solve this problem because _____. I know this is right because _____.”)
- Take responses from multiple students randomly.
- Revise the concept of dividend, divisor, and quotient.
- Highlight that the dividend (6.6) is a decimal number, and the divisor (3) is a whole number.
- Explain that the first step is to write a decimal point where the quotient or answer to a division problem, will be, directly above the decimal point in the dividend.
- Tell them that the rest of the problem is just like a long division problem with whole numbers.
- Solve the question step by step on the board for students to see (refer to **page 86** of the Textbook for a solved example).
- Give one more example for students to see and have students help you walk through each step.
- Ask the students to raise the **Go card** if they understood the lesson up until now or raise the **Stop card** if they face any problem.

Activity 2:

- Write 6 different questions on the board (The number of questions should be according to the number of rows of students in the class).
- Assign each question to each row of the students.
- Ask them to solve the question.
- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.
- Encourage them to complete the activity.

Assessment:

- Write the answers to the questions on the board.
- Ask the students to exchange their notebooks with the student sitting next to them.
- Tell them to check their answers.
- If the answer is not correct, then help your partner by identifying and correcting the mistake.

Conclusion/ Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from multiple students and wrap up the lesson.

Follow up:

- Give a task to students to make at least 5-word problems that require the division of decimals to be solved.
- Give them an example of a question.

Glossary

Peer – used for the classmate or a colleague.

Facilitator – A person or thing that makes an action or a process easier.

Flashcards – A card containing a small amount of information, held up for students to see, as an aid of learning.

REAL LIFE SITUATIONS INVOLVING DECIMAL NUMBERS



Duration: 40 Minutes



Students Learning Outcome:

- Solve real-life situations involving 2 – digit numbers with 1 decimal place using appropriate operations.



Materials:

Fist to Five Chart

Information for Teachers:

- **Anecdote** is a great way to start your lesson. Use voice modulation, dramatize, body language, gestures and movement while telling a story.
- **Self-assessment** has students review their own work. The teacher will share the detailed but precise and simple answer key with students, and they assess their own work on the basis of it.

Introduction:

- Start the lesson using the following anecdote.
- Yesterday I went to the Market. My mom told me to buy a piece of cloth to make a curtain. I bought 5.8-meter cloth for Rs. 464. My mom asked me what the price of a 1-meter cloth is. Can you help me out with solving this problem?
- Ask them to brainstorm and share the operation they think would apply to this problem and how they know they are right. (e.g. “I need to divide to solve this problem because _____. I know this is right because _____.”)
- Take responses from multiple students.

Development:

Activity 1:

- Tell them that this real-life situation can be solved using the operation of division.
- We use division when we have to find the value of a single thing/quantity.
- Revise the concept of division of decimals.

- Solve the question step by step on the board for students to see (refer to **page 86** of the Textbook for a solved example).
- Solve the following two more examples for students to see and have them help you walk through each step involving other operations.
Q1: A tailor uses 2.5m of cloth to make a shirt. How much cloth will he use to make 8 such shirts?
Q2: You bought chocolate for Rs. 35.6 and candy for Rs 11.2. How much did you spend altogether?
- Display the fist to five charts in the classroom.
- Ask the students to use fingers to show their understanding.
- Address any ambiguity or misconception.



Activity 2:

- Assign different questions to the students in a group of 4 – 5.
- Ask them to solve the question.
- Be a facilitator and move in the class to facilitate the struggling students.
- Ensure active participation of every student in a group.
- Encourage them to complete the activity.

Assessment:

- Write the answers to the questions on the board.
- Ask the students to check their answers by themselves and identify and correct mistakes (if any).

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the key points of the lesson.

Follow up:

- Assign 2 questions from the book as homework.

Glossary

Anecdote – a short amusing or interesting story about a real incident or a person.

ROUNDING OF DECIMAL NUMBERS



Duration: 40 Minutes



Students Learning Outcome:

- Round off decimal (with 1 or 2 decimal places) to the nearest whole number.



Materials:

Whiteboard, Textbook, board marker.

Information for Teachers:

- **4 Corners** is a formative assessment strategy. In this, students are presented with a statement or a question. Each corner of the classroom is associated with an opinion or an answer. Students will choose the desired corner as per their understanding.
- **Rounding** means making a number simpler but keeping its value closest to what it was.

Introduction:

- Ask them that do they know why we use the numbers?
- Tell them that we use numbers to represent the counting of different things and quantities. Like how far away the superstore from our home is, how many days are left on my birthday or how many students are there in our school.
- Tell them that you think there are 1000 students in our school, but this is just an estimate, not an exact value.
- Tell them the exact number of students in school is 997. 1000 was a rounded number.
- Define rounding.
- Tell them that you have already learned to round off whole numbers in previous classes.
- Solve an example by rounding off 834 to the nearest hundred to help them recall their previous knowledge.
- Recall the rules of rounding off with them.

Development:

Activity 1:

- Tell them that today they are going to learn how to round decimal numbers.



- Tell them that in a school, children spend approximately 1.7 hours of practical work on science. How can we round off this time to the nearest whole number?
- Tell them to round off decimals.
- Choose the digit right of the decimal point, if it is less than 5 then write only the whole number given to the left of the decimal as it is.
- If it is greater than or equal to 5, then increase one number in the whole number and write it only.
- Tell them that in this example the digit at the right of the decimal is 7 which is greater than 5 so we will add 1 to the whole number and it becomes 2.
- Hence

$$1.7 \approx 2$$

- Solve 2-3 more examples on the board by taking responses from students and involving them. (Refer Page 89 and 90 of the textbook for examples)

Activity 2:**(10 min)**

- Write 5 different questions on the board with different decimal places.
- Call different students on the board and ask them to solve the questions.
- After a student solves a question ask the class whether he did it correctly or not.
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students even if they give wrong answers.

Assessment:

- Call four students in front of the class.
- Write the following question on the board:
Q: Which number is rounded off to become 4?
a. 3.6 b. 2.4 c. 0.25 d. 2.45
- Associate 4 corners of the class with 4 options i.e., corner 1 with option a, corner 2 with option b, corner 3 with option c, and finally corner 4 with option d.
- Ask the students to go to the corner that they think has the right answer.
- Repeat this activity twice with more questions.
- Clear any misconceptions.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign 2 questions from the book as homework.

CONVERSION OF UNITS OF LENGTH

**Duration:** 40 Minutes

Students Learning Outcomes:

- Convert larger to smaller metric units (2 – digit numbers with one decimal place).
 - Kilometers into meters
 - Meters into centimeters
- Centimeters into millimeters



Materials:

Puzzle cards. (Can be made by writing on a piece of paper and cutting it out randomly)

1 meter	100 centimeter	1 kilometer	1000 meter	1 centimeter	10 millimeter
25 meter	2500 centimeter	56 kilometer	56000 meter	3.2 centimeter	32 millimeter
1 meter	100 centimeter	1 kilometer	1000 meter	1 centimeter	10 millimeter
25 meter	2500 centimeter	56 kilometer	56000 meter	3.2 centimeter	32 millimeter



Information for Teachers:

- **Think-Pair-Share** is a strategy where students work together to solve a problem or discuss solutions.

Introduction:

- Write the names of the following objects on the board.
(Length of Pencil, Length of classroom, distance between Lahore and Islamabad, Length of eraser)
- Tell the students that they have already learned different units of length in the previous lesson.
- Ask them to name the units of length.
- One by one, ask students which unit the length of the objects written on the board should be measured.

Development:

Activity 1:

- Tell them that suppose you want to compare the length of the classroom with the length of the pencil.
- Tell them that these must be in the same units to compare their length.
- Tell them that in such cases we make both the units same.
- Tell them we can convert Kilometers into meters, meters into centimeters, and centimeters into millimeters.
- Tell them that:
1 Kilometer = 1000 meters
1 Meter = 100 centimeters
1 Centimeter = 10 millimeters.
- Solve 3 questions on the board. (One for each Unit)

Activity 2:

- Use Think-Pair-Share in the classroom.
- Write 3 questions (One for each Unit) on the board and tell students to solve them individually.
- After they have solved it ask them to form pairs with a fellow student and discuss its solution.
- Tell them that they should discuss the steps of the solution and the required answer and how they can apply it in real-life situations.
- After discussion, call 2 – 3 random pairs to share their findings with the class.
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.

Assessment:

- Write the sums and their answers in front of them on paper. (Sample pictures attached in material required)
- Make pairs of students.
- Cut the puzzle out and distribute each puzzle among each pair of students.



- Ask them to solve the puzzle.
- When students complete it, write the answers to the puzzles on the board.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign 2 questions from the book as homework.

ADD AND SUBTRACT MEASURES OF LENGTH IN SAME UNITS**Duration:** 40 Minutes**Students Learning Outcome:**

- Add and subtract measures of length in same units.

**Materials:**

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

- **Storytelling** allows students to understand the difficult subject matter and know it's okay to make mistakes, creating an opportunity for deeper learning. It allows the teacher to enter the lives of students as they are forming a sense of self-identity.
- **Keep the question going** is a formative assessment strategy in which you will ask one student a question and ask another student if that answer seems feasible or correct. Then ask the other student why it is correct and repeat the process for the next questions.

Introduction:

- Start your lesson with the following story.
- Yesterday, after teaching you I went home. When I reached my mom told me to decorate the door with the ribbon as it was my younger brother's birthday.
- I took out the ribbons from the drawer. There were two pieces of ribbon. One has a length of 71cm 2mm while the length of the other ribbon was 11 cm 6mm. Can you tell me how can I get the total length of ribbons I have?
- Take responses from multiple students randomly.
- Tell them that we have to add them to get the total length.

Development:**Activity 1:**

- Write the numbers vertically as shown below.

	Cm	mm
	7	1
		2
+	1	1
		6
<hr/>		
<hr/>		



- Tell students that we write the number vertically below one another.
- The measurement in centimeters comes below the centimeter column and the measurement in millimeters comes below the millimeter's column.
- So, we can say that the lengths in the same units are added together.
- Tell them that here we just have to add the numbers as we used to do.
- Ask different students to come on board and add the numbers in each column one by one.
- Repeat the activity by changing the sign from plus to minus in the same sum.
- Ask different students to come on board and subtract the numbers in each column one by one.

Activity 2:

- Write another question on the board and use the strategy “**Keep the question going**”. (Refer to exercise 2 on page 100 for the questions)
- Take input from students on how to write the sum vertically and solve it.
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.

Assessment:

- Write a question on the board and call anyone student to solve it. (Refer to exercise 2 on page 100 for the questions)
- Ask the students to show thumbs up if they understand the concept properly and thumbs down if there is an issue.
- Address any issue or misconception at this point. (If any)

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

Assign the task to the students to measure the length of any two things/items of their own choice and add them together in their notebook.

CONVERSION OF UNITS OF CAPACITY



Duration: 40 Minutes



Students Learning Outcome:

- Convert larger to smaller metric units (2 – digit numbers with one decimal place) liters into milliliters.



Materials:

Stop and go cards, Writing Board, Maker, textbook.

Information for Teachers:

- **Using Real-life examples/material** will help you connect the lesson and move your lesson from known to unknown.
- **Explain it to an Alien** is a formative assessment strategy in which students use their notes to explain the concept to someone either a class fellow or whole class or someone at home.

Introduction:

- Show students an empty 1.5-liter bottle in the class.
- Ask students how much drink, they think it can hold or in other words what is the capacity of this bottle.
- Tell the students that we use liters and milliliters to measure the capacity of a container.
- Tell them that this bottle holds 1.5-liter drink in it.
- Ask them is there any bigger drink bottle that has more capacity?
- Tell them that yes there is another bottle that can hold 2.25 liters of drink. We normally call it a Jumbo bottle.
- **Use three 500 ml empty bottles to demonstrate how 1.5-liter water bottle fills with three 500 ml bottles. A practical demonstration and unit conversion concept.**

Development:

Activity 1:

- Tell them that there is another unit that is used to measure the capacity of containers.
- Tell them that unit is called milliliters which is smaller than liter.
- Tell them that:

1 Liter = 1000 milliliters

- Tell them we measure the capacity of a teacup or a small jar in milliliters.
- Tell them we can also convert liters into milliliters.
- Suppose that a student Minahil drinks 3 liters of water in a day. Can you tell how many milliliters of water she drinks in a day?
- Ask students to brainstorm and tell what we need to find in this problem.
- Take 2 – 3 responses randomly.
- Tell them that we need to convert liters into milliliters in this question.
- Tell them as 1 Liter contains 1000 milliliters so 2 liters will contain 2000 milliliters.

1 Liter = 1000 milliliters

2Liters = 2 x 1000 milliliters

2Liters = 2000 milliliters

- Ask the students to raise the **Go card** if they understood the lesson up until now or raise the **Stop card** if they face any problem.
- Give 2 more examples and clear the misconceptions (if any).

Activity 2:

- Provide students with the puzzle in groups of 4 students. (Each student solves 2 questions)
- Ask them to solve the individual questions and then write the alphabet in the blanks.
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.

Puzzle

Q: Solve questions and write the letters according to the answer to complete the word.

(C = 2000 ml, P = 5000 ml, A = 9000 ml, I = 7000 ml, Y = 3000 ml, T = 8000 ml)

_____	_____	_____	_____	_____	_____	_____	_____
2 l into ml	9 l into ml	5 l into ml	9 l into ml	2 l into ml	7 l into ml	8 l into ml	3 l into ml

Puzzle

Q: Solve questions and write the letters according to the answer to complete the word.

(C = 2000 ml, P = 5000 ml, A = 9000 ml, I = 7000 ml, Y = 3000 ml, T = 8000 ml)

_____	_____	_____	_____	_____	_____	_____	_____
2 l	9 l	5 l	9 l	2 l	7 l	8 l	3 l
into ml	into ml	into ml	into ml	into ml	into ml	into ml	into ml

Assessment

(07 min)

- Use the formative assessment strategy called “**Explain it to an alien**”.



- Call 2 – 3 random students on the board and ask them to explain the concept they learned today to the class.
- Help them by providing keywords and guiding them.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign students to convert the capacity of 1.5-liter Coke and 2.25-liter coke into milliliters.

ADDING AND SUBTRACTING CAPACITY

**Duration:** 40 Minutes**Students Learning Outcome:**

- Add and subtract measures of capacity in same units.

**Materials:**

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

- **Problem-solving** is a necessary 21st-century skill. It develops confidence and provides a sense of the mathematical idea. It promotes creativity among students.
- **Keep the question going** is a formative assessment strategy in which you will ask one student a question and ask another student if that answer seems feasible or correct. Then ask the other student why it is correct and repeat the process for the next questions.

Introduction:

- Start your lesson with the following problem.
- Tell students to help you solve the problem.
- Ahmad uses 56 ml of oil to make a pizza and 78 ml of oil to make biscuits. How much milliliters of oil did he use to make both things?
- Take responses from multiple students randomly.
- Tell them that we have to add them to get the total capacity of oil.

Development:

Activity 1:

- Write the numbers vertically as shown below.

$$\begin{array}{r} \text{Quantity of oil used to make biscuit} = 7 \quad 8 \quad \text{ml} \\ \text{Quantity of oil used to make pizza} = 5 \quad 6 \quad \text{ml} \end{array}$$

$$\begin{array}{r} \text{The total quantity of oil used} = \quad \quad \quad + \\ \hline \hline \end{array}$$

- Tell students that we write the number vertically below one another.
- Tell them that here we just have to add the numbers as we used to do.



- Ask different students to come on board and add the numbers in each column one by one.
- Repeat the activity by changing the sign from plus to minus in the same sum.
- Ask different students to come on board and subtract the numbers in each column one by one.

Activity 2:

- Write another question on the board from the textbook (containing both units. i.e., liter and milliliter) and use the strategy “**Keep the question going**”. (Refer to exercise 1 on page 110 for the questions)
- Take input from students on how to write the sum vertically and solve it.
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.

Assessment:

- Call any one student on the board and ask him to solve the question. (Refer to exercise 1 on page 110 for the questions)
- Ask the students to show thumbs up if they understand the concept properly and thumbs down if there is an issue.
- Address any issue or misconception at this point. (If any)

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson’s key points.

Follow up:

- Assign the task to the students to identify the capacity of a Jam bottle and a juice box and add them together in their notebooks.

Glossary

- **Formative assessments** are those assessments that are used for the learning of the students. These are “assessments for learning” not “assessment of learning”.

REAL LIFE SITUATION INVOLVING LENGTH



Duration: 40 Minutes



Students Learning Outcome:

- Solve real-life situations involving conversion, addition, and subtraction of measures of length.



Materials:

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

- **CUB method** is a strategy to solve real-life problems. It teaches students how to break down complex problems and extract information from them.
- At the end of the lesson students tell about the **muddiest point** that they couldn't understand or was difficult to understand during the lesson.

Introduction:

- Ask the students to brainstorm and tell in which unit length is measured.
- Ask them:
 - How many meters are there in one kilometer?
 - How many centimeters are there in one meter?
 - How many millimeters are there in one centimeter?
- Ask them to convert 2 km into meters and then further in centimeters.

Development:

Activity 1:

- Tell them that we use the concept of length in everyday life.
- When a tailor makes cloth, he/she measures the length of the cloth to cut and stitch those.
- The construction worker use length to measure the walls and height of the roof.
- If we have to place a carpet on a floor in a room, we measure the length of the room.
- Ask them if they can give any more examples where we use length in real life.
- Tell them today we are going to solve real-life problems involving length.
- Write the following problem on the board.

Ahmad buys 140 cm ribbon to wrap the gift box. Convert the length of the ribbon into millimeters.

- Tell students to solve this problem we use a method called the CUB method.

Circle the numbers.

Underline the important words.

Box the question.

- Tell them first we circle the numbers in the problem. (Demonstrate it)

Ahmad buys 140 cm ribbon to wrap the gift box. Convert the length of the ribbon into millimeters.

- Tell them that then we will underline the important words.

Ahmad buys 140 cm ribbon to wrap the gift box. Convert the length of the ribbon into millimeters.

- Tell them in last we will box the question.

Ahmad buys 140 cm ribbon to wrap the gift box. Convert the length of the ribbon into millimeters.

- Tell them that now we know that there is a number 140 cm which is the length of the ribbon Ahmad bought and we have to convert it into millimeters.
- Solve the question on the board step by step. (Refer Page 98 & 99 of the textbook for a solved example)

Activity 2:

- Write question 6 of exercise 2 on the board and call any one student to apply the CUB method to the problem.

6. The length of Ahmad's room is 12 m 56 cm. His sister's room is 10 m 44 cm long.

a) What will be the total length of both rooms in cm?

b) What is the difference between the length of both rooms?

- Call another student and ask to explain the problem to the class.
- Then call another student and ask to solve the problem on the board.
- Tell them in part (a) we have to add the length of both rooms and in part (b) we have to subtract the lengths of the rooms.
- Take input from students on how to write the sum vertically and solve it.
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.

Assessment:

- Ask students about the conversion of any one unit of length to another.
- Ask the students which is the muddiest point in the lesson. What felt difficult to them and need more explanation.
- Address any issue or misconception at this point. (If any)



Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to the students to create a real-life problem statement involving length by themselves and solve it in their notebook.
- Assign the task to students to solve questions 3 & 5 of exercise 2 (pg 100) in their notebook.

Glossary

Muddiest – means something which is not clear.

REAL LIFE SITUATION INVOLVING MASS



Duration: 40 Minutes



Students Learning Outcome:

- Solve real-life situations involving conversion, addition, and subtraction of measures of mass.



Materials:

Board, Marker, Chalk, Duster, Textbook, Problem-solving chart.

Information for Teachers:

- **Problem-solving** is a strategy to solve real-life problems. It teaches students how to break down complex problems and extract information from them.
- **Three-minute pause** is a strategy in which students are asked to summarize what they have learned. Then make connections about how they can use it in real life. Finally, if there is anything they still want to know/understand about this topic.

Introduction

- Ask the students to brainstorm and tell in which unit mass is measured.
- Ask them:
 - How many grams are there in one kilogram?
 - How many milligrams are there in one gram?
- Ask them to convert 3 kg into grams.

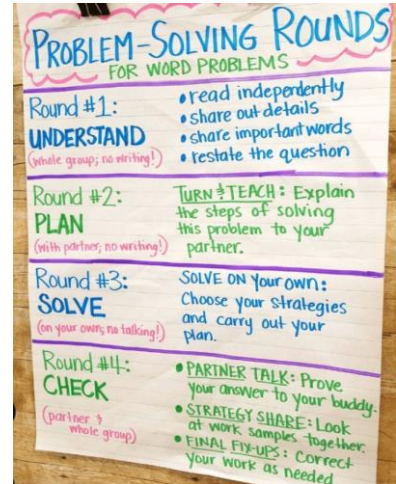
Development:

Activity 1:

- Tell them that we use the concept of mass in everyday life.
- When we buy flour from the shop, we tell the mass of the flour to the shopkeeper such as 1 kg, 2 kg, etc.
- We check our own body weight. That is also mass.
- When we say this box or thing is heavy, we are actually talking about its mass.
- Ask them if they can give any more examples where we use mass in real life.
- Tell them today we are going to solve real-life problems involving mass.
- Write the following problem on the board.

Umar buys 500 g of rice. What will be the mass of rice in milligrams?

- Tell students to solve this problem we use a method called problem-solving. (Share the problem-solving chart on the board)
- It has 4 rounds. Make groups of 4 students in each. In round 1, ask them to first read the problem statement. Then share out details. Share the important word with your group and restate the question.
- In round 2, tell them to form pairs and tell your partner what the steps are to solve the problem.
- In round 3, tell them to solve the problem individually.
- In round 4, check your answer with your partner.
- Move around the class and help the struggling group, pair, or individuals during the whole activity.
- Solve the question on the board by taking responses from the students.



Activity 2:

- Ask students to solve question 4 of exercise 1 (pg. 106) using the problem-solving method.

4. Usman has two fish in a jar. The mass of one fish is 29 g 20 mg and mass of the other is 20 g 14 mg. What is the difference between the mass of the two fish in mg?

- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.
- When they have completed the activity, solve the question on the board and ask them to check their answer by matching with it.

Assessment:

- Ask the students to solve the following question in groups of 3 – 5 students. (Refer to exercise 1 on pages 105-106 for the questions)

Jamal weighs 67 kg 278 g and his father weighs 89 kg 924 g.

- a) What is the difference in their masses?
- b) Convert the difference in their masses in grams.

- After some time discuss the solution with the students by taking responses from them.
- Use the strategy “**Three-minute pause**”.
- Give three minutes to the students. Ask them to summarize what they have learned today. Then make connections about how they can use it in real life. Finally, if there is anything they still want to know/understand about this topic.
- Address any issue or misconception at this point. (If any)

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson’s key points.



Follow up:

- Assign the task to the students to create a real-life problem statement involving mass by themselves and solve it in their notebook.

Assign the task to students to solve question 5 of exercise 1 (pg 106) in their notebook.

REAL LIFE SITUATION INVOLVING CAPACITY



Duration: 40 Minutes



Students Learning Outcome:

- Solve real-life situations involving conversion, addition, and subtraction of measures of capacity.



Materials:

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

- **Attack strategies** are used to solve real-life problems. It teaches students how to break down complex problems and extract information from them in a step-by-step manner.

Introduction:

- Ask the students to brainstorm that which type of matter can be measured in liter or milliliter and tell in which unit capacity is measured.
- Ask them:
 - How many milliliters are there in one liter?
- Ask them to convert 4 liters into milliliters.

Development:

Activity 1:

- Tell them that we use the concept of liters in everyday life.
- When we buy a soft drink from a shop, we tell the capacity of the drink to the shopkeeper such as a half-liter, 1.5 liters, 2.25 liter, etc.
- We buy oil and petrol in liters.
- Ask them if they can give any more examples where we use capacity in real life.
- Tell them today we are going to solve real-life problems involving capacity.
- Write the following problem on the board.
Faira uses 1.7 liters of milk to make a milkshake. Convert the quantity into milliliters.
- Tell students to solve this problem we use a method called Attack strategy.
- Ask them to first read the problem slowly and try to understand the problem. Tell them they can read it again if they didn't understand the problem the first time.



- Take random responses and develop the understanding of the students that in this problem a girl used 1.7 liters of milk for a milkshake, and we are asked to convert this 1.7 liter into milliliters.
- In the second step, ask them to plan on how you will solve this problem.
- Take responses from 2 – 3 students and make an understanding of the students that as we know that 1 liter = 1000 milliliters so we will multiply 1.7 liters with 1000 to get milliliters.
- In the third step ask the students to carry out this plan and solve the problem individually in their notebooks.
- Move around the class and help the struggling students during the process.
- Write the solution of the problem on the board and ask students to check their solution according to yours.
- In the last step ask them to look back and think can they solve the problem in any other way.

Activity 2:

- Ask students to solve question 3 of exercise 1 (pg. 110) using the attack strategy.
3. Zara has two containers. The capacity of one container is 67 l 198 ml and the capacity of the other is 84 l 300 ml.
 - a) What is the total capacity of the containers?
 - b) What is the difference in the capacity of both containers?
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.
- When they have completed the activity, solve the question on the board and ask them to check their answer by matching with it.

Assessment:

- Ask students to solve the following:
 - A milkman sold 46 l 200 ml of milk on 3 days a week and 53 l 195 ml of milk in the next 2 days. What quantity of milk did he send in 5 days?
- Ask the answer from random students and discuss it with the class.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to the students to create a real-life problem statement involving capacity by themselves and solve it in their notebook.
- Assign the task to students to solve question 54 of exercise 1 (pg. 110) in their notebook.

Glossary

Metacognition – means awareness and understanding of thought of one's own process.

CONVERTING UNITS OF TIME

**Duration:** 40 Minutes

Students Learning Outcome:

- Convert hours to minutes and minutes to seconds.



Materials:

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

- When we convert the large unit into a subunit then multiply with that subscale such as large unit is hours and subunit is minutes.
 $1 \text{ hour} = 60 \text{ min}$
- When we convert the small unit into a large unit then divide with its scale such as.
 $1 \text{ min} = \frac{1}{60} \text{ hour}$



Introduction:

- Ask the students to brainstorm and answer the following questions.
- Ask them:
 - What time do they get up for school?
 - What time do they sleep at night?
 - What is the time of Isha's prayer?
- Draw the given clock on the board and ask them what time it is on the clock.
- Tell them we perform most of our activities according to time.
- Ask them in which units' time is measured?
- Revise that we use hours, minutes, and seconds as units to measure time.

Development:

Activity 1:

- Tell students that it takes 1 hour for me to reach the school from my home.
- Can you tell me how many minutes I take to reach school from home?
- Tell them we can solve this if we know how many minutes there are in one hour.



- Tell them there are 60 minutes in one hour. So, it takes me 60 minutes to reach the school.
- Now tell them to let's solve a problem on it.
- Write the following problem on the board.
At least 8 hours of sleep a day is important for good health. How many minutes are there in 8 hours?
- Tell students in this problem we have to convert 8 hours into minutes.
- Solve the problem step by step on the board. (Refer to textbook page 119 for the solution)
As there are 60 min in an hour therefore to convert hours to minutes we will multiply hours by 60.

$$\begin{aligned}8 \text{ h} &= 8 \times 60 \\ &= 480 \text{ min}\end{aligned}$$

$$\text{Minutes in 8 hours} = 480 \text{ min}$$

- Tell them we can also convert minutes into seconds.
- Tell them there are 60 seconds in one minute.
- Now tell them to let's solve a problem on it as well.
- Write the following problem on the board.
Saad solved the division question in 6 min. How many seconds did he take to solve the question?
- Tell students in this problem we have to convert 6 minutes into seconds.
- Solve the problem step by step on the board. (Refer to textbook page 120 for the solution)
To convert minutes to second we multiply minutes by 60.

$$\begin{aligned}6 \text{ min} &= 6 \times 60 \\ &= 360 \text{ sec}\end{aligned}$$

So, Saad solved questions in 360 sec.

- Solve 2 more examples on the board by taking inputs from students. (One for each conversion)

Activity 2:

- Ask students to solve the following question.
Sana was working on a math and science assignment. She converted the following times.
22 hours 26 min = 1346 minutes and 63 minutes 58 seconds = 3838 seconds.
Can you check if these are correct?
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.
- When they have completed the activity, take responses from them, and consolidate the concept.

Assessment:

- Ask students:
 - How many minutes are there in one hour?
 - How many seconds are there in one minute?

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.



Follow up:

- Assign three question each from question 1 and 2 from exercise 2 on page 121 as homework.

CONVERTING UNITS OF TIME

**Duration:** 40 Minutes**Students Learning Outcome:**

- Convert years into months, months into days, and weeks into days.

**Materials:**

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

Countdown is a formative assessment strategy in which at the end of a lesson every student must write down two things which they liked about the lesson and one thing which they didn't like or still have questions about. If multiple students share the same issue, then it indicates that as a teacher you need to shift your approach or re-explore a previous topic.

Introduction:

- Ask students what day it is today?
- Ask students what month it is?
- Ask students what year it is?
- Write all of these on the board.
- Write your age on the board and tell them that it is your age. (e.g., 30 years)

Development:

Activity 1:

- Tell students that this age tells me that I am 30 years old.
- Can you tell how old I am in months?
- Tell them yes, we can but first, we have to convert my age in years to age in months.
- Ask them if anyone knows how many days there are in one year.
- Take responses and then tell them that there are 12 months in a year.
- Ask them if they know the names of a few.
- Tell them we will multiply my age in years with months in each year to get my age in months.

My age in years = 30 years



Month in a year = 12

My age in months = 30×12
= 360 months

So, I am 360 months old.

- Tell them now let's solve another problem/question.
Q.1. It takes 2 months to climb Mount Everest. How many days it will take to climb Mount Everest?
- Tell them in order to solve the problem we need to know how many days there in a month are.
- Tell them that do you know there are 30 days in a month.
- So, let's solve it together using the same method we performed earlier.
- To convert the months to days, we multiply the number of months by 30.
$$2 \text{ months} = 2 \times 30 \text{ days}$$
$$= 60 \text{ days}$$
- So, it will take 60 days to climb Mount Everest.
- Ask them can we convert weeks into days?
- Ask them if anyone knows how many days there in a week are?
- Take responses and tell them there are seven days in a week.
- Tell them that let's solve one more problem/question.
Q.2. A shark can live 10 weeks without any food. Can you tell me how many days are there in 10 weeks?
- Tell them to convert weeks into days, we will multiply the number of weeks by 7.
$$10 \text{ weeks} = 10 \times 7 \text{ days}$$
$$= 70 \text{ days}$$
- So, there are 70 days in 10 weeks.
- Solve two more questions for clarity. (**Refer to exercise 3 on pages 123 – 124 of the textbook for more questions**)

Activity 2:

- Write the following questions on the board and ask them to solve these.
Q.1 5 weeks = _____ days
Q.2 4 months = _____ days
Q.3 6 years = _____ months
- Be a facilitator and help struggling students.
- Ensure active participation of every student.
- Motivate the students.
- When they have completed the activity, take responses from them, and tell them the right answers.
- Motivate the students and consolidate the concept.

Assessment:

- Ask the students to write down 2 things they enjoyed about today's lesson and one thing they didn't like or still have questions about.
- Address any issue or misconception at this point. (If any)
- Ask students:
Q.1 How many months are there in a year?
Q.2 How many days are there in a month?
Q.3 How many days are there in a week?



Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to students to convert
 - Their age into months.
 - Their age from months into days.

ADDITION AND SUBTRACTION OF TIME

**Duration:** 40 Minutes**Students Learning Outcome:**

- Add and subtract measures of time without carrying and borrowing.

**Materials:**

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

- In subtraction, we always write the bigger number on top.

Introduction:

- Tell students that time is very important. We perform most of our daily activities using time.
- Tell students about the origin of AM & PM (Abbreviation detail).
- For example, we offer prayer on time, we come to school at 7 AM, we eat our Lunch at 12:30 PM, and we go to sleep at 10 PM.
- Can you give some more examples of where we use time in our daily life?
- Tell them that sometimes we need to add and subtract time as well. Ask for any example from them.

Development:

Activity 1:

- Tell students that today we are going to solve problems that involve the addition and subtraction of time.
- Write the following problem on the board.
During a tour, students spend 3 hours 15 minutes in the army museum and 2 hours 22 minutes in the science museum. How much time did they spend altogether?
- Tell them in this problem we have to add both the times together.
- Write the numbers vertically and solve the problem on the board.

	Hours	Minutes
	3	15
+	2	22
<hr/>		
	5	37

- So, students spend 5 hours 37 minutes all together on the tour.
- Tell them to let's solve another problem.
Add 14 years 7 months 2 days and 7 years 4 months 3 days.
- Call a student on the board and ask him/her to write the sum vertically.
- Call 3 students one by one and ask them to add the days, months, and years respectively.
- Repeat the activity by solving one more addition sum from exercise 4 (pg. 126).

Activity 2:

- Tell students that just like addition we can also subtract time.
- Write the following problem on the board. (Refer to exercise 4 on page 126 for the question)
Maha takes 9 hours 23 minutes to complete a picture while Rohan takes 7 hours 10 minutes to complete the same picture. Find how much more time does Maha take?
- Tell them in this problem we have to subtract the time taken by Rohan from the time taken by Maha.
- Ask them what should we do first?
- After taking some responses tell them we will write the numbers vertically. Remember in subtraction we always write the bigger number on top.
- Tell them now we do the simple subtraction which you already know.
- Involve the students when subtracting the numbers.

	Hours	Minutes
	9	23
–	7	10
<hr/>		
	2	13

- So, Maha took 2 hours 13 minutes more than Rohan to complete the picture.
- Tell them to let's solve another problem.
Subtract 37 years 6 months 29 days and 17 years 6 months 18 days.
- Call a student on the board and ask him to write the sum vertically.
- Call 3 students one by one and ask them to subtract the days, months, and years respectively.
- Repeat the activity by solving one more subtraction sum from exercise 4 (pg. 126).

Assessment:

- Ask the students to solve the following question. (Refer to exercise 4 on page 126 for the question)
6 h 23 min 42 sec – 5 h 15 min 31 sec

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.



Follow up:

- Assign the task to students to solve the following questions in their notebooks.

Exercise 4 (Pg. 126): Q1. (f, g, h), Q2. (f, g, h), Q4

REAL LIFE SITUATIONS INVOLVING TIME

**Duration:** 40 Minutes**Students Learning Outcome:**

- Solve simple real-life situations involving conversion of time.

**Materials:**

Board, Marker, Chalk, Duster, Textbook, Stop and Go cards.

Information for Teachers:

- **Real-life situation**-based topics should be taught by giving real-life examples. The examples should be relevant to the student's daily life. This promotes higher-order thinking in students and helps them apply the concept.

Introduction:

- Ask students to brainstorm and convert the following.
 - Convert 201 hours into minutes.
 - Convert 5 years 4 months into months.

Development:

Activity 1:

- Tell students that time is very important in our daily routine. We perform all our daily activities according to the time.
- We eat our food according to time. e.g., Breakfast in the morning, Lunch in the afternoon, and dinner at night.
- Similarly, you come to school on time and every lesson has some specific starting and ending time and then there is the time which you like the most is the off-time of the school.
- Can you think of some more examples where we use time in our daily life?
- Take responses from 2 to 3 students randomly.
- Tell them to let us solve a real-life problem together.

Ahmad's family went on a vacation to Kashmir for 3 weeks. How many days do they have for their vacation?
- Ask students to brainstorm and break down the problem into 3 parts.



- What do we have to find?
- What is given?
- How can we solve it?
- Take multiple responses from the students.
- Tell them that we will convert 3 weeks into days.
- Ask students how many days are there in a week?
- Tell them that there are 7 days in a week.
- Solve the question on the board step by step.
1 week = 7 days
3 weeks = 3×7
= 21 days
So, Ahmad's family has 21 days for vacation.
- Ask the students to raise the **Go card** if they understood the lesson up until now or raise the **Stop card** if they face any problem.

Activity 2:

- Write the following problem on the board and ask the students to solve it.
Mrs. Imran cooked the food within 6 hours and 30 minutes. How many minutes did she took to cook the food?
 - Be a facilitator and move in the class to help the struggling students.
 - Ensure active participation of every student.
 - Encourage them to complete the activity.

Assessment:

- Ask the students to solve the following question in a group of 4 – 5. (Refer to exercise 4 on page 126 for the question)
Asad is practicing swimming for 6 months. How many days did he practice?
- Paste their answers on the activity board and give comments/feedback on it.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to students to solve the following question in their notebooks.
Afnan spends 5 hours 23 minutes in study. Convert the time in minutes.

REAL LIFE SITUATIONS INVOLVING TIME



Duration: 40 Minutes



Students Learning Outcome:

- Solve simple real-life situations involving the addition and subtraction of time.



Materials:

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

- **Countdown** is a formative assessment strategy in which at the end of a lesson every student must write down two things which they liked about the lesson and one thing which they didn't like or still have questions about. If multiple students share the same issue, then it indicates that as a teacher you need to shift your approach or re-explore a previous topic.

Introduction:

- Ask students to brainstorm and convert the following.
 - Convert 46 hours into minutes.
 - Convert 8 weeks into days.
 - Tell students that hours should be add/subtracted in hours & minutes into minutes.

Development:

Activity 1:

- Tell students that time is very important in our daily routine. We perform all our daily activities according to the time.
- Ask students where we use time in real life.
- Take multiple responses and give some examples where we use time. (e.g., we offer prayer on time, we eat food on time, we go to school on time)
- Tell them we also need to add and subtract time in real life.
- Give them an example that if it took me 25 minutes to travel to school and another 10 minutes to come to your class. How much time did I take to come to your class from home?
- Tell them in this example we will simply add both the times together.



- Ask them if they can give any more examples of the addition and subtraction of time.
- Tell them to let us solve a real-life problem together. (Refer to exercise 4 on page 126 for the question)

Ejaz traveled 6 hours 34 minutes 45 seconds in a bus and 4 hours 20 minutes 12 seconds in a train.

- How much time did he travel altogether?
- How much more time does he travel on the bus than by train?

- Ask students to brainstorm and break down the problem into 3 parts.
 - What do we have to find?
 - What is given?
 - How can we solve it?
- Take multiple responses from the students.
- Tell them that we will add both the given times together to answer the first question.
- Call a student on the board and ask them to write both the times vertically in the form of a sum.

	Hours	Minutes	Seconds
	6	34	45
+	4	20	12

- Call another student and ask him/her to add both times.

	Hours	Minutes	Seconds
	6	34	45
+	4	20	12
	10	54	57

- Tell students that Ejaz traveled a total time of 10 hours 54 minutes and 57 seconds.
- Now ask them what will we do to solve the second part of the question?
- Take 2 – 3 responses.
- Tell them we will subtract the traveled time of the train from the traveled time of the bus.
- Call a student on the board and ask them to write both the times vertically in the form of a sum.

	Hours	Minutes	Seconds
	6	34	45
–	4	20	12

- Call another student and ask him/her to subtract both times.

	Hours	Minutes	Seconds
	6	34	45
–	4	20	12



2 14 33

- Tell students that Ejaz traveled 2 hours 14 minutes 33 seconds more on the bus than the train.

Activity 2:

- Write the following problem on the board and ask the students to solve it. (Refer to the review exercise on page 129 for the question)
It takes a cook 2 hours 43 minutes 54 seconds to make a dish and 12 minutes 24 seconds to make a dessert. Find how much more time he takes to make the dish?
 - Be a facilitator and move in the class to help the struggling students.
 - Ensure active participation of every student.
 - Encourage them to complete the activity.
 - After some time write the solution on the board.
 - Ask the students to write down 2 things they enjoyed about today's lesson and one thing they didn't like or still have questions about.
 - Address any issue or misconception at this point. (If any)

Assessment:

- Ask the students to solve the following question in a group of 4 – 5. (Refer to the review exercise on page 129 for the question)
Asad spends 7 years 4 months 2 days in Saudi Arabia and 2 years 7 months 7 days in China. How much time did he spend out of the country?
- Paste their answers on the activity board and give comments/feedback on it.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the home task to students to solve question 3 of Exercise 4 (pg. 126) in their notebooks.

FORMATION OF ANGLE



Duration: 40 Minutes



Students Learning Outcome:

- Recognize an angle formed by the intersection of two rays.



Materials:

Board, Marker, Chalk, Duster, Textbook, scissors, Objects flash cards.



Information for Teachers:

- **CPA approach** is a pedagogical approach. CPA stands for concrete, pictorial, and abstract. In this approach, a teacher teaches an abstract concept using concrete and pictorial aids. It helps students to relate to the concept and have a deeper understanding.
- The anti-clockwise angle shows a positive degree always.

Introduction:

- Draw the following lines on the board and call students one by one to identify them.
(Add one more pictorial example like this)

Ans: Horizontal line	Ans: Vertical line	Ans: Parallel lines	Ans: non-parallel lines

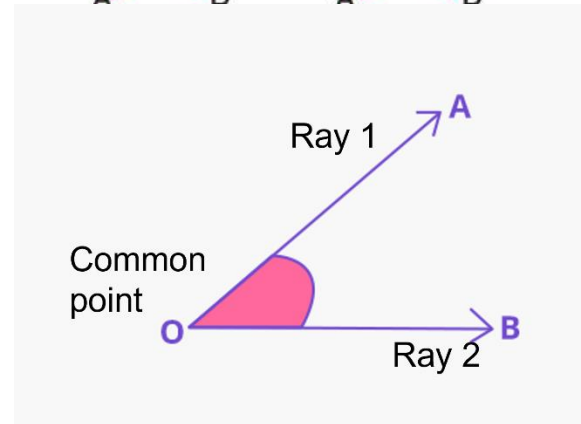
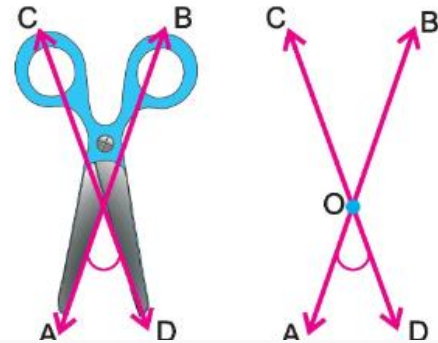
- Tell students about intersection of lines, vertex and common point of the line/lines.
- Tell students about clockwise and anticlockwise rotation of angle.

Development

(28 min)

Activity 1:

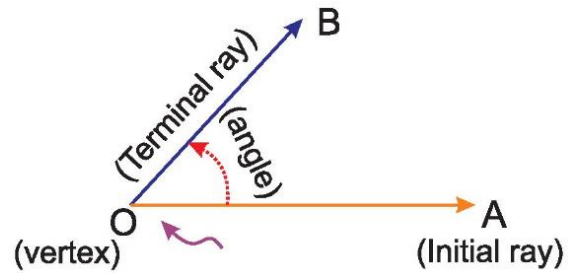
- Show a scissor to the students and ask them what it is?
- Tell them that I am going to draw two lines on the board just like the two arms of the scissor.
- Draw a scissor on the board and draw two lines on the scissor as shown in the figure.
- Tell them that the lines \overline{AB} and \overline{CD} intersect each other at point O.
- Ask students, “are these parallel lines?”
- Tell them these are nonparallel lines and when two nonparallel lines intersect each other at a point, different angles are formed at the common point.
- Highlight the angle $\angle AOD$ on the board. Tell them this is an angle.
- Tell them that an angle is formed by two rays with a common endpoint.
- Draw an angle on the board and label it such as reflected in figure.
- Tell them we can find angles everywhere around us.
- Show them the corner of the board is an angle. The leg of your chair and the floor makes an angle. Your book has angles in it.



- Ask them if they can give any more examples of angles from classroom.
- Tell them you can also make angle with your arms.



- Ask students to make an angle with their arms.
- Help them identify the rays and common points in their angle.
- Tell them the two rays and the common point also have some other names.
- Draw the following angle on the board and label it.
- Tell them that the common point is also called the vertex. (Spell vertex for students)
- Tell them that ray 1 from where the angle starts is called the initial ray.
- Tell them that ray 2 where the angle ends is called the terminal ray.
- Terminal is taken from the word terminate which means to end.



Activity 2:

- Provide students with the object cards and ask them to identify angles in them.
 - Be a facilitator and move in the class to help the struggling students.
 - Ensure active participation of every student.
 - Encourage them to complete the activity.
 - After some time discuss the solution with them.

Assessment:

- Call 2 – 3 students on the board randomly and ask them to draw an angle of their own choice and label it.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to students to identify 5 objects in their home.
- Draw those objects in their notebook and highlight angles in them.

MEASUREMENT OF ANGLE



Duration: 40 Minutes



Students Learning Outcomes:

Measure angles using a protractor where:

- Upper scale of the protractor reads the measure of the angle from left to right.
- Lower scale of the protractor reads the measure of the angle from right to left.



Materials:

Board, different color Markers, Chalk, Duster, Textbook, geometry box.

Information for Teachers:

- Before this lesson instruct students to bring their **geometry boxes**.
- An instrument that is used to measure or draw an angle is called a **protractor**.

Introduction:

- First recall the concept of lines their intersection, vertex, rotation of angle with examples.
- Ask students what an angle is?
- Recall, what an angle is. Give a few examples of angles.
- Draw the following objects on the board and call students to identify angles in them with different colors of markers.
- Tell students about the concept of right, obtuse and acute angles.

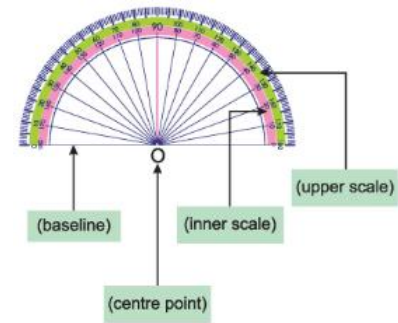


Development:

Activity 1:

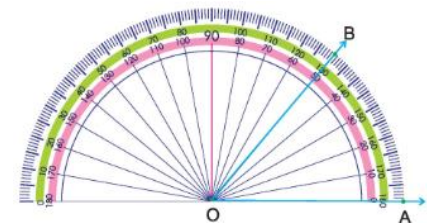
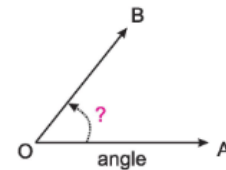
- Ask students what do we use when we have to draw a straight line?
- Tell them that we use a scale or ruler to draw or measure a straight line.

- Ask them do they think there is an instrument that can help us draw angles and measure them.
- Tell them that there is an instrument which we use to draw or measure angles and it is called a protractor.
- Show them a protractor. Draw a diagram of the protractor on the board.
- Ask them to take out their protractors from their geometry boxes.
- Show and tell them that the straight line at the bottom of the protractor is called a baseline.
- Ask 2 – 3 students can they identify the baseline?
- Show and tell them the midpoint of the baseline is called the center point.
- Ask 2 – 3 students can they identify the center point?
- Tell them there are two scales in every protractor. An inner scale and an outer scale.
- Tell them both scales have measurements starting from 0° to 180° .
- Inner scale as the name suggests is on the inner side of the protractor and angles are measured from right to left on this scale.
- Outer scale as the name suggests is on the outer side of the protractor and angles are measured from left to right on this scale.
- Ask 2 – 3 students can they tell which one is an inner scale and which one is outer.
- Call students randomly on the board and ask them to identify different parts of the protractor.



Activity 2:

- Now draw an angle $\angle AOB$ on the board and tell students that we are going to measure it using a protractor.
- Tell them that first, we place the center point of the protractor on the vertex O of the angle.
 - Tell them now to place the baseline of the protractor exactly on the ray \overrightarrow{OA} .
 - Tell them to check which scale (inner or outer) has a 0° on the ray \overrightarrow{OA} of the angle.
 - Tell them that the 0° of the inner scale is on the ray \overrightarrow{OA} so we use the inner scale.
 - Tell them which value of the inner scale matches with the ray \overrightarrow{OB} .
 - Tell them to note the value and write it down on the angle. This is the measurement of the angle.
 - Hence the angle $\angle AOB$ is 50° .
 - Draw another angle on the board and take responses from students randomly on how to measure it. (In the second example use the outer scale to measure the angle)



Assessment:

- Ask students to solve the first 3 parts of question 2 of exercise 2 (pg. 142).
- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.



- Encourage them to complete the activity.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to students to complete the remaining parts of the question 2 of exercise 2 from home.

GEOMETRY

**Duration:** 40 Minutes

Students Learning Outcome:

- Identify right angles in 2-D shapes.



Materials:

Blank A4 papers, cutouts of the following 2D shapes (Quantity 20 shapes)

2D shapes for print					
Figure 1	Figure 2	Figure 3	Figure 4	Figure 5	Figure 6

Information for Teachers:

- Such shapes have only two dimensions. i.e., length and width are called **2D shapes**.
- **Thumbs up thumbs down** is a formative assessment approach designed to get quick feedback in the classroom.

Introduction:

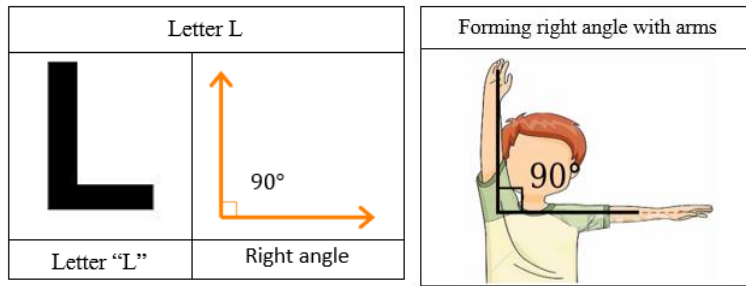
- Recall by asking what are 2D shapes such as squares, rectangles, etc.
- Call students on the board randomly and ask them to draw 2D shapes.
- Brainstorm that they have already learned angles and their types.
- Ask them what is a right angle?
- Recall how to read angles such as angle ABC.
- Two-dimensional model should be used to explain the concept.
- Recall the concept of lines & angles.

Development:

Activity 1:

- Draw any right angle on the board.
- Write the capital letter L on the board and tell them both the hands of the letter L make a right angle.

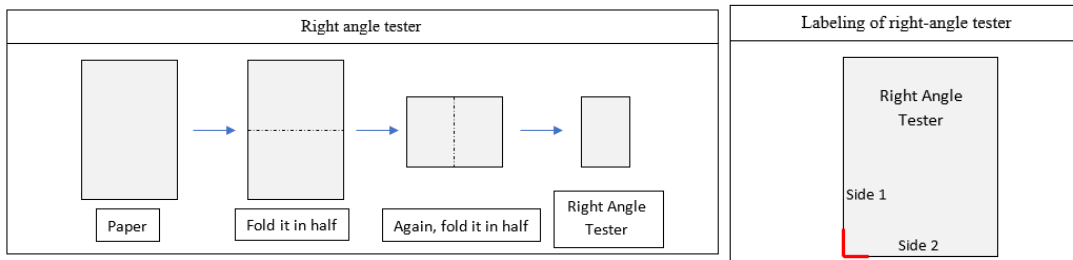
- Ask students to stretch their left arm on their side and raise their right arm straight upward as shown in the picture. This shows a right angle.



- Tell them today we are going to identify right angles in a 2D shape.

Activity 2:

- First help students to make an instrument called a right-angle tester.
- Provide them with A4 size paper.
- Guide the students by demonstrating the process of making a right-angle tester side by side using the step-by-step diagram below.



- Tell them to select any corner of the right-angle tester and highlight it with any colored pencil.
- Ask them to label the two sides along the selected corner of the right-angle tester. (Refer to diagram)
- With the help of a right-angle tester, we will identify right angles in any 2-D shape.
- Draw a rectangle ABCD on board.
- Select any angle e.g., angle BAD or DAB on corner A from the 2D shape you drew on the board.
- Place the selected corner of the right-angle tester on corner A of the 2D shape. (Rectangle ABCD)



- If two sides of the right-angle tester match with the two sides of the above 2D shape, then the selected angle A is a right angle.
- Highlight by sliding a finger across the matched sides of the shape and ask if both sides match in this case.
- Conclude that it means that the angle BAD or DAB is a right angle.
- Ask the students to show thumbs up if they understand the concept and thumbs down if there is any ambiguity.



- Address the ambiguities of the students who showed thumbs down using a second example. (If needed)
- Repeat the activity by drawing any parallelogram on the board.
- Highlight that the angles in the parallelogram are not right angles.

Assessment:

- Divide the students into pairs and provide each pair with a different 2D shape.
- Ask them to identify the right angles in these 2D shapes.
- Round in the class and facilitate the struggling students.
- Ensure active participation of every student. Encourage them to complete the activity.

Conclusion/ Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from multiple students and wrap up the lesson.

Follow up:

- Give them a task to identify at least 5 objects in their home which has right angles and note them in their notebook.
- Tell them to use the right-angle tester they made in the classroom to identify the above objects.

PERIMETER USING SQUARE GRID



Duration: 40 Minutes



Students Learning Outcome:

- Find the perimeter of 2D figures on a square grid.



Materials:

Board, Marker, Chalk, Duster, Textbook.

Information for Teachers:

- The sum of the length of all the boundaries of a closed figure is called the **perimeter**.
- The **square grid** as obvious from its name is made up of small squares. All these squares are equal, and each square represents one unit

Introduction:

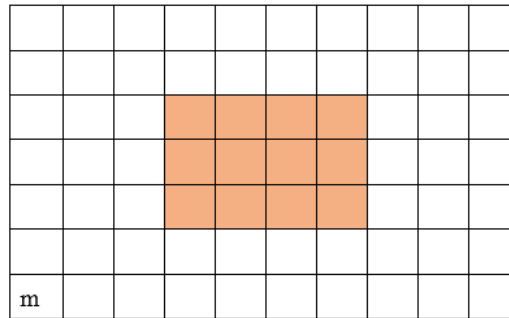
- Tell them the following scenario/situation.
- Students there is a small garden on the backside of my house. I have planted different vegetables and fruits in it. In previous days, I have observed some broken plants in it every morning. I have put so much effort into making this garden and I feel sad when I see the broken plants. I think the hens of my neighbors destroy those plants. So, I wanted to put a fence around it, but I don't know how much fence is required. Can you tell me how much fence is required for it?
- Tell them to do brainstorming.
- Take multiple responses and tell them if I measure the boundary or length of all 4 sides of my garden then I can find out how much fence is required.

Development:

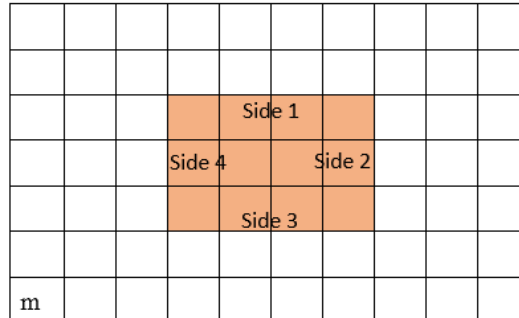
Activity 1:

- Tell them that the length of the boundary of any 2D shape is called its perimeter or if I add up all the sides of a shape together then it becomes its perimeter.
- Tell them let us use perimeter to solve my problem.
- Tell them we can measure the perimeter using a square grid.

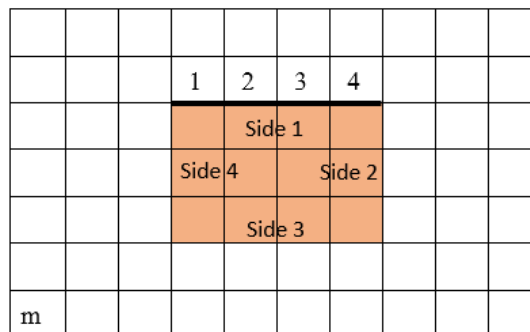
- Tell them the square grid as obvious from its name is made up of small squares. All these squares are equal, and each square represents one unit.
- Draw a square grid on the board. Tell them that each small square in this square grid represents 1 meter.
- Draw a rectangle in the square grid and tell them that this rectangle represents your garden.



- Tell them first we give a name to all of its sides.



- Now we will measure them one by one by counting the small squares.
- Tell them to count the square with you alongside 1.
- Tell them that there are 4 squares on side 1. As each square represents 1 meter. So, the total length of side 1 is 4 meters.



- Repeat the process for all the remaining sides.
- Tell them that now we have the length of all 4 sides. To find the perimeter we will add all of them together.

			1	2	3	4		
		1	Side 1	Side 1	Side 1	Side 1	1	
		2	Side 4	Side 4	Side 2	Side 2	2	
		3	Side 3	Side 3	Side 3	Side 3	3	
			1	2	3	4		
m								

Perimeter = sum of all sides of a closed figure
 = side 1 + side 2 + side 3 + side 4
 = 4 + 3 + 4 + 3
 = 14 m

- Tell them that it means we need 14 meters of fence to cover the garden.

Activity 2:

- Tell them let us solve another example.
- Tell them to suppose that they have a gift box, and they want to put a ribbon around its boundary.
 - We will use the square grid to find its perimeter.
 - Draw the square grid on the board and highlight a rectangle in it that represents the gift box.

cm								

- Solve the question on the above pattern by taking responses from the students.
- Involve the students in the lesson.

Assessment:

- Ask students to solve the first two parts of question 1 of exercise 4 (pg. 149).
- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.
- Encourage them to complete the activity.



Conclusion/ Sum up / Wrap up:

- Ask students to tell what they have learned today.
- Take responses from multiple students and wrap up the lesson.
- Perimeter of a Rectangle/Rectangular shape is: $4 \times (\text{Side 1} + \text{Side 2})(\text{unit})$
- Perimeter of a Square/Square shape is: $4 \times (\text{Side 1})(\text{unit})$

Follow up:

- Assign the task to students to complete the remaining parts of the question 1 of exercise 4 (pg. 149) from home.

SYMMETRY

**Duration:** 40 Minutes**Students Learning Outcome:**

- Complete a symmetrical figure with respect to a given line of symmetry on a square grid/dot pattern.

**Materials:**

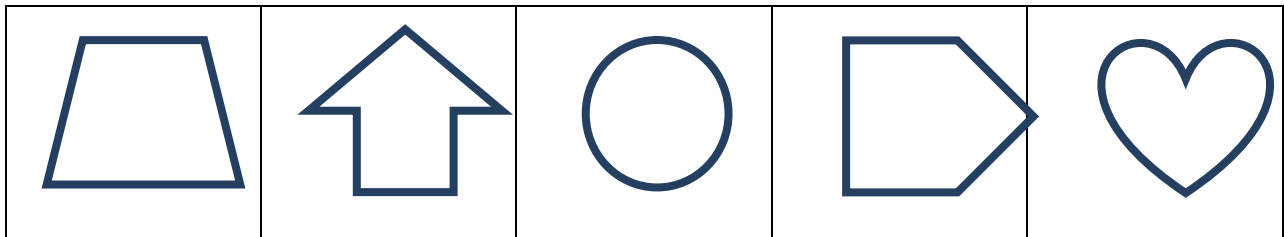
Board, different color Markers, Chalk, Duster, Textbook, 2D shapes printed on paper, Dotted paper.

Information for Teachers:

- The Dot grid as obvious from its name is made up of small dots. It is like a connecting dots puzzle.

Introduction:

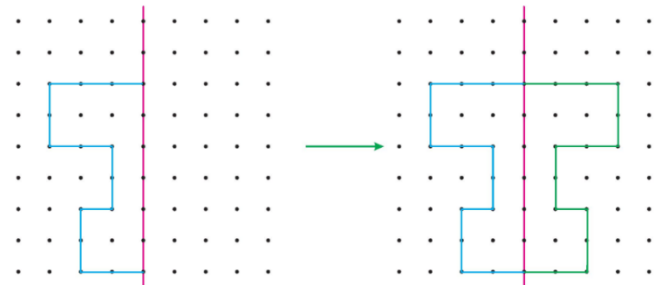
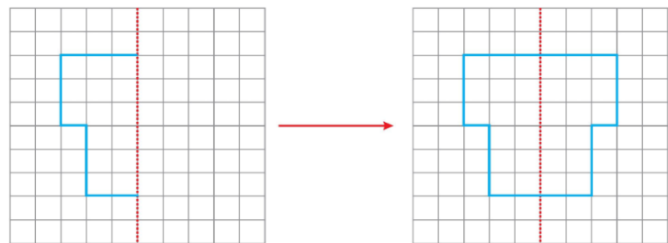
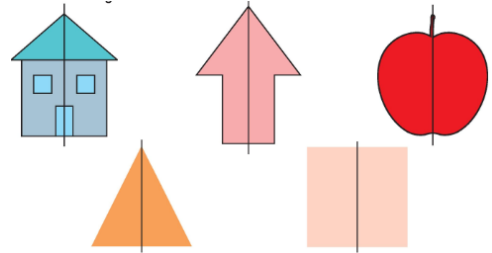
- Draw a rectangle on the board and call a student.
- Ask him/her to divide the rectangle into two equal parts using a straight line **vertically**.
- Draw an equilateral triangle on the board and call a student.
- Ask him/her to divide the triangle into two equal parts using a straight line **horizontally**.
- Divide the following 2D shapes printed on a piece of paper among students.
- Ask them to divide them into two equal parts by folding the paper.
- Ask him/her about the difference between the equal parts of these two figures.
-



Development:

Activity 1:

- Tell students that such shapes that can be divided into two same parts by drawing a line (**vertically OR horizontally**) in their center are called symmetrical shapes.
- That line is called the line of symmetry.
- Draw the given figures on the board and tell them to look at them.
- Show them how the line (**vertical OR horizontal**) of symmetry divides them into two equal parts.
- Tell them if one half of the symmetrical figure is given, we can complete it by drawing the remaining half.
- Tell them we use the square grid to complete the figure.
- Ask them what is a square grid?
- Recall to them that the square grid as obvious from its name is made up of small squares. All these squares are equal.
- Tell them we can use the squares as a reference to draw the remaining part of the symmetrical figure.
- Draw the following square grid on the board containing the symmetrical figure.
- Count the square from the given half and draw the remaining half of the symmetrical figure.
- Involve the students during the process.
- Give them one more example using the dot paper.
- Tell them that the dot paper is made up of dots as the name suggests. It is like a connecting dots puzzle. We use the dots to draw the remaining half of the symmetrical figure.



Activity 2:

- Ask students to open exercise 5 (pg. 153) of the textbook and solve question 1 in pairs.
- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.
- Encourage them to complete the activity.
- Provide the answer to the question given below on the board and ask them to check their

1. Mark (✓) on the figures where you can see line of symmetry.

a)	b)	c)	d)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



answers with it.

Assessment:

- Ask students to solve the first 2 parts of question 2 of exercise 5 (pg. 153).
- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.
- Encourage them to complete the activity.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to students to complete the remaining parts of the question 2 of exercise 5 (pg. 153) from home.

BAR GRAPH

**Duration:** 40 Minutes

Students Learning Outcome:

- Read simple bar graphs given in horizontal and vertical forms.



Materials:

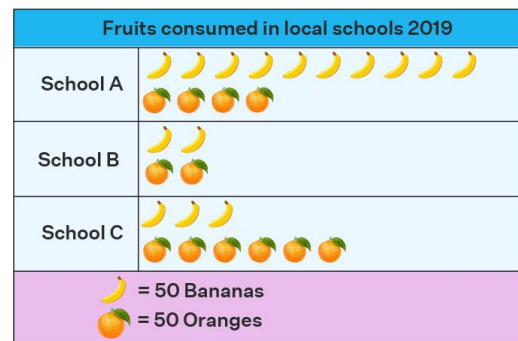
Board, different color Markers, Chalk, Duster, Textbook.

Information for Teachers:

- A **graph** is a pictorial way of representing the data.

Introduction:

- Ask students what is a pictograph?
- Tell them you have studied this in your last class.
- Tell them about different types of graph.
- Tell them a graph is a pictorial way of representing the data.
- Tell them in picture graph we used pictures to represent a data.
- Give them an example of a picture graph.
- Ask them why do we make graphs?
- Take 2 – 3 responses randomly.
- Tell them graphs help us to visualize the data.
- We can quickly understand the data by looking at a graph.

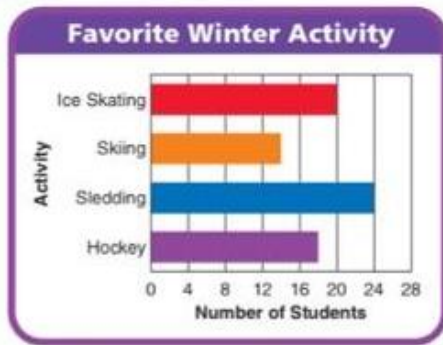
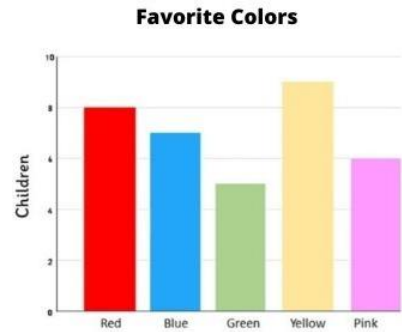


Development:

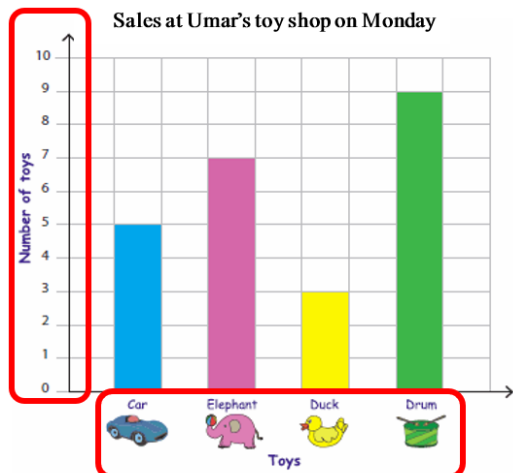
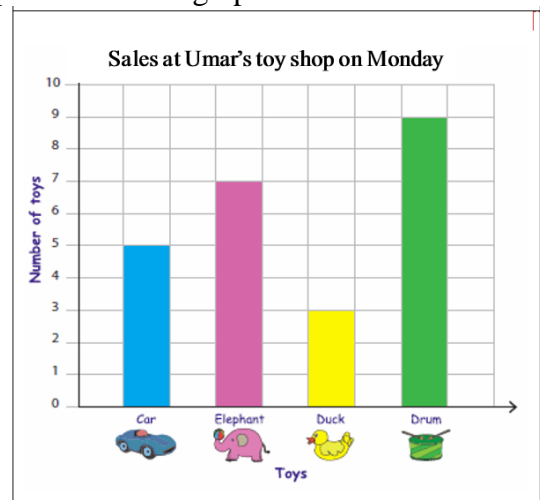
Activity 1:

- Tell students that today we are going to study another type of graph called a bar graph.
- Draw a bar graph on the board.
- Tell them that these are bars.

- Tell them that all these rectangular shapes representing the data in this graph are called bars and hence the name of the graph is the bar graph.
- Tell them when there were pictures in a graph, we called it a picture graph and when there are bars in a graph, we call it a bar graph.
- Tell them now let's see how to read and interpret a bar graph.
- Tell them the bar graphs can be shown in two different forms. A horizontal bar graph or vertical bar graph (Draw both on the board).

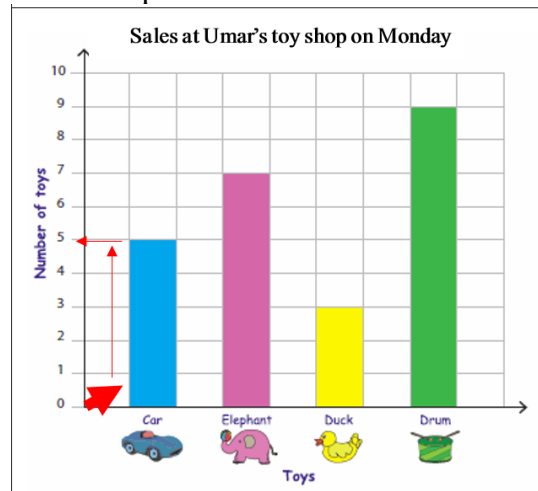


- Tell them that the method to read and interpret both bar graphs is the same. The difference is only in their representation.
- Draw the given graph on the board.
- Tell them first we read the title of the bar graph which is generally written on its top.
- Titles tell us what this graph is about. The title for this graph is “sales at Umar’s toy shop on Monday”.
- Highlight that there are two sides to the bar graph. On one side numbers from 0 to 10 are written while on the other side there are pictures of different toys.



- Tell them these are the toys that Umar sold, and the numbers tell us how many he has sold.

- Tell them that the bar on top of the car toy reaches up to 5 so it shows 5 toy cars have been sold. Here 1 small box represents 1 unit.



- Tell them the bar of elephant toys goes up to 7 boxes. So, it means 7 elephant toys were sold.
- Ask them can you tell how many ducks were sold by Umar on Monday?
- Take responses from students randomly and then tell them that 3 duck toys were sold as its bar goes up till 3.
- Ask them can you tell how many drums were sold by Umar on Monday?
- Take responses from students randomly and then tell them that 9 drum toys were sold as its bar goes up till 9.
- Ask them how many total toys were sold on Monday?
- Take responses from students randomly and then tell them the answer to this question can be found by adding the sale of all toys.

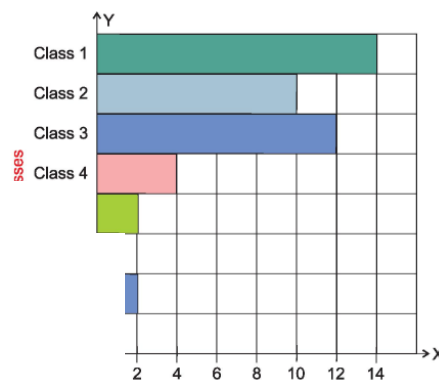
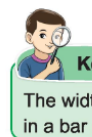
$$5 + 7 + 3 + 9 = 24 \text{ (Total toys sold)}$$

Activity 2:

- Write the following question on the board. (Refer to page 166 for the question)

The following graph is about the students who were absent from school for three months.

In this graph, the bar is horizontal. That is why it is called a horizontal bar graph.



- Ask students to answer the following questions.
 - In which class the greatest number of students were absent?
 - In which class least number of students were absent?
- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.
- Encourage them to complete the activity.



Assessment:

- Ask students to solve [question 1 of exercise 1 \(pg. 167\)](#) in groups of 4 to 5.
- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.
- Encourage them to complete the activity.

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to students to solve question 2 of exercise 1 (pg. 168) from home.

REAL LIFE SITUATIONS INVOLVING BAR GRAPH



Duration: 40 Minutes



Students Learning Outcome:

- Interpret real-life situations using the data presented in bar graphs.



Materials:

Board, different color Markers, Chalk, Duster, and Textbook.

Information for Teachers:

- **Graphs** are helpful in many ways. We can answer the questions about any data more accurately and efficiently.

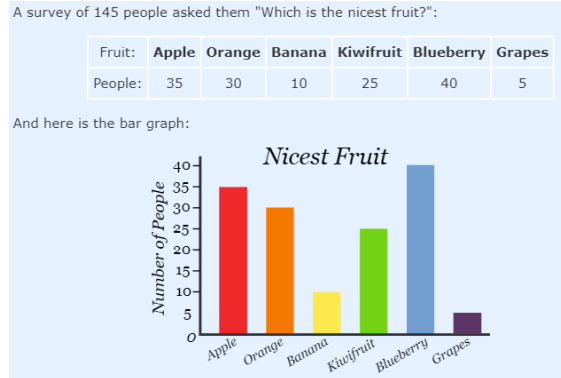
Introduction:

- Ask students what is a bar graph?
- Take responses from students randomly.
- Ask them why do we make graphs?
- Take 2 – 3 responses randomly.

Development:

Activity 1:

- Tell students that in real life, graphs are helpful in many ways. We can answer the questions about any data more accurately and efficiently.
- A shopkeeper can keep his sales record in the form of a graph and can easily understand which item is sold most.
- A businessman can keep track of his yearly profits in the form of a bar graph.
- You can compare your eidi of every year by making a bar graph.
- Tell them today we are going to solve a real-life problem of a bar graph.
- Write the following problem on the board.



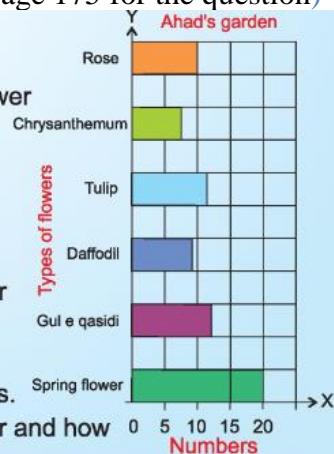
- Ask students to read the problem carefully and then answer my questions.
- Ask them which fruit people like the most?
- Take 2 – 3 responses randomly.
- Ask students what are the top 3 fruits that people like the most?
- Take 2 – 3 responses randomly.
- Ask them which fruit the people least liked?
- Take 2 – 3 responses randomly.
- Ask them How much more people like orange than kiwifruit?
- Take 2 – 3 responses randomly.

Activity 2:

- Provide students with the following question and ask them to solve it in groups of 4 – 5 students. (Refer to the review exercise on page 175 for the question)

Ahad has planted different flowers in his garden. Their number and type is shown in this bar graph. Read the graph to answer the questions.

- How many roses are there in Ahad's garden?
- How much less are the tulips than the Gul e qasidi?
- Which flowers are present in the most number in Ahad's garden and how many are they?
- Write in fraction form the number of tulips as compared to the total number of all the flowers.
- Which flowers are present in the least number and how many are they?



- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.
- Encourage them to complete the activity.
- After some time tell them the answer to the question.

Assessment:

- Ask students the following questions.
 - Where can we apply bar graphs in real life?

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.



Follow up:

- Assign the task to students to solve question 2 of the review exercise (pg. 175) in their notebook.

Glossary

- Accurate – means exact.
- Efficient – getting a maximum result with minimum effort.

REAL LIFE SITUATIONS INVOLVING PIE CHART

**Duration:** 40 Minutes

Students Learning Outcome:

- Interpret real-life situations using the data presented in Pie Chart.



Materials:

Board, different color Markers, Chalk, Duster, and Textbook.

Information for Teachers:

- **Pie Charts** are used to present data as part of a whole.
- **Pie Chart** is reflected by numbers only not by percentage.

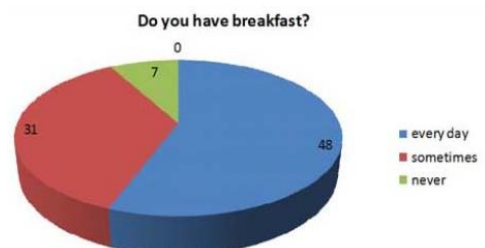
Introduction:

- Ask students what is a circle?
- Ask students what is a pie chart? Relate circle to a pie chart.
- Take responses from students randomly.
- Ask them what is the shape of the pie chart?
- Take responses from students randomly.
- Ask them if anyone can draw a pie chart on the board.
- Call someone to draw a pie chart.

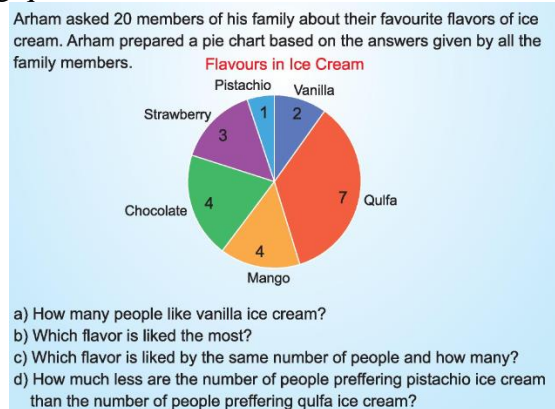
Development:

Activity 1:

- Tell students that in real life, graphs are helpful in many ways. We can answer the questions about any data more accurately and efficiently.
- We often see pie charts on the back of food packets and juices showing the number of ingredients in them.
- You can use a pie chart to represent the ingredients of food your mom cooked and their amount.



- We can also present any data. e.g., Data of students who took breakfast.
- Tell them that today we are going to solve real-life problems involving pie charts.
- Write the following question on the board.



- Ask students to read the problem carefully and then answer my questions.
- Ask them how many people like vanilla ice cream?
- Take 2 – 3 responses randomly.
- Ask students which flavor is liked the most?
- Take 2 – 3 responses randomly.
- Ask them which flavor is liked by the same number of people and how many?
- Take 2 – 3 responses randomly.
- Ask them how much less are the number of people preferring pistachio ice cream than the number of people preferring Kulfa ice cream?
- Take 2 – 3 responses randomly.

Activity 2:

- Ask students to solve question 1 of exercise 1 (pg. 173) in groups of 4 - 5.
- Be a facilitator and move in the class to help the struggling students.
- Ensure active participation of every student.
- Encourage them to complete the activity.
- After some time tell them the answer to the question.

Assessment:

- Ask students the following questions.
 - Where can we apply pie charts in real life?

Conclusion/ Sum up / Wrap up:

- Sum up the lesson by highlighting all the lesson's key points.

Follow up:

- Assign the task to students to solve question 2 of exercise 1 (pg. 174) in their notebook.



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Mathematics Teachers' Guide Lesson Plans



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