



PROFESSIONAL DEVELOPMENT
FOR QUALITY EDUCATION

GRADE
3

MATHEMATICS

LESSON PLANS



BASED ON CURRICULUM 2020

Directorate of Curriculum and Teacher Education (DCTE)
Khyber Pakhtunkhwa Abbottabad



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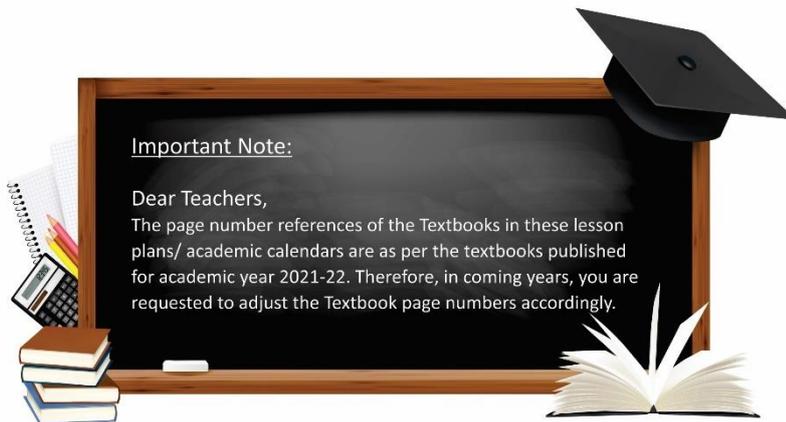
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NOTIFICATION:

No.5400-5563/F.24/Vol-II/SLP/G-III/SS-M&E, dated: 30-08-2021 : Consequent upon its development and review by the respective development and review committees notified for the purpose, the Directorate of Curriculum and Teacher Education (DCTE), Khyber Pakhtunkhwa, Abbottabad, being the competent authority under the Khyber Pakhtunkhwa Supervision of Curricula, Textbooks and Maintenance of Standards of Education Act 2011, is pleased to notify the scripted lessons for Grade-III in the subjects of English, Urdu, Mathematics and General Knowledge based on Curriculum 2020 and the textbooks aligned on it for all educational institutions in Khyber Pakhtunkhwa for the Academic Year 2021-22 and onwards.

DIRECTOR

Copy forwarded for information and necessary action to the:

1. Secretary, Elementary & Secondary Education Department Govt. of Khyber Pakhtunkhwa, Peshawar.
2. Director, Elementary & Secondary Education Khyber Pakhtunkhwa.
3. Director, Professional Development, Khyber Pakhtunkhwa Landey Sarak Charsadda Road Larama, Peshawar.
4. All District Education Officers (M/F) in Khyber Pakhtunkhwa and Newly Merged Districts (NMDs).
5. All Sub Divisional Education Officers (M/F) in Khyber Pakhtunkhwa and Newly Merged Districts (NMDs).
6. Team Leader ASI-KESP, at Peshawar.
7. PS to Minister Elementary & Secondary Education, Khyber Pakhtunkhwa, Peshawar
8. PS to the Director Local Office.

ADDITIONAL DIRECTOR (SS)

PREFACE

The Government of Khyber Pakhtunkhwa, Elementary and Secondary Education Department, is committed to improve the quality of teaching and learning by taking a number of reforms and initiatives for the improvement of quality education in line with the national and international emerging trends. Providing quality education at primary level is the first imperative step towards achieving this goal.

For this purpose, the Directorate of Curriculum and Teacher Education Khyber Pakhtunkhwa, at Abbottabad, has been entrusted the responsibility of developing and reviewing teachers' in-service and pre-service training materials for the improvement of pedagogical skills of teachers.

These quality improving initiatives also include development of teacher's guides of scripted lesson plans at primary level that support teachers to implement new pedagogical methods. These teacher guides are intended to assist teachers with the provision of content, effective teaching methods and tools for measuring what learners have gained. These guides will ensure an effective and participative engagement of teachers with students as activities included in these lesson plans are student-centered.

These teachers' guides of Lesson Plans based on Student Learning Outcomes (SLOs) of Curriculum 2006 were developed for the first time in 2013. In 2018-2019, the Directorate of Curriculum & Teachers' Education Khyber Pakhtunkhwa undertook the task to revise and develop the Scripted Lesson Plans for Grade I-III according to the Academic Calendar on missing Students Learning Outcomes (SLOs).

As the Curriculum has been revised and new textbook are developed in 2020 for Grades Pre-I to V, hence the need has been felt that these Lesson Plans for Grades I to V are to be revised, developed and aligned with the updated Curriculum 2020, accordingly.

The Directorate of Curriculum and Teacher Education Khyber Pakhtunkhwa constituted different committees comprising of Curriculum/Subject experts and working teachers for developing these Lesson Plans based on Curriculum 2020. DCTE acknowledges the efforts of these experts for developing and reviewing these scripted lesson Plans.

The Directorate of Curriculum and Teachers Education Khyber Pakhtunkhwa is also thankful to the Technical Assistance of Khyber Pakhtunkhwa Education Sector Programme (KESP) in the finalization of these lesson plans.

Gohar Ali Khan
Director,
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INTRODUCTION

Teaching and learning process in the classroom can vary concerning the ability, experience, and training of the teacher, which is why to standardize instruction, every good and effective teacher requires a lesson plan. The preparation of a lesson plan is important for clarity and comprehension regarding how the entire learning process will be handled as well as how students can understand and store the knowledge that is being passed onto them.

Lesson plans are vital for helping students accomplish their goals within a learning environment on a short-term and long-term basis. Lesson plans based on clearly defined Student Learning Outcomes (SLOs) concerning the textbooks ensure students are taught the required curriculum most efficiently. These ensure the teacher is adequately prepared and has a clear sense of direction for their lessons. In the context of Khyber Pakhtunkhwa, Lesson Plans are designed to support teachers to implement new pedagogical methods and help provide direction to instruction in the classrooms.

Traditional Teaching Style:

Many teachers in Pakistan have come to rely on the textbook for teaching. They come into the classroom, ask students to open the textbook on a certain page, have students read a portion of the text, paraphrase the same and then ask students to answer questions that require them to reproduce material from the text. They teach every subject (the exception being mathematics) and every lesson in the same way. In some cases, the teacher is unable to complete the curriculum or impart the SLOs for a particular grade to the students effectively. Using lesson plans ensure standardization in teaching quality and provides a clear goal with relevant activities that can help students learn more effectively and achieve curriculum milestones.

What is a Lesson Plan?

A lesson plan is a description of the instructions for the purpose of teaching the contents of the textbook of a particular subject and achieving Student Learning Outcomes (SLOs).

A lesson plan is the road map for teachers for the achievement of SLOs effectively during class time. The teachers design appropriate learning activities and develop strategies to obtain feedback on students' learning. A carefully constructed lesson plan allows the teacher to enter the classroom with more confidence and maximizes the chance of having a meaningful learning experience with the students.

A successful lesson plan addresses and integrates three key components:

- Student Learning Outcomes (SLOs).
- Learning activities.
- Assessment to check for students' understanding.

Benefits of Lesson Planning

Most important benefits of lesson planning are to:

- Improve the quality of teaching and learning.
- Establish clarity of purpose.
- Facilitate achievement of student learning outcomes.
- Use available time effectively.
- Develop appropriate materials and ensure their effective use.
- Develop the confidence of teachers.

Development Process of a Lesson Plan

Lesson plan usually starts with a thinking process. This thinking process is basically completed in four parts.

- **First**, determine the SLO; that is, what the children will learn, what they will be able to do upon completing the activities or work of the lesson.
- **Second**, determine what the students already know, before beginning of the lesson that can lead into a new curriculum of the day.
- **Third**, determine at least one way to assist the students in learning the new curriculum.
- **Fourth**, determine a way to evaluate the learning outcomes of the students.

Components of a Lesson Plan

Common elements of lesson plans are; unit of study, a title/topic/problem, identification of student learning outcomes (SLOs), a sequence of learning activities including introductory, developmental and concluding activities, list of materials to be used and assessment strategies.

- **Choosing the Topic.** You can choose any topic from the textbook of the designated grade, a skill such as information gathering, a value such as peace, a current affair topic or an area of special concern such as the environmental pollution etc.
- **Identifying Student Learning Outcomes (SLOs) from the Curriculum.** The Curriculum has identified the student learning outcomes to be achieved for each topic. Identifying the student learning outcomes will help you to clarify the knowledge, skills, attitudes and values to be developed. Choose only one to three SLOs to develop your lesson (many more for a unit plan).
- **Material Resources.** A key part of planning is to ensure the identification, adaptation and development of resources required for the lesson for both teachers and students.
- **Development:**
Introductory Activities: Introductory activities are designed to introduce the topic, a subtopic or establish connection with the previous lesson. They are designed to build readiness, create interest, raise questions and explore what children already know

about the topic, recall relevant information, motivate students and focus their attention on the topic/ theme/problem to be studied. Introductory activities can include an arrangement of pictures and other times that stimulate interest and questions. Others may be based on the teacher posing questions, reading a poem or story etc. A test, an inventory, or a quiz may be used to find out what students know in order to build on their existing knowledge.

Developmental Activities:

Developmental activities should emerge out of the introductory activities. There should be smooth transitions between the activities to provide a smooth learning sequence. These activities are designed to actualize the student learning outcomes. They introduce new concepts, skills and values or build on past learning and should be linked with each other. Applicative or demonstrative activities extend learning and develop the ability to use concepts and skills. Creative and expressive activities enrich learning and develop the ability to improvise and apply learning in original ways.

- **Concluding the lesson:** Conclusion includes activities that serve to consolidate, summarize, or facilitate application of knowledge and skills of students to a new situation. They are generally related to the main idea of the lesson. The concluding activities could bring together the different main ideas of the unit. In this case, the emphasis should be on the educational outcomes and not on “putting on a show”.
- **Assessment of Learning.** Assessment strategies can tell us how well or to what extent the student learning outcomes have been met. Assessment of learning is important in all phases of the lesson/unit from introduction to conclusion. A variety of tools can be used to assess the realization of the chosen learning outcomes. Some of these will be prepared as part of the learning activities. For example, the drawing and labeling of a map, the checklist for evaluating a discussion or simply asking questions relevant to the day’s topic. Other tools such as tests can be prepared ahead of time as well.
- **Follow up/homework task.** This component includes follow up activities or home assignments to be undertaken by students at home.

Month

1

ROMAN NUMBERS



STUDENT LEARNING OUTCOMES

- Read Roman numbers up to 20.
- Write Roman numbers up to 20

INFORMATION FOR TEACHERS

The teachers should know:

1. The shape of Roman numbers up to 20.
2. How to write Roman numbers up to 20.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Chart showing Roman numbers from 1 to 20



INTRODUCTION

1. Prepare 5 cards in a way that on one side a numeral from 1 to 5 is written and on the other side its Roman numeral is written.
2. Randomly select five students and give one card to each. Ask them to stand in front of the class.
3. Select another five students and give them a card with a numeral from 1-5. Ask them to sit on their seats.
4. Now, ask one of the students standing in front of the class to show his/her Roman numeral card to the whole class and ask loudly, who has the card of numeral 1. (The student will face the Roman numeral side to the class and will look at the backside of the card where 1 is written.) The student with numeral 1 will stand up and come to the board.
5. Both students will stand side by side, one holding card with numeral 1 and the other with Roman I. The class will see both cards to learn both forms of one.
6. Guide the students that both these are numerals but one is written in Arabic form and the other is written in Roman form.
7. Repeat steps 4 and 5 with the rest of the students.
8. Tell students that in today's class, we will learn about Roman numbers.



DEVELOPMENT

Activity 1:

1. Draw/Paste the following chart showing Roman numbers on the board:

I = 1	V = 5	X = 10		
I	II	III	IV	V
1	2	3	4	5
VI	VII	VIII	IX	X
6	7	8	9	10
XI	XII	XIII	XIV	XV
11	12	13	14	15
XVI	XVII	XVIII	XIX	XX
16	17	18	19	20

2. Explain the chart to the students that I = 1, V = 5 and X = 10. Tell students that these are the basic Roman numerals. If they can read and write these numerals, they can easily read and write the rest of the Roman numerals.
3. Read all the numbers with Roman numbers aloud in the class.
4. Write the following numbers on the board.
II , VI , VII , XI
5. Tell students to read Roman numbers from left-hand side as follows.
II : 1 + 1 = 2
VI : 5 + 1 = 6
VIII : 5 + 3 = 8
XI : 10 + 1 = 11
6. Tell students that we break X and V as 10 and 5 and add them to make 15 i.e., XV.
XIII : 10 + 3 = 13
XV : 10 + 5 = 15
XX : 10 + 10 = 20
7. Tell students that when a small number is written on the left side of the greater number, the smaller number is subtracted from the greater number i.e., IX means 10 - 1 = 9, IV means 5 - 1 = 4.
8. Ask students to copy down Roman numbers from 1-20 in their notebooks.

Activity 2:

1. Divide the class into four groups.
2. Give a set of numerals to each group and ask them to write it in Roman numerals in their notebooks.
3. Assign numerals 1-5 to group 1, 6-10 to group 2, 11-15 to group 3 and 16-20 to group 4.

4. Draw the following table on the board and ask each group to fill in their column by writing the Roman numerals.

Group 1		Group 2		Group 3		Group 4	
	Roman Numeral		Roman Numeral		Roman Numeral		Roman Numeral
1		6		11		16	
2		7		12		17	
3		8		13		18	
4		9		14		19	
5		10		15		20	

5. Guide students where required.



CONCLUSION / SUM UP

1. To conclude the lesson tell students that today we learned how to read and write the Roman numbers up to 20.



ASSESSMENT

1. Divide the class into four groups.
2. Write the following Roman numbers on the board.
III, VIII, XI, XII, XVI
3. Ask each group to discuss and write these Roman numbers in Arabic form in their notebooks.
4. Guide and correct them where necessary.



HOMEWORK / FOLLOW UP

Ask students to copy the following table in their notebooks and complete it.

i		iii			vi			ix	
	xii		xiv			xviii			xx

EVEN AND ODD NUMBERS



STUDENT LEARNING OUTCOMES

- Recognize even and odd numbers up to 99 within a given sequence.
- Differentiate between even and odd numbers within a given sequence.

INFORMATION FOR TEACHERS

The teachers should know about the concept of even and odd numbers within a sequence.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Cards showing numbers from 51 to 60.



INTRODUCTION

1. Call 10 students and ask them to stand in front of the class.
2. Ask a student (other than the 10) to count the number of students standing.
3. Take his/her response and write 10 on the board.
4. Arrange the 10 students in pairs and write 'even' on the board.
5. Tell the class that as each one of them has a partner so 10 is an even number.
6. Send a pair of students back to their seats leaving behind 4 pairs (8 students).
7. Tell the class that as each one of them has a partner so 8 is an even number.
8. Ask a student of anyone pair to go back to his/her seat leaving behind 7 students.
9. Ask students, does everyone has a partners?
10. Take students' responses and tell them that everyone has a partner except 1.
11. Tell students that the numbers which are not divisible by 2 (as one student is standing without a partner) are called odd numbers.
12. Tell students that the numbers which are divisible by 2 are called even numbers.
13. Tell students that today we will learn to recognize even and odd numbers and also differentiate between them within a given sequence.



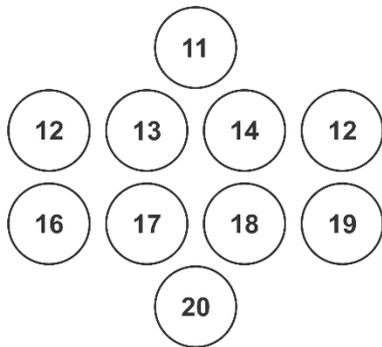
DEVELOPMENT

Activity 1:

1. Make a row of ten students having cards from 51 to 60.
2. Divide students into two groups as follows:
Group 1: Students having cards 51, 53, 55, 57, and 59
Group 2: Students having cards 52, 54, 56, 58 and 60
3. Ask the class, which group is of odd numbers and which group is of even numbers.
4. Take students' responses and guide them to look at the ones digit in each number to identify it as an even or odd number. If the digit at ones place is 2, 4, 6, 8, 0, it is an even number and if the digit at ones place is 1, 3, 5, 7, 9, it is an odd number.

Activity 2:

1. Write the following numbers on the board.



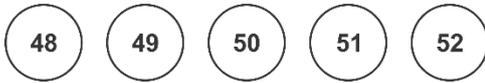
2. Make two columns on the board, one labelled as Even Numbers and the other as Odd Numbers.
3. Call students randomly and ask them to identify one even and one odd number from the given numbers.
4. Ask the students to write the numbers under the relevant heading.
5. Cross out the numbers which are identified.
6. Guide students where necessary.



CONCLUSION / SUM UP

At the end of the lesson, tell students that today we have learned the difference between even and odd numbers.

1. Write the following numbers on the board.



2. Select a student randomly and ask, is 38 an even or an odd number.
3. Take his/her response and guide if required.
4. Repeat steps 2 and 3 with the rest of the numbers.

Do question 7 on page 39 in the textbook.

NUMBERS UP TO 10,000**STUDENT LEARNING OUTCOME**

- Read and write numbers up to 10,000 (Ten Thousand) in numerals and words.

INFORMATION FOR TEACHERS

The teachers should know how to use the place value chart of a 5-digit number to read and write numbers in numerals and words.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster

**INTRODUCTION**

1. Write a 4-digit number on the board.
2. Ask students to identify ones, tens, hundreds, and thousands in the given number.
3. Take students' responses.
4. Repeat steps 1 to 3 using several other 4-digit numbers.
5. Ask students what is the biggest 4-digit number.
6. Take students' responses and write 9999 on the board.
7. Ask students what will happen if we add 1 to 9999.
8. Tell students that 9999 will become 10,000 and in today's lesson we will learn about 5-digit numbers.

**DEVELOPMENT****Activity 1:**

1. Write the following on the board.

$$\begin{array}{r} 9999 \\ + \quad 1 \\ \hline \end{array}$$
2. Tell students that we will add 1 to a 4-digit number i.e., 9999 and will get a 5-digit number.
3. Answer the question with the students and write 10000.
4. Ask students to read the place value of each digit in 10000. (they will read it as ones, tens, hundreds and thousands).

- When they reach thousands, write 10000 as 10 000 on the board. Underline 10 and say, this is ten and then underline 000 and tell them that 1000 has three zeros so we will read it as thousand. Tell them that we will read 10000 as ten thousand.
- Draw the following table on the board and ask students to place 96,385 in it.

Ten Thousands	Thousands	Hundreds	Tens	Ones

- Read the numbers in the table aloud and ask students to read after you.
- Explain the table to the students as follows;

Place value of 9 = 90,000

Place value of 6 = 6,000

Place value of 3 = 300

Place value of 8 = 80

Place value of 5 = 5

$90,000 + 6,000 + 300 + 80 + 5 = 96,385$

Ten Thousands	Thousands	Hundreds	Tens	Ones
90,000	6,000	300	80	5

- Make pair of students and give them different 5-digit numbers to read and fill in the place value boxes.

Activity 2:

- Draw the following table on the board.

Ten Thousands	Thousands	Hundreds	Tens	Ones
1	8	7	2	1

- Fill in the first box involving students.

Ten Thousands	Thousands	Hundreds	Tens	Ones
1	8	7	2	1
10,000	8000	700	20	1

- Ask students to copy down the given number (18721) in their notebooks and write it in words. Guide them as follows:

10,000 = ten thousand

8000 = eight thousand

700 = seven hundred

20 = twenty

1 = one

Ten thousand + eight thousand = eighteen thousand

Hence, the given number will be written in words as: Eighteen thousand seven hundred and twenty-one

4. Make pairs of students and ask them to write the following numbers in words.
 - i. 65,147
 - ii. 34,208
 - iii. 73,915
5. Take few responses and write the correct answers on the board.
6. Repeat the guidelines for students to develop better understanding.



CONCLUSION / SUM UP

Conclude the activity by telling students that:

1. 10,000 is the smallest 5-digit number.
2. The place value that we have learned today is ten-thousand.
3. Starting from the right-hand side, the place values of a 5-digit number will be read as: ones, tens, hundreds, thousands, ten-thousands.



ASSESSMENT

1. Write 36,321 on the board.
2. Ask the students to copy down the number in their notebooks.
3. Ask them to write the place value of each digit and write the number in words.
4. Check students' responses and guide if required.



HOMEWORK / FOLLOW UP

1. Do question 1 on page 17 of the textbook.
2. Do question 3 on page 18 of the textbook.

PLACE VALUES**STUDENT LEARNING OUTCOME**

- Identify the place values of numbers up to 5 digits.

INFORMATION FOR TEACHERS

The teachers should know:

- How to read place value chart of numbers up to 5 digits.

Ten Thousands	Thousands	Hundreds	Tens	Ones
---------------	-----------	----------	------	------

- $10 = 1 \text{ tens} = 10 \text{ ones}$

$$100 = 1 \text{ hundreds} = 10 \text{ tens}$$

$$1000 = 1 \text{ thousands} = 10 \text{ hundreds}$$

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, 4 sets of flashcards, Place value chart

**INTRODUCTION**

- Divide the class into four groups.
- Provide a set of flashcards with different numbers written on them to each group.
- Ask each group to arrange the flashcards to form a 4-digit number.
- Draw the place value table on the board and ask a student from each group to fill the table with correctly writing the numbers.

Ten Thousands	Thousands	Hundreds	Tens	Ones

- Once all the groups have entered their numbers in the table, ask each group to use the same flashcards to come up with another number.
- Ask a student from each group to write their number in the place value table.
- Compare the two numbers of a group and emphasize that two numbers using the same digits will be different based on their place values.



DEVELOPMENT

Activity 1:

1. Call five students to stand in front of the class.
2. Give each student a flashcard with a number written on it.
3. Select a student randomly and ask him/her to identify the place values of the first four numbers written on the flashcards starting from the right-hand side. (from ones to thousands)
4. Take his/her response and tell students that the fifth digit is at the place of ten thousand.
5. Draw the following table on the board to show the position of ten thousands to the students.

Ten thousands	Thousands	Hundreds	Tens	Ones
1	2	3	4	5

6. Tell students that 5 is at ones place, 4 is at tens place, 3 is at hundreds place, 2 is at thousands place and 1 is at ten thousands place.

Activity 2:

1. Ask a student to come to the board and write a 5-digit number.
2. Circle two digits of the written number.
E.g., (2) 4 3 (6) 7
3. Ask a student to identify the place value of the circled digits.
4. Take his/her response and guide where necessary.



CONCLUSION / SUM UP

Conclude the activity by telling students that today we have learnt about a new place value i.e., ten thousands.



ASSESSMENT

1. Write the following numbers with circled digits on the board and ask students to copy and answer in their notebooks.
 - a. 2 (3) 6 (7) 8
 - b. (4) 1 7 (8) 2
2. Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do questions 5, 6 and 7 on page 19 of the textbook.

NUMBER LINE**STUDENT LEARNING OUTCOMES**

- Represent a given number on a number line up to 2-digit numbers.
- Identify the value of a number from a number line up to a 2-digit number.

INFORMATION FOR TEACHERS

The teachers should be able to:

1. Identify the value of a number on the number line.
2. Identify the value of objects on the number line.
3. To know that the number line is represented horizontally, the positive numbers are on the right side of zero and negative numbers are on the left side of zero.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, Chart showing number line, Chart showing number line with objects.

**INTRODUCTION**

1. Call six students to come and stand in front of the class.
2. Give one card to each student with one digit from 1-6.
3. Draw a straight line on the floor.
4. Ask students to stand on the line in order of the numbers given to them and show their cards to the class.
5. Tell students that these numbers on a straight line form a number line and in today's lesson we will learn more about it.

**DEVELOPMENT****Activity 1:**

1. Paste the following chart on the board showing the number line.



- Tell students that this is a straight line with numbers from 1 to 9. There is an equal interval on this line which means the difference of 1 among all numbers. Tell them that there could be different intervals such as difference of 2 or 5.
- Write the following intervals as examples on the board.
0 2 4 6 8 10
0 5 10 15 20 25 30
- Tell students that a straight line on which numbers are represented at equal intervals is called the number line.
- Ask students, what do you think we get from the number line.
- Take their responses and tell them that a number line represents the number in proper order.

Activity 2:

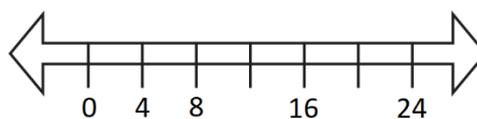
- Draw the following number line on the board.



- Write some numbers (2, 4, 6, 9, 12, 17) on the board.
- Call any 6 students on the board and ask each of them to write one number on the number line. Tell students that they should count the divisions on the number line to find out the correct position of each number.
- Take their responses.
- Guide students where required.



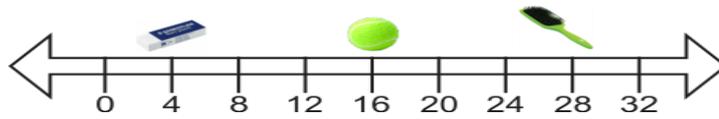
- Draw the following number line on the board.



- Tell students that this number line has some missing numbers.
- Ask students, how can we find out the missing numbers.
- Take their responses and tell them to find out the difference between the first two numbers i.e., $4-0=4$
- Ask the class to find out the difference between the next two numbers i.e., $8-4=4$. This shows that the numbers on the number line are written with a different of 4.
- Tell them to try finding out the number after 8 on the number line.
- Take their responses and write 12 on the number line.
- Similarly, ask students to find out the missing number after 16.
- Take their responses and write 20 on the number line.

Activity 3:

1. Paste the following chart on the board.



2. Ask any student to read the number line and tell the position of the eraser.
3. Take his/her response and guide if required.
4. Repeat steps 2 and 3 with ball and brush.



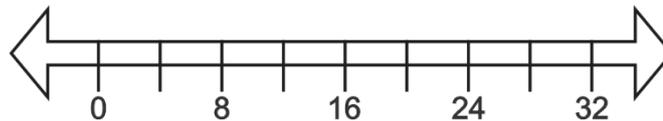
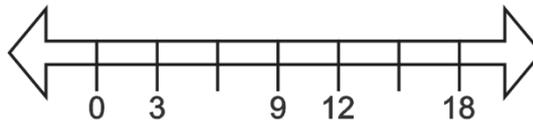
CONCLUSION / SUM UP

Tell students that a number line is a straight line on which numbers are represented at equal intervals.



ASSESSMENT

1. Ask students to copy the following questions in their notebooks and answer them.
Write the missing values on the given number lines.



2. Check their responses and guide where required.



HOMEWORK / FOLLOW UP

1. Do question 1 on page 25 of the textbook.
2. Do questions 2 and 3 on page 26 of the textbook.

Month

2

COMPARING AND ORDERING NUMBERS



STUDENT LEARNING OUTCOME

- Compare two numbers up to 3-digit using symbols " $<$ ", " $>$ " or " $=$ ".

INFORMATION FOR TEACHERS

The teachers should be able to compare 3-digit numbers as greater, less, or equal.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Board, Marker, Duster, Chart showing pictures of toys, Textbook.



INTRODUCTION

- Select ten students and give each of them a flashcard with a number from 10 to 100.
- Select one student and give him/her a flashcard with the number 30.
- Select three students and give each of them a flashcard with the symbol $>$, $<$ and $=$.
- Ask the student with the number 10 to stand towards the left of the student with the number 20 (while facing the class). Keep some space between the two students for the symbol.
- Ask the class, 10 is greater than 20 or less than 20.
- Take students' responses and tell them that 10 is less than 20. Tell students that the symbol for less than is ' $<$ ' and ask the student with symbol $<$ to stand between the two students.
- Ask the student with the number 70 to stand towards the left of the student with the number 50 (while facing the class). Keep some space between the two students for the symbol.
- Ask the class, 70 is greater than 50 or less than 50.
- Take students' responses and tell them that 70 is greater than 50. Tell students that the symbol for greater than is ' $>$ ' and ask the student with symbol $>$ to stand between the two students.

Tip

Imagine the symbols as an alligator's mouth. The open mouth is always facing towards the greater number and the tail will be facing towards the lesser number.

10. Ask the students with number 30 to stand beside each other. Keep some space between the two students for the symbol.
11. Ask the class, 30 is greater than 30 or less than 30.
12. Take students' responses and tell them that 30 is equal to 30. Tell students that the symbol for equal to is '=' and ask the student with symbol = to stand between the two students.
13. Tell students that in today's lesson, we will learn the use of symbols, >, < and = with different numbers.



DEVELOPMENT

Activity 1:

1. Write the following pair of numbers on the board.
27 _____ 31
2. Ask students to copy the given pair of numbers in their notebooks.
3. Guide them to answer the question as follows:
 - i. Identify the place value of each digit in the number by writing T, O above them.

T O	T O
2 7	3 1
 - ii. Compare the left most numbers. E.g., in the case of 27 and 31, 2 is less than 3 so 27 is less than 31.
4. Tell students that in case of 3-digit numbers, write H, T, O above the numbers and compare the left most numbers.
5. Write the following pairs of numbers on the board and ask students to compare each pair of numbers and fill in the blanks with the correct symbol.
6. Write the symbols for greater than, less than and equal to on the board for guidance.

12	_____	22
99	_____	100
150	_____	130
50	_____	50
120	_____	120
224	_____	351

- Call five students randomly on the board and ask each student one by one to fill in one blank.
- Check students' responses.
- Guide where required.

Activity 2:

- Write the following 3-digit numbers on the board with their place value.

H	T	O
<u>3</u>	5	5

H	T	O
<u>3</u>	5	9

- Ask the class to compare the number at hundreds place.
- Take students' responses and tell them that in both numbers, 3 is at hundreds place which means it is equal.

H	T	O
3	<u>5</u>	5

H	T	O
3	<u>5</u>	9

- Ask the class to compare the number at tens place.
- Take students' responses and tell them that in both numbers, 5 is at tens place which means it is equal.
- Ask the class to compare the number at ones place.

H	T	O
3	5	<u>5</u>

H	T	O
3	5	<u>9</u>

- Take students' responses and tell them that 5 is less than 9 so 355 is less than 359.



CONCLUSION / SUM UP

Tell students that:

- The sign for greater than is $>$
- The sign for less than is $<$
- The sign for equal to is $=$
- We take the help of place value to compare numbers.



ASSESSMENT

- Ask students to copy the given questions in their notebooks and answer them.

Write $<$, $>$ or $=$ for each of the following pairs of numbers.

817	-----	825
-----	-------	-----

364	-----	215
-----	-------	-----

64	-----	34
----	-------	----

- Check students' responses.
- Guide students where required.



HOMEWORK / FOLLOW UP

Do questions 1 and 2 on page 32 of the textbook.

COMPARING AND ORDERING NUMBERS



STUDENT LEARNING OUTCOME

- Write the given set of numbers in ascending and descending order (Numbers up to 3-digit)

INFORMATION FOR TEACHERS

1. The teachers should be able to arrange a given set of numbers in ascending and descending order.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Chart showing ascending and descending order as stairs

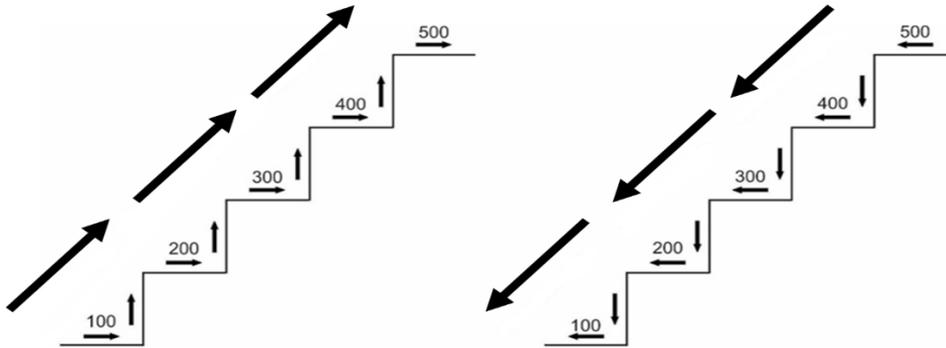


INTRODUCTION

3. Prepare flashcards having numbers 100, 200, 300, 400, and 500.
4. Choose five students and give one flashcard to each student.
5. Ask them, which number is smaller and which is greater.
6. Ask the students to arrange the flashcards from smaller to greater numbers in front of the class. Help them if required.
100, 200, 300, 400, 500
7. Tell them that when we arrange the numbers from smaller to greater, it is called ascending order.
8. Ask the students to arrange the flashcards from greater to smaller numbers in front of the class. Help them if required.
9. Tell them that when we arrange the numbers from greater to smaller, it is called descending order.
500, 400, 300, 200, 100
10. Tell students that today we will learn to arrange numbers in ascending and descending order.

**Activity 1:**

1. Paste the following chart on the board.



Ascending Order (upward)

Descending Order (downward)

2. Tell students that arranging numbers in ascending order is like climbing up stairs and arranging numbers in descending order is like climbing down the stairs.
3. Write the following numbers on the board.
380, 300, 257, 175, 120, 212
4. Ask students, using the given stairs diagram, arrange the numbers in ascending order in your notebooks.
5. Help students to arrange the numbers following the given steps:
 - i. First, look at the numbers in 100 (175, 120)
 - ii. Arrange these numbers in ascending order (120, 175)
 - iii. Look at the numbers in 200 (257, 212)
 - iv. Arrange these numbers in ascending order and write them after the numbers in 100
 - v. Look at the numbers in 300 (380, 300)
 - vi. Arrange these numbers in ascending order and write them after the numbers in 200
6. Ask any student to write the answer on the board.
7. Check student's response.
8. Guide him/her if required.
9. Write the following numbers on the board.
268, 565, 180, 220, 375, 300
10. Ask students, using the given stairs diagram, arrange the numbers in descending order in your notebooks.
11. Ask anyone student to write the answer on the board.
12. Check student's response.
13. Guide him/her if required.



CONCLUSION / SUM UP

Tell students that:

The order in which we proceed from smaller to greater number is called ascending order whereas, the order in which we proceed from greater to smaller is called descending order.



ASSESSMENT

1. Ask students to copy the following questions in their notebooks and answer them.
 - a) Arrange the following set of numbers into ascending order:
259, 289, 217, 250, 245
 - b) Arrange the following set of numbers into descending order:
555, 111, 333, 444, 222
2. Check their responses and guide where required.



HOMEWORK / FOLLOW UP

Do questions 3 and 4 on pages 32 and 33 of the textbook.

ESTIMATION



STUDENT LEARNING OUTCOME

- Rounding off the whole number to the nearest 10 and 100.

INFORMATION FOR TEACHERS

The teachers should know:

1. Methods for rounding off the whole number.
2. To use symbol " \approx " for rounding off.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster



INTRODUCTION

1. Write the following real-life situation on the board.
Asim went on shopping and spent Rs. 78. When his mother asked him, how much money he has spent, Asim said approximately, Rs. 80.
2. Ask students, why did Asim say Rs. 80.
3. Take their responses.
4. Tell students that today we will learn about rounding off whole numbers to the nearest 10 and 100.



DEVELOPMENT

Activity 1:

1. Refer to the same question written on the board.
2. Tell students if we want to round off 78 to the nearest 10, we look at the digit at ones place.
3. Circle the number at ones place. (i.e., 8)
4. If the digit at ones place is greater than 5, it is replaced with 0 and the digit at tens place is increased by 1. It means 8 will become 0 and 7 will become 8.

$$78 \approx 80$$

Similarly, if we want to round off 157 to the nearest 10, we look at the digit at ones place. Circle the number at ones place (i.e., 7). As 7 is greater than 5, it will be replaced with 0 and the digit at tens place will be increased by 1. It means 7 will become 0 and 5 will become 6.

$$157 \approx 160$$

5. Tell students that if the digit at ones place is less than 5, it is replaced with 0 and no change will take place to the number at tens place.

E.g., $124 \approx 120$

6. Write the following numbers on the board.
26, 46, 189, 14, 74, 233
7. Make pairs of students and ask them to round off the given numbers to the nearest 10.
8. Check few responses randomly and write the answers on the board.
9. Ask students to match their answers.
10. Guide students if required.

Activity 2:

1. Write the following statement on the board.
The number of students in a school is 632.
2. Ask students to round off the number 632 to the nearest 100. (answer: 600)
3. Take students' responses and guide them that if the digit at tens place is less than 5, then we replace the digits at ones and tens place with 0.

E.g., $632 \approx 600$

If the digit at tens place is greater or equal to 5, the digits at ones and tens place are replaced with 0 and the digit at hundreds place is increased by 1.

E.g., $468 \approx 500$



CONCLUSION / SUM UP

Tell students that today we have learned about rounding off whole numbers to the nearest 10 and 100.



ASSESSMENT

1. Write the following question on the board:
Match the following numbers with the correct value after rounding off to the nearest 10 and 100.

Nearest to 10	
17	30
32	60
58	70
77	20

Nearest to 100	
276	500
412	300
549	700
702	400

2. Select two students randomly and ask each student to attempt one question on the board.
3. Ask the rest of the students to comment if the matching's are correct or incorrect.
4. Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do question 10 on page 40 of the textbook.

ADDITION**STUDENT LEARNING OUTCOMES**

- Add numbers up to 4 digits with and without carrying.
- Solve real-life number stories up to 4-digits with and without carrying involving addition.

INFORMATION FOR TEACHERS

The teachers should know how to:

1. Add two 4-digit numbers with and without carrying
2. Solve real-life number stories, involving the addition of 4-digit numbers

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster

**INTRODUCTION**

1. Write the following question on the board.
One day Ahmad received 120 rupees from his father and 130 rupees from his mother on a good performance in his school exams. How much money he has received altogether?
2. Tell students that first, we add ones with ones, then tens with tens, and hundreds with hundreds as:

	Hundreds	Tens	Ones
	1	2	0
+	1	3	0
	2	5	0

3. Tell them that today we will learn about the addition of 4-digits numbers with and without carrying.

**Activity 1:**

1. Write the following question on the board.
Add 3324 and 1235.
2. Draw the following table on the board and call a student to fill in the table.

Thousands	Hundreds	Tens	Ones
+			

3. Check student's response and guide if required.
4. Ask another student to come to the board and answer the question. Guide the student to start from the right and add ones with ones, tens with tens, and hundreds with hundreds.
5. Check student's response and guide if required.
6. Ask the class, what should we do with 3 and 1 at thousands place.
7. Take students' responses and tell them that the digit at thousands place will also be added like the others.
8. Ask a student to come to the board and carry out the last step of addition.
9. Take his/her response and guide if required.

Thousands	Hundreds	Tens	Ones
3	3	2	4
+ 1	2	3	5
4	5	5	9

Activity 2:

1. Write the following question on the board:
There are 1628 trees of mangoes and 2172 trees of apples in a garden. Find the total number of trees in the garden.
2. Use the process of addition by involving the students and ask them to follow the given steps.
 - i. First step: Add ones with ones i.e., $8 + 2 = 10$. Write 0 in the ones column and carry 1 to the tens column.
 - ii. Second step: Add tens with tens and carry 1 i.e., $1 \text{ tens} + 2 \text{ tens} + 7 \text{ tens} = 10 \text{ tens}$. Write 0 in tens column and carry 1 to hundreds column.
 - iii. Third step: Add hundreds with hundreds and carry 1 i.e., $1 \text{ hundreds} + 6 \text{ hundreds} + 1 \text{ hundreds} = 8 \text{ hundreds}$. Write 8 in hundreds column.
 - iv. Fourth step: Add thousands with thousands i.e., $1 \text{ thousands} + 2 \text{ thousands} = 3 \text{ thousands}$. Write 3 in thousands column.

- v. Answer: The total number of trees in the garden is 3800.

	Thousands	Hundreds	Tens	Ones
Number of mango trees	1	6 ⁽¹⁾	2 ⁽¹⁾	8
Number of apple trees	2	1	7	2
Total trees in the garden	3	8	0	0

3. Select a student randomly and ask him/her to explain the process again to the class.
4. Guide the student where required.



CONCLUSION / SUM UP

Tell students that:

1. Ones are added with ones, tens with tens, hundreds with hundreds, and thousands with thousands.
2. We can use 4-digit addition to solve real-life situations.



ASSESSMENT

1. Write the following question on the board and ask students to copy down in their notebooks and answer it.
In a school, there are 3651 boys and 2349 girls. Find the total number of students in the school.
2. Check students' responses and guide if required.



HOMEWORK / FOLLOW UP

1. Do question 1 on page 46 of the textbook.
2. Do questions 3, 4 and 5 on page 47 of the textbook.

ADDITION



STUDENT LEARNING OUTCOME

- Add numbers up to 100 using mental strategies.

INFORMATION FOR TEACHERS

The teachers should be able to use mental strategies for adding numbers up to 100..



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



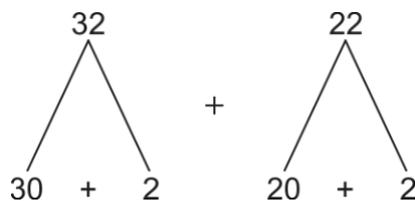
MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster



INTRODUCTION

1. Bring a packet of 54 toffees to the class.
2. Give 32 toffees to one student and 22 toffees to another student.
3. Ask students, how can we find the total number of toffees.
4. Take students' responses and write the breakdown of both numbers on the board as follows:



5. Tell students that first, we break 32 and 22 into tens and ones as shown.
6. Add tens with tens ($30 + 20 = 50$) and ones with ones ($2 + 2 = 4$) by counting to get the answer ($50 + 4 = 54$). This is how we use mental strategies to add two numbers.
7. Tell students that today we will practice mental strategies for addition.



DEVELOPMENT

Activity 1:

1. Write the following question on the board:
Add 35 and 62 using mental strategies.
2. Make pairs of students. Assign the task as follows:

- i. Student 1 of each pair should break down 35 into tens and ones and student 2 of each pair should break down 62 into tens and ones.

$$\begin{array}{c} 35 \\ \diagdown \quad \diagup \\ 30 \quad + \quad 5 \end{array} \quad + \quad \begin{array}{c} 62 \\ \diagdown \quad \diagup \\ 60 \quad + \quad 2 \end{array}$$

- ii. Student 1 should add tens with tens and student 2 should add ones with ones.
 - iii. Come up with the answer.
3. Take few responses and write 97 on the board.
 4. Summarize all the steps once again for developing sound understanding.



CONCLUSION / SUM UP

1. At the end of the lesson, tell students that today we have learned how to add two numbers using mental calculations.



ASSESSMENT

1. Write the following questions on the board and ask students to write the answers in their notebooks using a mental strategy:
 - i. $53 + 33 =$
 - ii. $62 + 14 =$
 - iii. $57 + 42 =$
 - iv. $15 + 64 =$
 - v. $22 + 35 =$
2. Call five students one by one to stand in front of the class and ask them to share their answers.
3. Check their responses and guide if required.



HOMEWORK / FOLLOW UP

Do question 8 on page 48 of the textbook.

SUBTRACTION**STUDENT LEARNING OUTCOMES**

- Subtract numbers up to 4-digits with and without borrowing.
- Solve real-life number stories up to 4-digit with and without borrowing involving subtraction.

INFORMATION FOR TEACHERS

The teachers should know that in subtraction of 4-digit numbers:

1. Subtract ones from ones, tens from tens, hundreds from hundreds, and thousands from thousands.
2. If the subtraction number is greater than the number from which it is subtracted, we borrow 1 ten as 10 ones from the tens place and carry to the ones place.

**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Chalk/Marker, Duster

**INTRODUCTION**

1. Ask the following question from the students:
Suppose you have 340 rupees. You give 152 rupees to your friend. How much money is left with you?
2. Ask a student to come to the board and answer the given question.

Hundreds	Tens	Ones
$3^{(2)}$	$4^{(13)}$	$0^{(10)}$
- 1	5	2
1	8	8

3. Check his/her steps of subtraction and explain each step to the whole class as a recall.
4. Tell students that in the previous class you have done subtraction with borrowing till hundreds. In today's class, we will learn to subtract 4-digit numbers which means up to thousands.

**Activity 1:**

1. Write the following question on the board:
Subtract 4563 from 5786
2. Ask the class, which number 4563 or 5786 is bigger.
3. Take students' responses and tell them that the bigger number i.e., 5786 will be written at the top whereas, the smaller number i.e., 4563 will be written under it.
4. Select a student randomly and ask him/her to write the given question in vertical form on the board.
5. Call another student and ask him/her to answer the question on the board till hundreds place.
6. Ask the rest of the students to check and comment if the answer is correct or incorrect.
7. Guide the students if required.

	Thousands	Hundreds	Tens	Ones
	5	7	8	6
-	4	5	6	3
<hr/>				
		2	2	3
<hr/>				

8. Ask the class, what will we do next with the digits on the thousands place.
9. Take their responses and tell them that we will subtract them as we have subtracted the rest of the digits, which means subtract thousands from thousands.
10. Ask a student to subtract digits at the thousands place and write the answer.
11. Help the student in reaching the right answer if required.

	Thousands	Hundreds	Tens	Ones
	5	7	8	6
-	4	5	6	3
<hr/>				
	1	2	2	3
<hr/>				

Activity 2:

1. Write the following question on the board:
Subtract 3657 from 5713 OR $5713 - 3657 = ?$
2. Select a student randomly and ask him/her to write the given question in vertical form on the board.
3. Explain the steps of subtraction to the students as follows:
 - i. Subtract the ones. We see that 7 at ones place is greater than 3, so we need to borrow. Borrow 1 tens as 10 ones from the tens place and carry to the ones place.

$$13 \text{ ones} - 7 \text{ ones} = 6 \text{ ones}$$

	Thousands	Hundreds	Tens	Ones
	5	7	7 ⁽¹⁰⁾	3 ⁽¹³⁾
–	3	6	5	7
				6

- ii. Subtract the tens. We see that 5 at tens place is greater than 0, so borrow 1 hundreds from the hundreds place and carry to the tens place.
 10 tens – 5 tens = 50 tens

	Thousands	Hundreds	Tens	Ones
	5	7 ⁽⁶⁾	7 ⁽¹⁰⁾	3 ⁽¹³⁾
–	3	6	5	7
			5	6

- iii. Subtract the hundreds. 6 hundreds – 6 hundreds = 0 hundreds

	Thousands	Hundreds	Tens	Ones
	5	7 ⁽⁶⁾	7 ⁽¹⁰⁾	3 ⁽¹³⁾
–	3	6	5	7
		0	5	6

- iv. Subtract the thousands. 5 thousands – 3 thousands = 2 thousands

	Thousands	Hundreds	Tens	Ones
	5	7 ⁽⁶⁾	7 ⁽¹⁰⁾	3 ⁽¹³⁾
–	3	6	5	7
	2	0	5	6



CONCLUSION / SUM UP

Tell students that today we have learnt subtraction of 4-digit numbers with and without borrowing.

SUBTRACTION**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2****INTRODUCTION**

1. Call a student to stand in front of the class and tell the steps of 4-digit subtraction learned in the last class.
2. Write the steps on the board.
3. Tell students that in today's class we will practice 4-digit subtraction with borrowing and use it to solve real-life problems.

**DEVELOPMENT****Activity 3:**

1. Make three groups of students and give each group one of the following questions to answer:

i	$\begin{array}{r} 3843 \\ -2465 \\ \hline \end{array}$	Group 1
ii	$\begin{array}{r} 4583 \\ -2496 \\ \hline \end{array}$	Group 2
iii	$\begin{array}{r} 6592 \\ -4293 \\ \hline \end{array}$	Group 3

2. Ask a student from each group to share their answer with the whole class.
3. Visit each group to check their understanding of subtraction with borrowing and subtraction of 4-digit numbers.
4. Facilitate and guide students where it is necessary.

Activity 4:

1. Write the following question on the board:
Asad has 7450 rupees. He bought some books for 4545 rupees. How much money is left with him?
2. Answer the question with the class as follows:

		Thousands	Hundreds	Tens	Ones
Total amount with Asad	=	7 ⁽⁶⁾	4 ⁽¹⁴⁾	5 ⁽⁴⁾	0 ⁽¹⁰⁾
Buy books of amount	=	4	5	4	5
Amount left with Asad	=	2	9	0	5
Asad has 2905 rupees left.					



CONCLUSION / SUM UP

Tell students that:

1. We can use the subtraction of 4-digit numbers with borrowing to solve real-life problems.
2. After reading the question copy down numbers in vertical form.
3. Subtract ones from ones, tens from tens, hundreds from hundreds, and thousands from thousands.
4. Write the answer in the form of a statement.



ASSESSMENT

1. Write the following questions on the board and ask students to answer them in their notebooks:
 - i. Asim had 4754 birds in a cage. He opened the cage and 3267 birds flew away. How many birds are left in the cage?
 - ii. There are 6425 students in a school. If 4213 of them are boys, how many girls are there in the school?
2. Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do questions 14 to 17 on page 56 of the textbook.

SUBTRACTION**STUDENT LEARNING OUTCOME**

- Subtract numbers up to 100 using mental strategies.

INFORMATION FOR TEACHERS

The teachers should know about the conversion of numbers into tens and ones and then the subtraction process by mental calculation.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD

**MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Chalk/Marker, Duster

**INTRODUCTION**

- Write the following numbers on the board:
Subtract 43 from 68
- Ask students, how we can subtract 43 from 68 using mental strategy. Tell them to recall the process they have learned in the previous class for addition.

$$\begin{array}{r}
 68 \\
 \swarrow \quad \searrow \\
 60 \quad + \quad 8
 \end{array}
 -
 \begin{array}{r}
 43 \\
 \swarrow \quad \searrow \\
 40 \quad + \quad 3
 \end{array}
 =
 \begin{array}{r}
 \boxed{60} - \boxed{40} = \boxed{20} \\
 \boxed{8} - \boxed{3} = \boxed{5} \\
 \hline
 \boxed{68} - \boxed{43} = \boxed{25}
 \end{array}$$

- First, break the numbers 68 and 43 into tens and ones.
 $68 = 60 + 8$ and $43 = 40 + 3$
- Subtract tens from tens. $60 - 40 = 20$
- Subtract ones from ones. $8 - 3 = 5$
- Add 20 and 5 to get 25 as the answer.
- Tell students that today we will subtract numbers using mental strategies.



DEVELOPMENT

Activity 1:

1. Write the following question on the board:
Subtract 35 from 57 using mental strategy.
2. Make pairs of students. Assign the task as follows:
 - i. Student 1 of each pair should break down 57 into tens and ones and student 2 of each pair should break down 35 into tens and ones.

$$\begin{array}{c} 57 \\ \diagdown \quad \diagup \\ 50 \quad + \quad 7 \end{array} \quad - \quad \begin{array}{c} 35 \\ \diagdown \quad \diagup \\ 30 \quad + \quad 5 \end{array}$$

- ii. Student 1 should subtract tens from tens and student 2 should subtract ones from ones.
 - iii. Come up with the answer.
5. Take few responses and write 22 on the board.
 6. Summarize all the steps once again for developing sound understanding.



CONCLUSION / SUM UP

1. At the end of the lesson, tell students that today we have learnt how to subtract two numbers using mental calculations.



ASSESSMENT

1. Write the following questions on the board and ask students to answer them using a mental strategy.
 - vi. $53 - 31 =$
 - vii. $65 - 14 =$
 - viii. $55 - 42 =$
 - ix. $74 - 52 =$
 - x. $45 - 13 =$
2. Call five students one by one to stand in front of the class and tell the answer to one question.
3. Check their responses and guide if required.



HOMEWORK / FOLLOW UP

Do question 13 on page 56 of the textbook.

Month

3

MULTIPLICATION



STUDENT LEARNING OUTCOME

- Develop multiplication tables for 6, 7, 8 and 9.

INFORMATION FOR TEACHERS

The teachers should be able to develop multiplication tables.



DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1



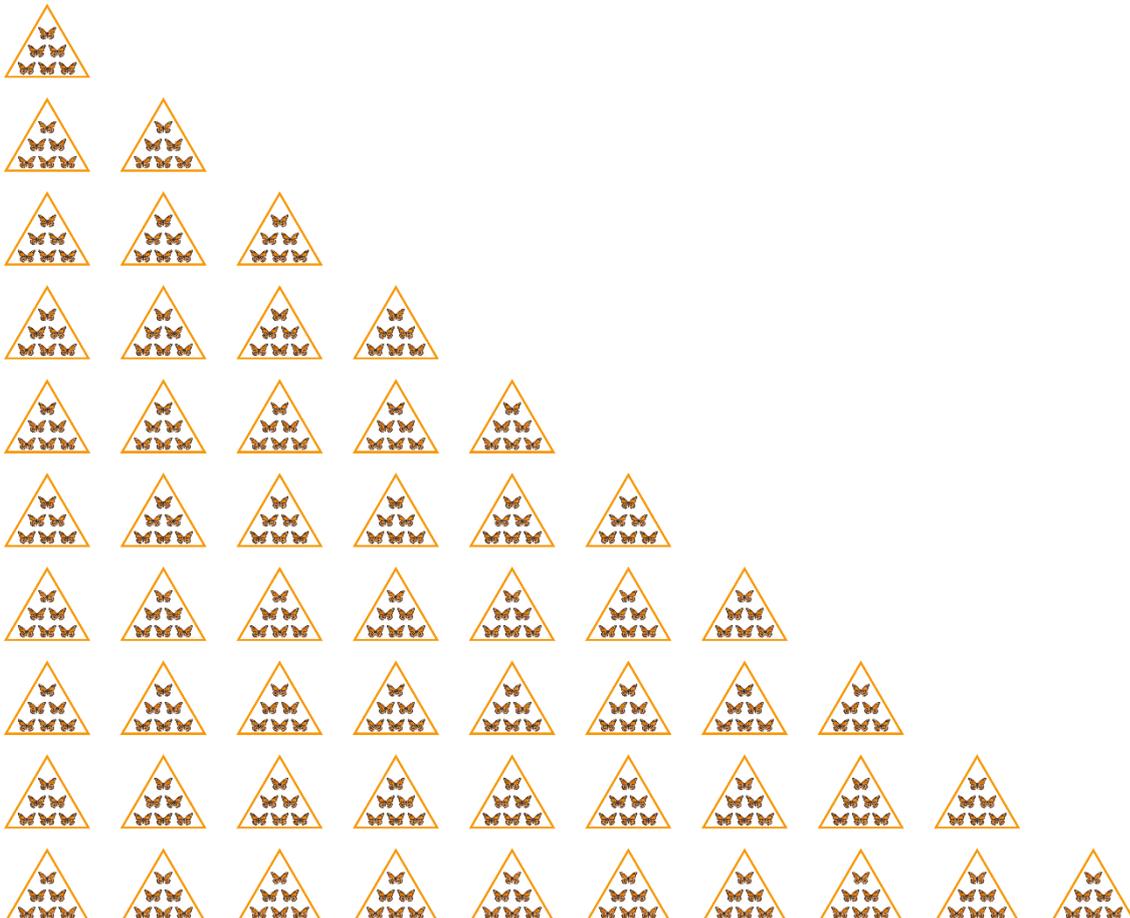
MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Chalk/Marker, Duster, Charts showing multiplication tables of 6, 7, 8 and 9



INTRODUCTION

1. Paste/Draw the following chart showing sets of butterflies on the board.



2. Ask one of the students to count the number of butterflies in the first triangle. (Expected answer: 6).
3. Write on the board: 1 set of 6 butterflies is equal to 6.
4. Ask another student to count butterflies in the triangles in the second row. (Expected answer: 12)
5. Write on the board: 2 sets of 6 butterflies are equal to 12.
6. Repeat steps 4 and 5 with the rest of the rows in the table.
7. Tell students that today we will learn about the development of multiplication tables of 6, 7, 8 and 9.



DEVELOPMENT

Activity 1:

1. In connection with the activity in introduction, tell students that:

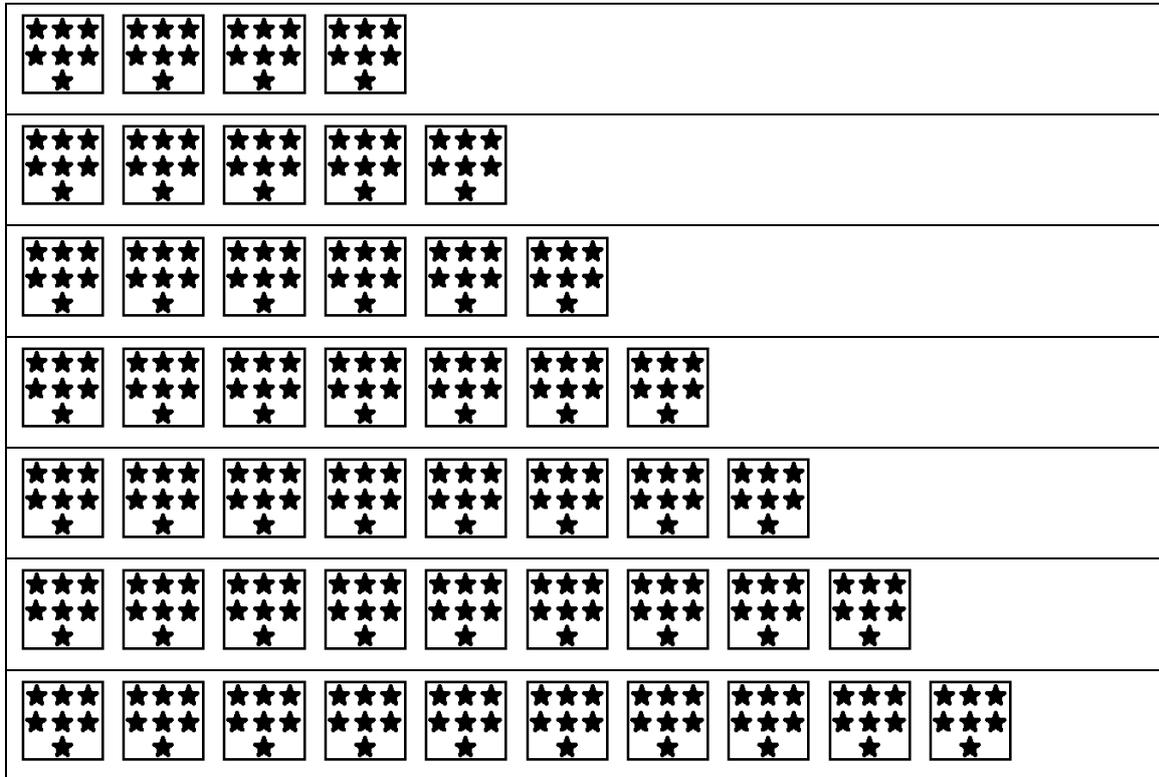
One set of six butterflies is equal to six means:	$6 \times 1 = 6$
Two sets of six butterflies are equal to twelve means:	$6 \times 2 = 12$
Three sets of six butterflies are equal to eighteen means:	$6 \times 3 = 18$
Four sets of six butterflies are equal to twenty-four means:	$6 \times 4 = 24$
Five sets of six butterflies are equal to thirty means:	$6 \times 5 = 30$
Six sets of six butterflies are equal to thirty-six means:	$6 \times 6 = 36$
Seven sets of six butterflies are equal to forty-two means:	$6 \times 7 = 42$
Eight sets of six butterflies are equal to forty-eight means:	$6 \times 8 = 48$
Nine sets of six butterflies are equal to fifty-four means:	$6 \times 9 = 54$
Ten sets of six butterflies are equal to sixty means:	$6 \times 10 = 60$

2. Ask students to open page 57 of the textbook and read the table of 6.

$6 \times 1 = 6$	$6 \times 6 = 36$
$6 \times 2 = 12$	$6 \times 7 = 42$
$6 \times 3 = 18$	$6 \times 8 = 48$
$6 \times 4 = 24$	$6 \times 9 = 54$
$6 \times 5 = 30$	$6 \times 10 = 60$

Activity 2:

1. Paste/Draw the following chart showing sets of stars on the board.



- Ask one of the students of the class to count the number of stars in the first square. (Expected answer: 7).
- Write on the board: 1 set of 7 stars is equal to 7.
- Ask another student to count stars in the squares in the second row. (Expected answer: 14)
- Write on the board: 2 sets of 7 stars are equal to 14.
- Repeat steps 4 and 5 with the rest of the rows in the table.
- Make the multiplication table for 7 with the help of the students and guide them where required.

$7 \times 1 = 7$	$7 \times 6 = 42$
$7 \times 2 = 14$	$7 \times 7 = 49$
$7 \times 3 = 21$	$7 \times 8 = 56$
$7 \times 4 = 28$	$7 \times 9 = 63$
$7 \times 5 = 35$	$7 \times 10 = 70$



CONCLUSION / SUM UP

Tell students that today we have learnt to develop multiplication tables of 6 and 7.

MULTIPLICATION

**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2****INTRODUCTION**

1. Ask a student to read aloud the table of 6. Let other students help where needed.
2. Ask a student to read aloud the table of 7. Let other students help where needed.
3. Tell students that today we will learn to develop multiplication tables of 8 and 9.

**DEVELOPMENT****Activity 3:**

1. Paste/Draw the following chart showing sets of flowers on the board.

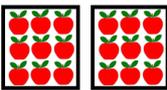
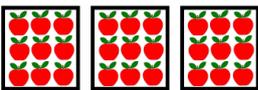
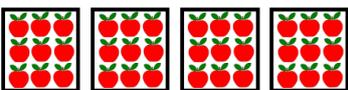
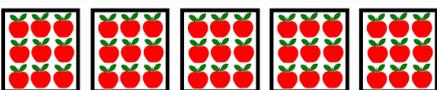
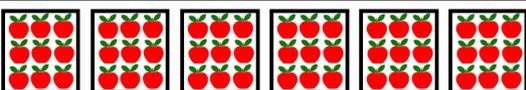
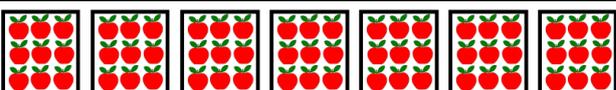
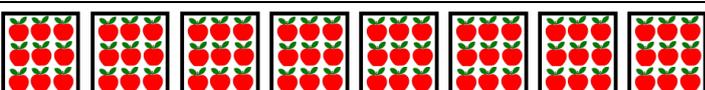
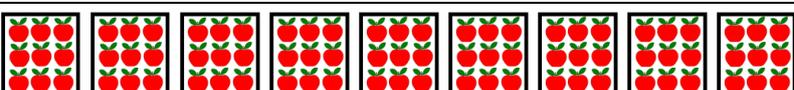
2. Ask one of the students of the class to count the number of flowers in the first rectangle. (Expected answer: 8).
3. Write on the board: 1 set of 8 stars is equal to 8.
4. Ask another student to count flowers in the rectangles in the second row. (Expected answer: 16)

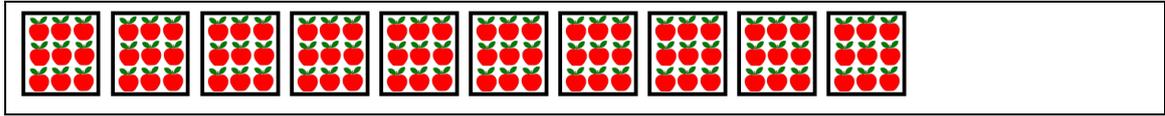
- Write on the board: 2 sets of 8 flowers are equal to 16.
- Repeat steps 4 and 5 with the rest of the rows in the table.
- Make the multiplication table for 8 with the help of the students and guide them where required.

$8 \times 1 = 8$
$8 \times 2 = 16$
$8 \times 3 = 24$
$8 \times 4 = 32$
$8 \times 5 = 40$
$8 \times 6 = 48$
$8 \times 7 = 56$
$8 \times 8 = 64$
$8 \times 9 = 72$
$8 \times 10 = 80$

Activity 4:

- Paste/Draw the following chart showing sets of apples on the board.



- Ask one of the students of the class to count the number of apples in the first box. (Expected answer: 9).
- Write on the board: 1 set of 9 apples is equal to 9.
- Ask another student to count apples in the box in the second row. (Expected answer: 18)
- Write on the board: 2 sets of 9 apples are equal to 18.
- Repeat steps 4 and 5 with the rest of the rows in the table.
- Make the multiplication table for 9 with the help of the students and guide them where required.

$9 \times 1 = 9$	$9 \times 6 = 54$
$9 \times 2 = 18$	$9 \times 7 = 63$
$9 \times 3 = 27$	$9 \times 8 = 72$
$9 \times 4 = 36$	$9 \times 9 = 81$
$9 \times 5 = 45$	$9 \times 10 = 90$



CONCLUSION / SUM UP

- Tell students that today we have learnt to develop multiplication tables of 8 and 9.



ASSESSMENT

- Ask the following questions from the students one by one. Ask them to take help from the tables on the board.

$$7 \times 6 = \text{-----}$$

$$9 \times 7 = \text{-----}$$

$$8 \times 8 = \text{-----}$$

$$6 \times 3 = \text{-----}$$

$$7 \times 5 = \text{-----}$$

$$8 \times 6 = \text{-----}$$

$$8 \times 9 = \text{-----}$$

$$9 \times 7 = \text{-----}$$

- Guide and correct them where it is necessary.



HOMEWORK / FOLLOW UP

Learn the tables of 6, 7, 8, and 9 by heart.

MULTIPLICATION



STUDENT LEARNING OUTCOMES

1. Multiply 2-digit numbers by a 1-digit number.
2. Multiply a number by 0 and 1.
3. Solve real-life problems involving the multiplication of a 2-digit number by a 1-digit number.

INFORMATION FOR TEACHERS

The teachers should know that:

1. A short operation for repeated addition of the same number is called multiplication.
2. When two numbers are multiplied with each other we get the product.
3. We can use multiplication to solve real-life problems.



DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Charts



INTRODUCTION

1. Write the following question on the board.
There are 5 baskets of apples. The number of apples in each basket is 6. How many apples are there in 5 baskets?
2. Ask students, how can we find the total number of apples in 5 baskets.
3. Take students' responses and tell them that one method to find out the total number of apples in 5 baskets is adding 6 five times.
 $6 + 6 + 6 + 6 + 6 = 30$ apples
4. Tell students that the second method is multiplication and ask them to recall the 1-digit multiplication that they have practiced in the previous class.
5. Write the following on the board.
6 apples in each basket x 5 baskets = ?
6. Ask students, recall the multiplication table of 6 and tell $6 \times 5 = ?$
7. Take their responses and write the 30 apples as the answer on the board.

8. Tell students that today we will learn about the multiplication of 2-digit by 1-digit numbers and multiplication of a number with 0 and 1.



DEVELOPMENT

Activity 1:

1. Write the following question on the board.

$$57 \times 5 = ?$$

2. Tell students to answer the question as follows:

- i. Write the question in vertical form.

$$\begin{array}{r} \text{T O} \\ {}^{(3)}57 \\ \times \quad 5 \\ \hline 285 \end{array}$$

- ii. Multiply ones with ones, i.e., $5 \times 7 = 35$
- iii. Write 5 at ones place and 3 as carry at tens place.
- iv. Multiply $5 \times 5 = 25$ and add 3 in the answer i.e., $25 + 3 = 28$
- v. Write 8 at tens place and 2 at hundreds place.
3. Repeat explanation of steps i to v.



CONCLUSION / SUM UP

Tell students that today we have learnt about the multiplication of 2-digit numbers with 1-digit numbers.

MULTIPLICATION**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2****INTRODUCTION**

- Write the following question on the board.
 $34 \times 6 = ?$
- Ask students to recall the steps of multiplication learned in the previous lesson.
- Select a student randomly and ask him/her to tell the steps of multiplication in sequence.
- Take his/her response and write the steps on the board.
- Guide the student where required.
- Ask another student to answer the sum on the board.

$$\begin{array}{r}
 \text{T O} \\
 {}^{(2)}3 \quad 4 \\
 \times \quad 6 \\
 \hline
 2 \quad 0 \quad 4
 \end{array}$$

- Check student's response and guide if required.
- Tell students that in today's class, we will learn how to use multiplication to solve real-life problems.

**DEVELOPMENT****Activity 2:**

- Write the following situation on the board.

There are three empty plates.



- Tell students that there is nothing in any of the plates. We can write this as:
 $0 + 0 + 0 = 0$ or
 $0 \times 3 = 0$
- Tell students that when a number is multiplied by 0, the answer is always 0.
 $2 \times 0 = 0$ and $4 \times 0 = 0$

4. Write the following situation on the board.



There are three plates and, in each plate, there is a biscuit. We can write this as:

$$1 + 1 + 1 = 3 \text{ or}$$

$$1 \times 3 = 3$$

Tell students that when a number is multiplied by 1, the number remains the same.

e.g., $1 \times 2 = 2$ and $1 \times 4 = 4$

Activity 3:

1. Write the following question on the board.

If the price of one book is Rs. 85, then what will be the price of 5 such books?

2. Tell students to answer the given question as follows:

- The price of 1 book = Rs. 85
- The price of 5 such books = Rs. 85 x Rs. 5 = Rs. 425
- The price of 5 such books = Rs. 425

3. Repeat the explanation of steps 1 and 2 to develop a better understanding.



CONCLUSION / SUM UP

Tell students that:

1. When a number is multiplied by 0, the answer is always 0.
2. When a number is multiplied by 1, the number remains the same.



ASSESSMENT

1. Divide the class into three groups.
2. Assign questions to each group as follows:

Group 1	53	30	
	X 5	X 7	

Group 2	75	30	
	X 7	X 5	

Group 3

$$\begin{array}{r} 90 \\ \times 9 \\ \hline \\ \hline \end{array} \qquad \begin{array}{r} 99 \\ \times 1 \\ \hline \\ \hline \end{array}$$

3. Ask each group to solve their questions.
4. Visit each group and guide them where needed.

0/0

HOMEWORK / FOLLOW UP

Answer questions 8, 10 and 11 on page 68 of the textbook.

MULTIPLICATION**STUDENT LEARNING OUTCOME**

- Apply mental mathematical strategies to multiply 1-digit number to 1-digit number.

INFORMATION FOR TEACHERS

The teachers should know the multiplication tables of 2-9.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Chalk/Marker, Duster

**INTRODUCTION**

1. Select three students randomly and ask them to answer the following:
 $2 \times 2 = ?$
 $3 \times 2 = ?$
 $4 \times 2 = ?$
2. Tell students that in the multiplication of a 1-digit number with a 1-digit number it is very important to use the multiplication tables, which is the simplest way to solve the problems.
3. Tell students that today we will learn about the mental strategy to multiply a 1-digit number with a 1-digit number.

**DEVELOPMENT****Activity 1:**

1. Write the following questions on the writing board and ask the students to answer them using the mental calculation for multiplication.
 - i. $7 \times 9 = ?$
 - ii. $6 \times 3 = ?$
 - iii. $8 \times 5 = ?$
 - iv. $9 \times 3 = ?$
2. Take students' responses and guide where required.

Activity 2:

1. Divide the class into two groups and label them as Team 1 and Team 2.
2. Draw two columns on the board. Write scoreboard on the top of the table. Label one column of the board as Team 1 and the other column as Team 2.
3. Ask one multiplication question from each team one by one and tell them to answer orally. E.g., $8 \times 7 = ?$
4. Give one point on each correct answer.
5. Count the points at the end and declare the winner of the game.
6. Appreciate the winning team and ask the other team (who has lost the game) to memorize tables.



CONCLUSION / SUM UP

Tell students that to multiply a 1-digit number with a 1-digit number, it is necessary to memorize multiplication tables from 2 to 9.



ASSESSMENT

1. Ask the following questions from the students:
 - i. $6 \times 3 = \text{-----}$
 - ii. $7 \times 5 = \text{-----}$
 - iii. $8 \times 6 = \text{-----}$
 - iv. $9 \times 3 = \text{-----}$
 - v. $8 \times 7 = \text{-----}$
2. Take their responses and guide where required.



HOMEWORK / FOLLOW UP

Answer question 9 on page 68 of the textbook.

DIVISION



STUDENT LEARNING OUTCOMES

- Divide 2-digit number by 1-digit number with zero remainder.
- Solve real-life situations involving division of 2-digit number by a 1-digit number

INFORMATION FOR TEACHERS

The teachers should know that

1. Division means to distribute things equally.
2. A short operation for repeated subtraction of the same number from any number is called division.
3. To solve real-life problems involving division.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Chalk/Marker, Duster



INTRODUCTION

1. Write the given question on the board.

Ahmad has 12 bananas. He wants to divide them among 4 friends equally. How many bananas will each friend get?

Friend 1	Friend 2	Friend 3	Friend 4
			
			
			

2. Tell students to solve the given problem as follows.
First, give one banana to each friend. $12 - 4 = 8$ (First subtraction)
This shows that out of 12 bananas 8 are left.

Give one banana again to each friend. $8-4=4$ (Second subtraction)

This shows that out of 8 bananas 4 are left.

Give one banana again to each friend. $4-4=0$ (Third subtraction)

No bananas are left. Hence, each friend will get 3 bananas.

3. Ask students, which mathematical operation has been carried out each time.
4. Take students' responses and write 'subtraction' on the board.
5. Tell students that in their previous class they have learnt that division is successive subtraction.
6. Tell the class that in today's lesson they will learn to divide 2-digit numbers with 1-digit numbers and how to use division to solve real-life problems.



DEVELOPMENT

Activity 1:

1. Write the following question on the board.
 $24 \div 6$
2. Tell students to recall the table of 6 and stop when they reach number 24.
 $6 \times 1 = 6$
 $6 \times 2 = 12$
 $6 \times 3 = 18$
 $6 \times 4 = 24$
3. Tell them that as $6 \times 4 = 24$ so the answer of $24 \div 6 = 4$
4. Write 4 as quotient, 6 is the divisor, 24 is the dividend.
5. Subtract 24 from 24 and the remainder is 0.
6. Describe the terminologies to the students with the help of the following figure.

$$\begin{array}{r} 4 \longrightarrow \text{quotient} \\ \text{divisor} \longleftarrow 6 \sqrt{24} \longrightarrow \text{dividend} \\ \quad \underline{-24} \\ \quad \quad 00 \longrightarrow \text{zero remainder} \end{array}$$

7. Ask students to repeat each term after you.

Activity 2:

1. Write the following question on the board.
Zahid has 32 toffees. He wants to divide these toffees among 8 children. How many toffees would each child get?
2. Write each step of division on the board as follows:
Total number of toffees = 32
Number of children = 8
Number of toffees each child would get = $32 \div 8 = 4$ toffees

$$\begin{array}{r}
 4 \text{ --- Quotient} \\
 \text{Divisor --- } 8 \overline{) 32} \text{ --- Dividend} \\
 \underline{-32} \\
 00 \text{ --- Remainder}
 \end{array}$$

Each child will get 4 toffees.



CONCLUSION / SUM UP

Tell students that:

1. Division is successive subtraction.
2. The terminologies used in division questions are as follows:

$$\begin{array}{r}
 4 \text{ --- Quotient} \\
 \text{Divisor --- } 8 \overline{) 32} \text{ --- Dividend} \\
 \underline{-32} \\
 00 \text{ --- Remainder}
 \end{array}$$



ASSESSMENT

1. Write the following questions on the board.
 - i. $21 \div 3 =$
 - ii. $36 \div 6 =$
 - iii. $35 \div 5 =$
 - iv. $72 \div 8 =$
 - v. $20 \div 4 =$
 - vi. $56 \div 7 =$
2. Ask students to answer each question in their notebooks, showing divisor, dividend, quotient and remainder.
3. Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Answer questions 16 to 20 given on pages 72 and 73 of the textbook in the notebooks.

DIVISION**STUDENT LEARNING OUTCOME**

- Apply mental strategies to divide 1-digit number by 1-digit number.

INFORMATION FOR TEACHERS

The teachers should be able to use mental strategies to answer division questions.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Chalk/Marker, Duster

**INTRODUCTION**

1. Tell students that we can use mental strategies to answer division questions quickly. For this, we should have learnt multiplication tables by heart.
2. Ask the following questions orally from the class.
 $2 \times 2 = ?$
 $3 \times 4 = ?$
 $4 \times 3 = ?$
 $8 \times 7 = ?$
 $6 \times 4 = ?$
 $5 \times 6 = ?$
3. Tell students that in today's lesson, we will practice using a mental strategy to answer questions involving division.

**DEVELOPMENT****Activity 1:**

1. Write the following question on the board.

$$8 \div 2$$

2. Ask students to read the table of 2 till they reach 8.
3. Take students' responses and write 4 on the board.
4. Write another question on the board.

$$8 \div 4$$

5. Ask students to read the table of 4 till they reach 8.
6. Take students' responses and write 2 on the board.
7. Repeat steps 4-6 with different values.
8. Guide students' where necessary.

Activity 2:

1. Divide the class into two groups and label them as Team 1 and Team 2.
2. Draw a line on the board to make two columns. Write scoreboard on the top of the table. Label one column of the board as Team 1 and the other column as Team 2.
3. Ask one division question from each team one by one and tell them to answer orally. E.g., $24 \div 3 = ?$
4. Give one point on each correct answer.
5. Count the points at the end and declare the winner of the game.
6. Appreciate the winning team and ask the other team (who has lost the game) to memorize tables.



CONCLUSION / SUM UP

Tell students that we can use mental strategies to answer division questions.



ASSESSMENT

1. Write the following questions on the board.
Using the mental strategies, answer the following questions.
 - i. $8 \div 4$
 - ii. $6 \div 3$
2. Call two students one by one to answer one question.
3. Help students with mental calculations.



HOMEWORK / FOLLOW UP

Answer questions 13, 14 and 15 on page 72 of the textbook.

Month

4

COMMON FRACTIONS**STUDENT LEARNING OUTCOMES**

- Express the fractions in figures and vice versa.
- Match the fraction with related figures.

INFORMATION FOR TEACHERS

The teachers should know that:

1. In fractions, a numerator means, how many parts you have and denominator shows how many equal parts the whole is divided into.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, 4 Chart papers, 4 Colour pencils, 4 Flashcards showing fractions

**INTRODUCTION**

1. Select a student randomly and give him/her an apple.
2. Ask the student to cut the apple into 4 equal pieces.
3. Tell him/her to give one piece to a student.
4. Tell the class that we can write this as $\frac{1}{4}$ where 4 is the total number of pieces of the apple and 1 is the number of pieces of the apple given to the student.
5. Ask students, if we give another piece to a student, how we should write it.
6. Take students' responses and write $\frac{2}{4}$ on the board.
7. Tell the class $\frac{1}{4}$ and $\frac{2}{4}$ are called fractions and a fraction is a part of a whole. The number above the line is called the numerator whereas, the number below the line is called the denominator.
8. Represent the fraction as follows on the board.

$$\text{fraction } \left\{ \begin{array}{l} \frac{1}{5} \longrightarrow \text{numerator} \\ \frac{1}{5} \longrightarrow \text{denominator} \end{array} \right.$$

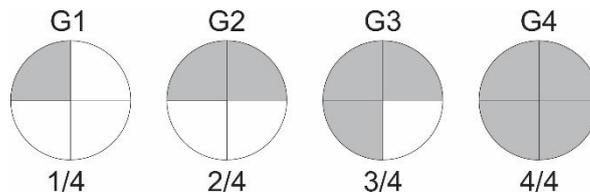
9. Tell students that in today's lesson, we will learn about fractions.



DEVELOPMENT

Activity 1:

1. Divide the class into four groups.
2. Distribute a chart paper and a few colour pencils to each group.
3. Ask each group to make four circles on the chart paper and divide each circle into four equal parts.
4. Ask each group to colour part(s) of their circle as follows:
 $1/4, 2/4, 3/4, 4/4$
5. Call a member from each group one by one and ask him/her to present their circle to the class.
6. Encourage correct responses and guide students where necessary.



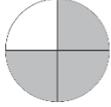
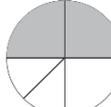
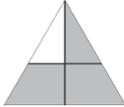
Activity 2:

1. Divide the class into four groups.
2. Give one flashcard to each group with one of the following fractions on it.
 $2/4, 3/4, 4/6, 3/8$
3. Ask each group to discuss and draw the figure of the fraction assigned to them in their notebooks.
4. Call a member from each group one by one and ask him/her to present their figure to the class.
5. Encourage correct responses and guide students where necessary.



Activity 3:

1. Draw the following table on the board.
2. Select five students randomly and ask them to come to the board one by one, and match one fraction in column A with its correct figure in column B.

Column A	Column B
$\frac{1}{2}$	
$\frac{1}{5}$	
$\frac{3}{4}$	
$\frac{4}{6}$	
$\frac{5}{9}$	



CONCLUSION / SUM UP

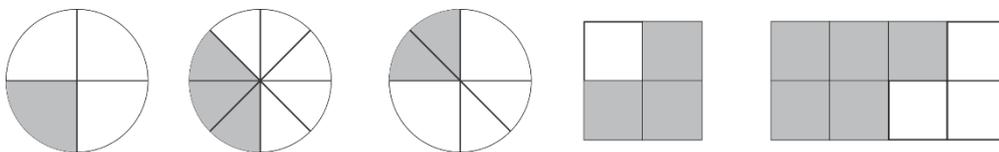
Tell students that:

1. Fraction is always a part of a whole.
2. In a fraction, the number above the line is called the numerator whereas, the number below the line is called the denominator.



ASSESSMENT

1. Draw the following figures on the board and ask students to answer the question in their notebooks.
2. Write the fraction representing the shaded parts of the following figures.



3. Check students' responses.
4. Guide students where required.



HOMEWORK / FOLLOW UP

Do questions 1 and 2 on page 82 of the textbook.

PROPER AND IMPROPER FRACTIONS**STUDENT LEARNING OUTCOMES**

1. Recognize proper and improper fractions.
2. Differentiate between proper and improper fractions.

INFORMATION FOR TEACHERS

The teachers should know that:

1. In proper fractions, the numerator is less than the denominator.
2. In improper fractions, the numerator is greater than or equal to the denominator.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, 3 Flashcards showing fractions

**INTRODUCTION**

1. Show three flashcards to the class with fractions $\frac{3}{5}$, $\frac{7}{2}$ and $\frac{3}{3}$ written on them.
2. Ask students to look at the fractions carefully and tell the difference between them.
3. Give students appropriate time.
4. Take students' responses and write them on the board.
5. Tell students that:
In $\frac{3}{5}$, 3 is less than 5 i.e., the numerator is less than the denominator.
In $\frac{7}{2}$, 7 is greater than 2 i.e., the numerator is greater than the denominator.
In $\frac{3}{3}$, the numerator is equal to the denominator.
6. Tell students that in today's lesson, we will learn about the types of fractions.

**DEVELOPMENT****Activity 1:**

1. Tell students the following number story.

Aslam brought a cake on his birthday and divided it into eight equal pieces. 7 pieces were eaten by his friends. How many pieces are left?

2. Take students' responses and write 1 on the board.
3. Select a student randomly and ask him/her to write the given situation in the form of a fraction on the board. (Expected answer: $1/8$)
4. Take his/her response and guide if required.
5. Tell students that in fraction $1/8$, the numerator (1) is less than the denominator (8). This type of fraction is called a proper fraction.
6. Write $5/2$ on the board.
7. Ask students, in the given fraction which is greater, the numerator or the denominator.
8. Take students' responses and write on the board, the numerator is greater than the denominator.
9. Tell students that when the numerator (5) is greater than the denominator (2), it is called an improper fraction.
10. Write $6/6$ on the board and ask students, is a proper or improper fraction.
11. Take students' responses and tell them that if the numerator is equal to the denominator, it is also called an improper fraction.

Activity 2:

1. Divide the class into four groups.
2. Write the following fractions on the board.

$1/3$	$10/13$	$9/6$
-----	-----	-----
$7/2$	$5/8$	$11/13$
-----	-----	-----
$5/12$	$8/5$	$41/63$
-----	-----	-----
$5/5$	$10/3$	$8/8$
-----	-----	-----

3. Select students randomly and ask them to identify one fraction as proper or improper. Write their answers on the board.
4. Encourage the correct responses and guide students where it is necessary.



CONCLUSION / SUM UP

1. Tell students that today we have learnt about proper and improper fractions.



ASSESSMENT

1. Write the following table on the board.
2. Ask students to copy the table and complete it in their notebooks. One is done for you.

S. No.	Fraction	Proper fraction	Improper fraction
1	$\frac{4}{5}$	✓	-
2	$\frac{8}{3}$		
3	$\frac{11}{11}$		
4	$\frac{12}{13}$		
5	$\frac{13}{25}$		
6	$\frac{29}{16}$		

3. Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do questions 3 and 4 on pages 82 and 83 of the textbook.

EQUIVALENT FRACTIONS



STUDENT LEARNING OUTCOMES

- Identify equivalent fractions from the given figures.
- Write three equivalent fractions for a given fraction.

INFORMATION FOR TEACHERS

The teachers should know about:

1. Equivalent fractions
2. Formation of equivalent fractions



DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1



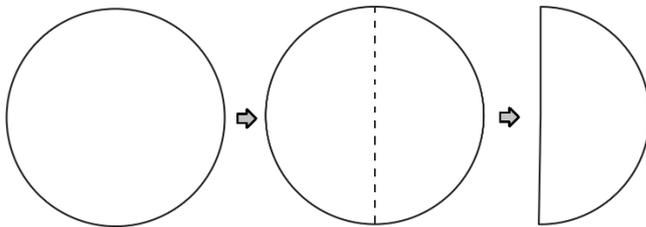
MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, 4 Card sheets, Scissors, 4 paper strips of equal length

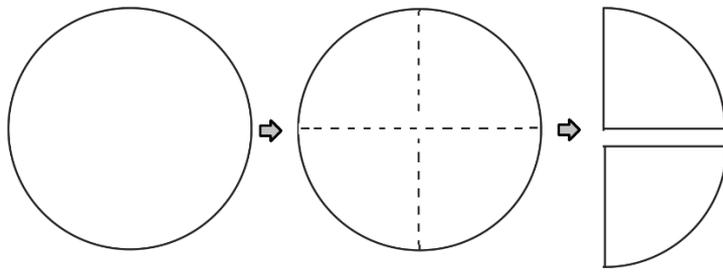


INTRODUCTION

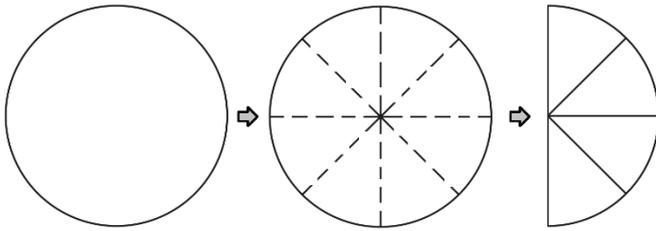
1. Bring three circular card sheets to the class.
2. Call a student to the board and give him/her one card sheet.
3. Ask him/her to cut it into two equal parts with the help of scissors.
4. Ask him/her to take one half only and tell how to write it in fraction form.
5. Take the student's response and write $\frac{1}{2}$ on the board.



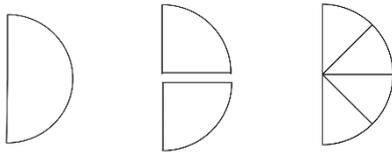
6. Call another student to the board and give him/her one card sheet.
7. Ask him/her to cut it into four equal parts with the help of scissors.
8. Ask him/her to take two parts and tell how to write it in fraction form.
9. Take student's response and write $\frac{2}{4}$ on the board.



10. Call another student to the board and give him/her one card sheet.
11. Ask him/her to cut it into eight equal parts with the help of scissors.
12. Ask him/her to take four parts and tell how to write it in fraction form.
13. Take student's response and write $\frac{4}{8}$ on the board.



14. Ask students to observe the shape of the figure each student has.



Student 1 Student 2 Student 3

15. Tell students that all of them have the same size card sheet but with different fraction forms.

Student 1 has $\frac{1}{2}$

Student 2 has $\frac{2}{4}$

Student 3 has $\frac{4}{8}$

This shows that $\frac{1}{2}$, $\frac{2}{4}$ and $\frac{4}{8}$ are equivalent fractions.

16. Tell students that in today's lesson, we will learn about equivalent fractions.



DEVELOPMENT

Activity 1:

1. Divide the class into five groups.
2. Give a strip of paper to each group and assign a fraction, $\frac{3}{9}$, $\frac{2}{6}$, $\frac{5}{15}$, $\frac{6}{18}$, $\frac{4}{12}$
3. Ask each group to shade their strip as per the fraction assigned to them.
4. Visit each group and guide where required.
5. Paste all the strips in a line on the board and ask them what is common in these fractions.
6. Take their responses and tell them that the shaded sections of all the strips are equal but they in different fraction forms.

7. Tell students that they are different fractions but the same in values. Such fractions are called equivalent fractions.



CONCLUSION / SUM UP

Tell students that in today's lesson, we have learned about equivalent fractions.

EQUIVALENT FRACTIONS



DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2



INTRODUCTION

1. Draw the following fractions on the board.

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



$$\frac{2}{6}$$



$$\frac{4}{12}$$

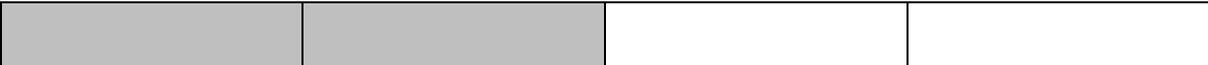


2. Ask students, what type of fractions are these.
3. Take students' responses and write on the board, equivalent fractions.
4. Tell students that in today's lesson, we will explore more about equivalent fractions.



DEVELOPMENT

Activity 2:

1. Divide the class into 4 groups and give each group a long strip of equal length.
2. Ask the first group to divide the strip into two equal parts and colour one part of it.
 
3. Ask the second group to divide the strip into four equal parts and colour only two parts of it.
 
4. Ask the third group to divide the strip into six equal parts and colour three parts of it.
 
5. Ask the fourth group to divide the strip into eight equal parts and colour four parts of it.
 
6. Ask each group to paste their strips on the board and compare them.
7. Tell students that the coloured part(s) of all the groups are the same though the fraction is different. So, these will be equivalent fractions.

Activity 3:

1. Write $\frac{2}{3}$ on the board and tell students that we will make three equivalent fractions of it.
2. Tell students that to make equivalent fractions, we multiply or divide the numerator or the denominator by the same non-zero number.
3. Explain the formation of equivalent fractions with the help of the following example.

To make the first equivalent fraction of $\frac{2}{3}$, multiply the numerator and the denominator with 2. We will get $\frac{4}{6}$.

To make the second equivalent fraction of $\frac{2}{3}$, multiply the numerator and the denominator with 3. We get $\frac{6}{9}$.

To make the third equivalent fraction of $\frac{2}{3}$, multiply the numerator and the denominator with 4. We get $\frac{8}{12}$.

$$\begin{aligned}\frac{2}{3} &= \frac{2 \times 2}{3 \times 2} = \frac{4}{6} \\ \frac{2}{3} &= \frac{2 \times 3}{3 \times 3} = \frac{6}{9} \\ \frac{2}{3} &= \frac{2 \times 4}{3 \times 4} = \frac{8}{12}\end{aligned}$$

Hence, the three equivalent fractions of $\frac{2}{3}$ are $\frac{4}{6}, \frac{6}{9}, \frac{8}{12}$



CONCLUSION / SUM UP

Tell students that for making equivalent fractions, we multiply or divide the numerator or the denominator by the same non-zero number.



ASSESSMENT

1. Write the following question on the board and ask students to complete it in their notebooks.

Match equivalent fractions.

$\frac{3}{4}$	$\frac{14}{22}$	$\frac{5}{8}$	$\frac{4}{14}$
$\frac{2}{7}$	$\frac{9}{12}$	$\frac{7}{11}$	$\frac{10}{16}$

2. Check students' responses and guide if required.



HOMEWORK / FOLLOW UP

Do questions 1 and 2 on pages 86 and 87 of the textbook.

COMPARING FRACTIONS**STUDENT LEARNING OUTCOME**

- Compare fractions with the same denominator using the symbol " $<$ ", " $>$ " or " $=$ "

INFORMATION FOR TEACHERS

The teachers should know that:

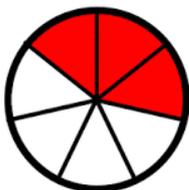
1. A fraction having a greater numerator than the other fraction is a greater fraction.
2. Fractions with the same numerators are equal fractions.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

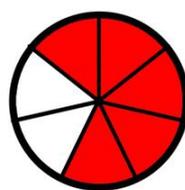
- Textbook, Board, Marker/Chalk, Duster, Worksheet

**INTRODUCTION**

1. Write the following number story on the board.
2. Ahmad eats $\frac{3}{7}$ parts of bread while Asad eats $\frac{5}{7}$ parts of bread.



Ahmad: $\frac{3}{7}$



Asad: $\frac{5}{7}$

3. Ask students, who eats more bread, Ahmad or Asad?
4. Take students' responses and tell them that Asad eats more bread.
5. Tell students that in today's lesson, we will learn the comparison of fractions.

**DEVELOPMENT****Activity 1:**

1. Ask students how do we know that $\frac{5}{7}$ is greater than $\frac{3}{7}$.

- Take students' responses and tell them that when the denominators are the same, the fraction having the greater numerator than the other fraction, is a greater fraction. In the given case, the denominators of both fractions are the same i.e., 7 and the numerator 5 is greater than the numerator 3. So, $\frac{5}{7}$ is greater than $\frac{3}{7}$.

Or we can say, $\frac{3}{7}$ is smaller than $\frac{5}{7}$.

- Tell students that we can use symbols of greater than and less than to write the given relationship symbolically.

E.g., $\frac{5}{7} > \frac{3}{7}$ or $\frac{3}{7} < \frac{5}{7}$

- Write the following fraction on the board.

$\frac{3}{7}$ _____ $\frac{3}{7}$

- Ask students which symbol to be written in the blank.
- Take students' responses and tell them that when the numerators and the denominators of both the fractions are the same, the fractions are called equal fractions.

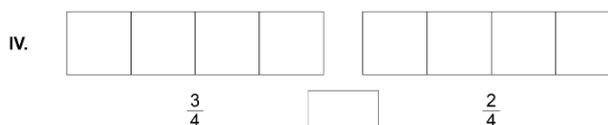
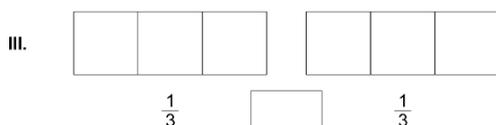
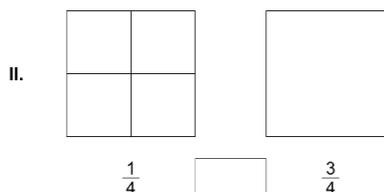
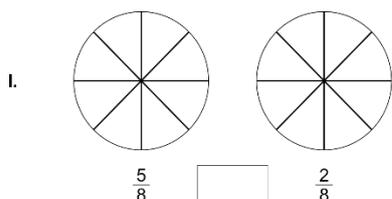
We can write it as:

$\frac{3}{7} = \frac{3}{7}$

Activity 2:

- Divide the class into four groups and give one worksheet to each group.
- Instruct the class to fill in the worksheet collectively.

Shade the figures according to the fractions given and fill in the boxes with the symbol $<$, $>$ or $=$.



- Visit each group during the activity.
- Ask one student from each group to present their work to the class.
- Check answers of each group and guide where required.



CONCLUSION / SUM UP

Tell students that:

- When the denominators are the same, the fraction having the greater numerator than the other fraction is a greater fraction.

2. When the numerators and the denominators of both the fractions are the same, the fractions are called equal fractions.



ASSESSMENT

1. Write the following questions on the board.

Use "<", ">" or "=" to fill in the given boxes.

i. $\frac{3}{4}$ $\frac{7}{4}$

ii. $\frac{5}{7}$ $\frac{2}{7}$

iii. $\frac{1}{9}$ $\frac{1}{9}$

iv. $\frac{8}{6}$ $\frac{7}{6}$

v. $\frac{2}{3}$ $\frac{5}{3}$

2. Call five students one by one on the board to answer one question.
3. Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do question 2 on page 89 of the textbook.

ADDITION OF FRACTIONS**STUDENT LEARNING OUTCOMES**

- Add two fractions with the same denominators.
- Represent addition of fractions through figures.

INFORMATION FOR TEACHERS

The teachers should know that to add fractions with the same denominator, we add numerators only and the denominator remains the same.

**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1****MATERIALS / RESOURCES REQUIRED**

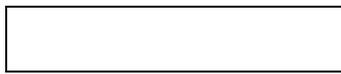
- Textbook, Board, Marker/Chalk, Duster, Worksheet

**INTRODUCTION**

1. Write the following number story on the board.
Afzal and Akram bought a card sheet. The card sheet was divided into 6 equal pieces. Afzal used 1 piece of the card sheet, while Akram used 3 pieces of the card sheet. How much card sheet is used by them altogether?
2. Ask students, how many pieces are there of the card sheet.
3. Take students' responses and write 6 on the board.
4. Ask students, how many pieces of the card sheet Afzal used.
5. Take students' responses and write 1 on the board.
6. Ask students, how many pieces of the card sheet Akram used.
7. Take students' responses and write 3 on the board.
8. Ask students, how can we find out the total number of card sheets used by both.
9. Take students' responses and tell them that in today's lesson they will learn about the addition of two fractions.

**DEVELOPMENT****Activity 1:**

1. Draw the following figure on the board and ask students to consider it as the card sheet.



2. Call a student and ask him/her to divide the card sheet into six equal pieces.



3. Call another student and ask him/her to shade one piece of the card sheet ($\frac{1}{6}$).



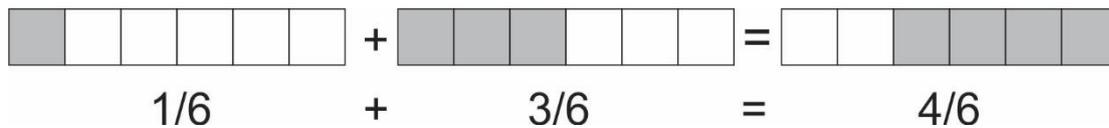
4. Draw the following figure again on the board.



5. Call the third student to come and shade three pieces of the card sheet ($\frac{3}{6}$).



6. Call the fourth student to come and combine the card sheets.



Hence, Afzal and Akram used $\frac{4}{6}$ of the card sheet.

7. Tell students this is how we add fractions and in today's lesson, we will practice the addition of fractions.

Activity 2:

1. Write the following question on the board.

$$\frac{1}{4} + \frac{2}{4} = \underline{\hspace{2cm}}$$

2. Tell the class to remember the rule for the addition of fractions.

To add fractions with the same denominator we add numerators only.

3. Answer the question with the class as follows:

i. Add the numerators only i.e., $1 + 2 = 3$

ii. Write 3 as the numerator over the denominator 4 as $\frac{3}{4}$

4. Ask students to answer the following questions using the same rule.

i. $\frac{3}{11} + \frac{7}{11} = \underline{\hspace{2cm}}$

ii. $\frac{3}{12} + \frac{5}{12} + \frac{7}{12} = \underline{\hspace{2cm}}$

5. Check students' work and guide where required.



CONCLUSION / SUM UP

Tell students that, to add fractions with the same denominator we add numerators only.

ADDITION OF FRACTIONS**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2****INTRODUCTION**

1. Write the following question on the board.

$$\frac{2}{5} + \frac{6}{5} = \underline{\hspace{2cm}}$$

2. Select a student randomly and ask him/her to tell how to answer the question.
3. Take his/her response and correct if required.
4. Ask another student to answer the question on board.
5. Check his/her response and ask the class to comment if the answer is correct or not.
6. Tell students that in today's lesson, we will learn to represent the addition of fractions through figures.

**DEVELOPMENT****Activity 3:**

1. Divide the class into four groups.
2. Give the following worksheet to each group.
3. Instruct each group to discuss and answer the first question only.

4. Call one student from each group to share their work with the class.
5. Take students' responses.
6. Give students the following guidelines to answer the question.

- i. Look at the shaded part of the first figure and write in fraction. E.g., the first figure shows one shaded part out of four. Write $\frac{1}{4}$
 - ii. Look at the shaded part of the second figure and write in fraction. E.g., the second figure shows one shaded part out of four. Write $\frac{1}{4}$
 - iii. See the symbol of mathematical operation between both fractions and write it as $\frac{1}{4} + \frac{1}{4}$
 - iv. Add the numerator with the numerator i.e., $1+1 = 2$
 - v. Copy down the denominator without change and write the answer as $\frac{2}{4}$.
7. Ask students to answer the remaining questions following these guidelines.



CONCLUSION / SUM UP

1. Tell students that representing the addition of fractions through figures makes it easy to understand the concept.



ASSESSMENT

1. Write the following questions on the board and ask students to answer them in their notebooks.
 - i. $\frac{3}{7} + \frac{4}{7} = \underline{\hspace{2cm}}$
 - ii. $\frac{2}{5} + \frac{6}{5} = \underline{\hspace{2cm}}$
 - iii. $\frac{1}{9} + \frac{7}{9} = \underline{\hspace{2cm}}$
 - iv. $\frac{4}{11} + \frac{8}{11} = \underline{\hspace{2cm}}$
2. Make pairs of students and ask them to check each other's work
3. Guide them where required.



HOMEWORK / FOLLOW UP

Do questions 1-6 on page 90 of the textbook.

SUBTRACTION OF FRACTIONS**STUDENT LEARNING OUTCOMES**

- Subtract the fractions with the same denominator.
- Represent subtraction of fractions through figures.

INFORMATION FOR TEACHERS

The teachers should know that to subtract fractions with the same denominator, we subtract the numerators only and the denominator remains the same.

**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, Cake, Knife, Worksheet

**INTRODUCTION**

1. Write the following number story on the board.
Abid and Shahid bought a cake. Abid ate $\frac{3}{7}$ of the cake and Shahid ate $\frac{2}{7}$ of the cake. How much more cake was eaten by Abid than Shahid?
2. Place a small cake on the table and cut it into 7 pieces.
3. Call one of the students to come and take 3 pieces of the cake ($\frac{3}{7}$).
4. Call another student to come and take 2 pieces of the cake ($\frac{2}{7}$).
5. Call the third student to come and find the difference between the pieces of cake taken by both the students ($\frac{1}{7}$).
6. Take students' responses and tell them that today we will learn about the subtraction of fractions.

**DEVELOPMENT****Activity 1:**

1. Write the following question on the board.
 $\frac{5}{8} - \frac{4}{8} = \underline{\hspace{2cm}}$
2. Tell the class to remember the rule for the subtraction of fractions.
To subtract fractions with the same denominator we subtract the numerators only.

3. Answer the question with the class as follows:
 - i. Subtract the numerators only i.e., $5 - 4 = 1$
 - ii. Write 1 as the numerator over the denominator 8 as $\frac{1}{8}$

Activity 2:

1. Divide the class into three groups.
2. Assign one question to each group and ask them to answer it using the same rule.
 - i. $\frac{7}{13} - \frac{4}{13} = \underline{\hspace{2cm}}$
 - ii. $\frac{9}{5} - \frac{2}{5} = \underline{\hspace{2cm}}$
 - iii. $\frac{4}{12} - \frac{1}{12} = \underline{\hspace{2cm}}$
3. Ask one member of each group to come and present their work.
4. Guide students where required.



CONCLUSION / SUM UP

Tell students that, to subtract fractions with the same denominator we subtract numerators only.

SUBTRACTION OF FRACTIONS



DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2



INTRODUCTION

- Write the following question on the board.

$$\frac{6}{9} - \frac{2}{9} = \underline{\hspace{2cm}}$$

- Select a student randomly and ask him/her to tell how to answer the question.
- Take his/her response and correct if required.
- Ask another student to answer the question on board.
- Check his/her response and ask the class to comment if the answer is correct or not.
- Tell students that in today's lesson, we will learn to represent the subtraction of fractions through figures.

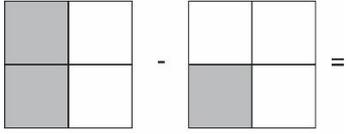
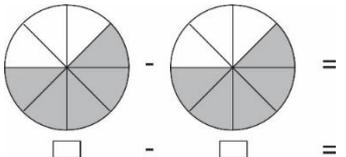


DEVELOPMENT

Activity 3:

- Divide the class into four groups.
- Give the following worksheet to each group.
- Instruct each group to discuss and answer the first question only.

1	$\frac{\quad}{\quad} - \frac{\quad}{\quad} =$
2	$\frac{\quad}{\quad} - \frac{\quad}{\quad} =$
3	$\frac{\quad}{\quad} - \frac{\quad}{\quad} =$

4	 <input type="text"/> - <input type="text"/> =
5	 <input type="text"/> - <input type="text"/> =

4. Call one student from each group to share their work with the class.
5. Take students' responses.
6. Give students the following guidelines to answer the question.
 - i. Look at the shaded part of the first figure and write in fraction. E.g., the first figure shows three shaded parts out of four. Write $\frac{3}{4}$
 - ii. Look at the shaded part of the second figure and write in fraction. E.g., the second figure shows one shaded part out of four. Write $\frac{1}{4}$
 - iii. See the symbol of mathematical operation between both fractions and write is as $\frac{3}{4} - \frac{1}{4}$
 - iv. Subtract the numerators. $3 - 1 = 2$
 - v. Copy down the denominator without change and write the answer as $\frac{2}{4}$.
7. Ask students to answer the remaining questions following these guidelines.



CONCLUSION / SUM UP

Tell students that representing the subtraction of fractions through figures makes it easy to understand the concept.



ASSESSMENT

1. Write the following questions on the board and ask students to answer them in their notebooks.

i. $\frac{8}{9} - \frac{1}{9}$

ii. $\frac{5}{7} - \frac{2}{7}$

iii. $\frac{6}{11} - \frac{4}{11}$

iv. $\frac{8}{14} - \frac{6}{14}$

2. Make pairs of students and ask them to check each other's work
3. Guide them where required.



HOMEWORK / FOLLOW UP

Do questions 1-9 on page 92 of the textbook.

LENGTH**STUDENT LEARNING OUTCOME**

- Use standard metric units of length (kilometer, meter and centimeter) including abbreviations.

INFORMATION FOR TEACHERS

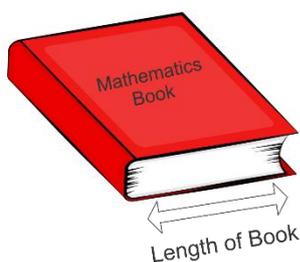
The teachers should know that the basic units used for measuring length are kilometer, meter and centimeter. Kilometer is represented by 'km' meter is represented by 'm' while centimeter is represented by 'cm'.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, Charts showing objects

**INTRODUCTION**

1. Ask the following questions as a brain-storming activity.
 - i. Who is the tallest boy/girl in the class?
 - ii. How can we measure the height of this boy/girl?
 - iii. How can we find out the length of the classroom?
 - iv. How can you find out the distance to your school from your home?
2. Take students' responses and tell them that for measuring the shorter distance we use 'cm' and for the longer distance, we use 'm' and 'km'.
3. Paste the following chart on the board.



4. Ask students, how are the length of the book and the height of the school bag measured.
5. Take students' responses and tell students that they are measured in centimeters using a ruler.
6. Tell students that in today's lesson we will learn about units of length and their abbreviations.



DEVELOPMENT

Activity 1:

1. Draw the following figures on the board.



Home



School

2. Ask students, how is the distance between your school and your home measured. Can it be measured in cm?
3. Take students' responses and tell them that usually, schools are far away from home, so this distance is measured in Kilometer (Km).

Activity 2:

1. Paste the following chart showing some everyday objects on the board.



2. Select a student randomly and ask him/her, what would you use (cm, m, km) to measure the height of the table?
3. Take his/her response and tell the class that we would use meter to measure the height of the table.
4. Repeat steps 2 and 3 for door, pencil and book.
5. Guide students where necessary.



CONCLUSION / SUM UP

Tell students that:

1. The units of length are kilometer, meter and centimeter
2. The abbreviation of kilometer is km, meter is m and centimeter is cm.



ASSESSMENT

1. Ask the students to find the length and width of their desks using the appropriate unit.
2. Guide them during the activity.



HOMEWORK / FOLLOW UP

Measure the length of the following objects using suitable units and record answers in your notebook.

Table, Mathematics textbook, Water bottle, Soap

LENGTH**STUDENT LEARNING OUTCOMES**

- Add measures of length in same units without carrying.
- Solve real-life situations involving the same units of length for addition without carrying.

INFORMATION FOR TEACHERS

The teachers should know how to add two measures of length and how can we use this in real-life situations.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, Measuring tape

**INTRODUCTION**

1. Ask students to tell the units of length.
2. Take students' responses and write the units (km, m and cm) on the board.
3. Ask students to recall rules for 3-digit addition.
4. Take students' responses and tell them that when we add two numbers, we add ones with ones, tens with tens and hundreds with hundreds.
5. Tell students that in today's lesson, we will learn about the addition of measures of length.

**DEVELOPMENT****Activity 1:**

1. Ask students to take out their pencil boxes and rulers.
2. Ask them to measure the length of their pencil box in cm.
3. Take responses from any two students (suppose one is 10 cm long and the other is 14 cm long) and write the following on the board.

$$10 \text{ cm} + 14 \text{ cm} = ?$$

4. Ask a student to add 10 cm and 14 cm.
5. Take his/her response and write 24 cm on the board.
6. Tell students that both the values are in cm, so we will write cm with the answer.

Activity 2:

1. Ask the student on the front desk to cover the distance between his/her desk and the board and measure it using measuring tape. (Suppose that it is 60 cm).
2. Ask the same student to cover the distance from the board to the door and measure it using measuring tape. (Suppose that it is 30 cm).
3. Tell students that we will find out the total distance covered by the student as follows:

Distance travelled by the student from his desk to the board	= 60cm
Distance travelled by the student from the board to the door	<u> = + 30cm</u>
Total distance covered by the student	= 90cm

Activity 3:

1. Write the following question on the board.
In a 100-meter race, Zahid covers 7 km 632 m distance in the first round. In the second round, he covers 8km 214 m distance. Find out the total distance covered by Zahid in the two rounds?
2. Tell students that we will write the question in the vertical form where km will be written with km and m will be written with m.
3. Calculate the distance by using simple addition.

$7km$	$632m$	
$+ 8km$	$214m$	
$15km$	$846m$	
4. Repeat the description for students to develop a better understanding.



CONCLUSION / SUM UP

Tell students that today we have learnt to add measures of length.



ASSESSMENT

3. Write the following questions on the board and call two students one by one on board to answer them.

100 cm	80 m
<u>$+ 120\text{ cm}$</u>	<u>$+ 10\text{ m}$</u>

4. Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do questions 3 to 8 on page 102 of the textbook.

Month

5

LENGTH



STUDENT LEARNING OUTCOMES

- Subtract measure of length in same units without borrowing.
- Solve real-life situations involving same units of length for subtraction without borrowing.

INFORMATION FOR TEACHERS

The teachers should know how to subtract two measures of length and how can we use this in real-life situations.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Paper strips, Ruler



INTRODUCTION

1. Ask the students the following question.
The length of the desk is 65cm and the length of the school bag is 50 cm. How much the desk is longer than the school bag?
2. Take students' responses.
3. Solve the given problem with the help of students on the board.

Length of desk	65 cm
Length of school bag	– 50 cm

Difference in length	15 cm

The desk is 15cm longer than the school bag.
4. Tell students that today we will learn to subtract measures of length.



DEVELOPMENT

Activity 1:

1. Show a pencil to the class and ask one student to find the length of the pencil using a ruler. (Suppose it is 12 cm)
2. Sharp the pencil in front of the students and ask another student to find its length. (Suppose it is 10 cm)
3. Ask students, what has happened to the length of the pencil after sharpening.

- Take students' responses, and tell them that to find out the lost length of the pencil we will use subtraction.
- Answer the question on the board involving students.

Length of the pencil before sharpening = 12 cm

Length of the pencil after sharpening = 10 cm

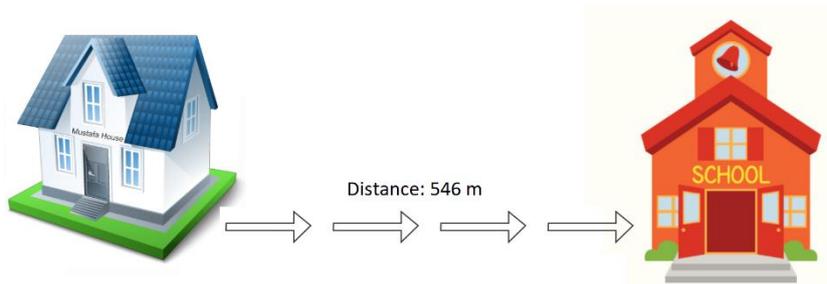
Length of the pencil lost = 2 cm

The length of the pencil lost after sharpening is 2 cm.

Activity 2:

- Write the following question on the board and call a student to answer it.

The distance between Naveed's home and school is 546 m. If Naveed has covered 234m, how much distance is left to cover?



Distance between Naveed's home and school = 546 m

Distance covered by Naveed = 234 m

Remaining distance to be covered by Naveed = 312 m

- Help the student to reach the correct answer.
- Ask the class to check and comment if the answer is correct or incorrect.
- Guide students where required.



CONCLUSION / SUM UP

Tell students that today we have learned to subtract measures of length.



ASSESSMENT

- Divide the class into four groups.
- Give each group an item such as pencils, strips of paper, erasers, books.
- Ask each group to measure the length of their item and find out the difference with the item of other groups.
- Visit each group during the activity and guide where required.



HOMEWORK / FOLLOW UP

Do questions 1 and 2 on page 105 of the textbook.

MASS**STUDENT LEARNING OUTCOMES**

1. Use standard metric units of mass (kilogram and gram) including abbreviations.
2. Add a measure of mass in same units without carrying.
3. Solve real-life situations involving same units of mass for addition without carrying.

INFORMATION FOR TEACHERS

The teachers should know:

1. The basic units of mass (kilogram and gram)
2. The abbreviations of mass units (kg and g)
3. Addition of measures of mass in in real-life situations.

**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, Chart showing baskets of fruits

**INTRODUCTION**

1. Draw the following diagrams on the board and write their masses on it.



2. Call a student and ask him/her to separate the heavy and lighter things as follows:
Draw a square around lighter things.
Draw a circle around heavy things.



3. Check student's response and tell students that we measure heavy masses in kilogram and the lighter masses in gram.
1 kilogram = 1000 gram
4. Write the units of mass on the board and tell students that the abbreviation of kilogram is kg and the abbreviation of gram is g.

5. Tell students that in today's lesson we will learn about units of mass and the addition of measures of mass.



DEVELOPMENT

Activity 1:

- Using the figures drawn on the board during 'introduction', ask students what should we do if we want to find out the mass of rice and ghee together.
- Take students' responses and write the figures in vertical form.

$$\begin{array}{r} 40 \text{ kg} \\ + 16 \text{ kg} \\ \hline 56 \text{ kg} \end{array}$$

- Select a student randomly and ask him/her to answer the question.
- Check the student's response and guide where required.
- For the addition of grams, call a student and ask him/her to add the mass of mango jam and honey.

$$\begin{array}{r} 250 \text{ g} \\ + 500 \text{ g} \\ \hline 750 \text{ g} \end{array}$$

- Check the student's response and guide where required.
- Tell students that kilogram is added to kilogram and gram is added to gram.

Activity 2:

- Write the below question on the board.
Add 20 kg 625 g and 42 kg 343 g
- Call a student to write the given question in vertical form:

$$\begin{array}{r} 20 \text{ kg} \quad 625 \text{ g} \\ + 42 \text{ kg} \quad 343 \text{ g} \\ \hline 62 \text{ kg} \quad 968 \text{ g} \end{array}$$

- Call another student to carry out the addition of both values.
- Tell students that kilogram is added to kilogram and gram is added to gram.
- Help the student to reach the correct answer.
- Ask the student to explain the steps of addition to the class.
- Guide students where required.



CONCLUSION / SUM UP

Tell students that:

- The units of mass are kilogram and gram
- 1 kilogram = 1000 gram which means kilogram is bigger than gram.
- Kilogram is written as kg and gram is written as g
- When adding masses, add kg to kg and g to g

MASS



DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2



INTRODUCTION

1. Ask the following questions from the students one by one.
 - i. What are the units of mass?
 - ii. Which one is bigger, kilogram or gram?
 - iii. What is the abbreviation of kilogram and gram?
 - iv. How do we add two masses?
2. Take students' responses and guide where required.
3. Tell students that in today's lesson, we will learn to use the addition of measures of mass in real-life situations.



DEVELOPMENT

Activity 3:

1. Write the following question on the board and ask students to answer it in their notebooks.

Alia bought 50 kg 300 g rice and 39 kg 500 g flour from the market. Find the total mass of the things Alia has bought.

The mass of rice = 50 kg 300 g

The mass of flour is = + 39 kg 500 g

Total mass = 89 kg 800 g

The total mass of the things bought by Alia is 89 kg 800 g

2. Guide the students where required.

Activity 4:

1. Paste the following chart showing baskets of fruits on the board.



2. Ask the following questions from the students.
 - i. Which fruit basket is the lightest? Take students' responses.
 - ii. Which fruit basket is the heaviest? Take students' responses.
 - iii. What is the total mass of baskets 2 and 3? Take students' responses.
3. Call a student to answer the given question on the board.

Find out the total mass of all baskets.

$$\begin{array}{r}
 12 \text{ kg} \\
 10 \text{ kg} \\
 7 \text{ kg} \\
 + 3 \text{ kg} \\
 \hline
 32 \text{ kg}
 \end{array}$$

4. Check the student's response and guide where required.



CONCLUSION / SUM UP

Tell students that:

1. For heavy objects, we use kilogram (kg) and for lighter objects, we use gram (g).
2. We can use the addition of measures of mass to solve real-life situations.



ASSESSMENT

1. Make two groups of students and assign each group a question as follows:

Group 1:

$$\begin{array}{r}
 38\text{kg} \quad 426\text{g} \\
 + \quad 51\text{kg} \quad 532\text{g} \\
 \hline
 \end{array}$$

Group 2:

Sohail bought 12 kg 300 g mangoes and 14 kg 500 g apples. Find out the total mass of fruits he has bought.

2. Ask each group to answer their question in a notebook.
3. Call one student from each group to present their work to the class.
4. Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do questions 1 to 4 on pages 110 and 111 in the textbook.

MASS**STUDENT LEARNING OUTCOMES**

1. Subtract measures of mass in same units without borrowing.
2. Solve real-life situations involving same units of masses for subtraction without borrowing.

INFORMATION FOR TEACHERS

The teachers should know that gram is subtracted from gram and kilogram is subtracted from kilogram.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster

**INTRODUCTION**

1. Ask the following question to the students.
The mass of a book is 535 gm and the mass of the pencil box is 320 gm. How much the book is heavier than the pencil box?
2. Take students' responses.
3. Answer the given question with the help of students on the board.

Mass of book		535 gm
Mass of pencil box	-	320 gm
Difference in mass		<hr/> 215 gm <hr/>

The book is 215 gm heavier than the pencil box.

4. Tell students that today we will learn to subtract measures of mass.



DEVELOPMENT

Activity 1:

1. Divide the class into two groups and give one question to each group as follows.

Group 1	Group 1
34 kg 580 g	48 kg 600 g
– 22 kg 300 g	– 21 kg 200 g
<hr/>	<hr/>
<hr/>	<hr/>

2. Ask each group to answer the question keeping in mind to subtract gram from gram and kilogram from kilogram.
3. Visit both groups and guide if required.
4. Ask a student from each group to present their work to the class.
5. Ask students to comment if the answer is correct or incorrect.
6. Guide students where required.

Activity 2:

1. Write the following word problem on the board.

Salim's father bought a basket of mangoes. The total mass of mangoes is 18kg 500g. After dinner, the family ate 10kg 300g mangoes. Find the mass of mangoes left in the basket.

2. Answer the question on the board involving students.

The total mass of mangoes in the basket = 18 kg 500 g

The mass of mangoes eaten after dinner = 10 kg 300 g

Mass of mangos left in basket = 8 kg 200 g

The mass of mangoes left in the basket is 8 kg 200 g.



CONCLUSION / SUM UP

Tell students that today we have learned to subtract measures of mass.



ASSESSMENT

1. Divide the class into two groups and give one question to each group as follows.

Group 1

63 kg 550 g

– 41 kg 200 g

Group 1

76 kg 800 g

– 54 kg 400 g

2. Ask each group to answer the question.
3. Visit both groups to help them reach the correct answer.



HOMEWORK / FOLLOW UP

Do questions 1 to 3 on page 114 of the textbook.

Month

6

CAPACITY**STUDENT LEARNING OUTCOME**

- Use standard metric units of capacity/liter and milliliter including abbreviation.

INFORMATION FOR TEACHERS

The teachers should know that:

1. The units of capacity are liter and milliliter
2. The abbreviation used for liter is 'l' and for milliliter is 'ml'.
3. 1 liter = 1000 milliliter

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Chalk/Marker, Duster, Empty containers; water bottles, packets of milk and juices, oil gallons, cooking oil bottles, carbonated drink bottles, sanitizer bottles, Beaker

**INTRODUCTION**

1. Divide the class into 4 groups.
2. Give empty packets of milk and juices, and empty water bottles to each group.
3. Ask students to look for information about how much liquid each container holds.
4. Take students' responses and tell them that you could see 1 liter written on the milk packet, 500 ml of the water bottle and 250 ml on the juice pack. This information shows that the milk packet contains 1 liter of milk and the water bottle can hold 500 ml of water.
5. Write units of capacity on the board.

The units of capacity are liter and milliliter. The abbreviation for liter is 'l' and for milliliter is 'ml'.

6. Tell students that today we will learn about units of capacity.



DEVELOPMENT

Activity 1:

1. Bring to class some everyday objects such as oil gallons, cooking oil bottles, carbonated drink bottles, sanitizer bottles or any such easily available containers.
2. Ask students to look at the information about capacity on each container and note it down in their notebooks.



3. Check students' responses and help them in reading the values correctly.

Activity 2:

1. Take a beaker of 250 ml and fill it with water.
2. Take an empty 1-litre water bottle and fill it with water using the beaker.
3. Ask students, how many times I have taken water into the beaker to fill the water bottle.
4. Take students' responses. Explain to them that the beaker is of 250 milliliter and the water bottle is of 1 liter. The beaker is filled four times to fill in a water bottle. This shows that liter is bigger than milliliter.

1 liter = 1000 milliliter



CONCLUSION / SUM UP

Tells students that:

1. The units of capacity are liter and milliliter.
2. The abbreviation used for liter is 'l' and for milliliter is 'ml'.
3. 1 liter = 1000 milliliter

1. Draw the following table on the board and ask students to complete it in their notebooks.

Container	Measured in liter or milliliter
Tea in a cup	
Petrol in a car	
Water in school bottle	
Water in a class	
Water in an aquarium	

2. Check students' responses and guide where required.

Find out two objects at your home; one with less capacity and the other with greater capacity and write in your notebooks which can measure in liter and which can measure in milliliter.

CAPACITY



STUDENT LEARNING OUTCOMES

- Add measures of capacity in same units without carrying.
- Solve real-life situations involving same unit of capacity for addition without carrying.

INFORMATION FOR TEACHERS

The teachers should know how to add measures of capacity in real-life situations.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/ Chalk, Duster



INTRODUCTION

1. Ask the following question from the class.

Suppose that we have two glasses of water; one glass contains 200ml water and the other glass contains 300ml water. We pour the water of both glasses into an empty jug. Find out how much water is there in the jug.

2. Ask students to identify the mathematical operation used to find out the answer.
3. Take students' responses and write 'addition' on the board.
4. Tell students that in today's lesson we will learn how to add measures of capacity.



DEVELOPMENT

Activity 1:

1. Divide the class into three groups.
2. Give each group one of the following questions to answer in a notebook.

$$\begin{array}{r} \text{Group 1} \\ 38L \quad 500ml \\ + \quad 31L \quad 200ml \\ \hline \end{array}$$

$$\begin{array}{r} \text{Group 2} \\ 25L \quad 200ml \\ + \quad 53L \quad 300ml \\ \hline \end{array}$$

$$\begin{array}{r} \text{Group 3} \\ 35L \quad 300ml \\ + \quad 24L \quad 600ml \\ \hline \end{array}$$

- Tell students to recall the rules of addition learned in measurement. Add liter to liter and milliliter to milliliter.
- Call a student from each group to present their work to the class.
- Guide students where required.

Activity 2:

- Write the following question on the board.

In a school, there are two water containers; one has a capacity of holding 14 liter 600ml water while the other has a capacity of holding 12 liter and 200ml water. What is the total amount of water that can be contained in the school?



- Call a student and ask him/her to write the given information on the board.
- Call another student to answer the question on the board.
- Tell students to recall the rules of addition learned in measurement. Add liter to liter and milliliter to milliliter.
- Guide the student to reach the correct answer.

Container 1 contains		14 L 600 ml
Container 2 contains	+	12 L 200 ml
		26 L 800 ml

The total amount of water the school can contain is 26 L 800ml.

- Repeat the steps of addition for students to develop a better understanding.



CONCLUSION / SUM UP

Tell students that we have learned the addition of the capacity of objects and how to use it in real-life situations.



ASSESSMENT

1. Divide the class into three groups and give one question to each group as follows.

$$\begin{array}{r} \text{Group 1} \\ 25L \quad 200ml \\ + \quad 14L \quad 100ml \\ \hline \end{array}$$

$$\begin{array}{r} \text{Group 2} \\ 16L \quad 350ml \\ + \quad 12L \quad 120ml \\ \hline \end{array}$$

$$\begin{array}{r} \text{Group 3} \\ 35L \quad 800ml \\ + \quad 24L \quad 100ml \\ \hline \end{array}$$

2. Ask each group to answer the question.
3. Visit both groups to help them in finding the correct answer.



HOMEWORK / FOLLOW UP

Do questions 1 to 4 on pages 118 and 119 in the textbook.

CAPACITY**STUDENT LEARNING OUTCOMES**

- Subtract measure of capacity in same units without borrowing.
- Solve real-life situations involving same units of capacity for subtraction without borrowing.

INFORMATION FOR TEACHERS

The teachers should know that liter is subtracted from liter and milliliter is subtracted from milliliter.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Charts, Measuring cylinder, Beaker, Glass of water, Jug

**INTRODUCTION**

1. Write the following question on the board:
A car tank has 32 liter 200ml petrol. During travelling, the car used 30 liter 200ml petrol.
How much petrol is left in the car tank?
2. Ask students what mathematical operation will be required to solve the given problem?
3. Take students' responses and write 'subtraction' on the board.
4. Tell students that today we will learn how to subtract measures of capacity in the same units and use them in real-life situations.

**DEVELOPMENT****Activity 1:**

1. Divide the class into three groups and give one question to each group as follows.

$$\text{Group 1} - \begin{array}{r} 35L \quad 200ml \\ \underline{21L \quad 100ml} \\ \hline \end{array}$$

$$\begin{array}{r} \phantom{\text{Group 2}} \phantom{\underline{}} \\ \phantom{\text{Group 2}} \phantom{\underline{}} \\ \text{Group 2} - \phantom{\underline{}} \phantom{\underline{}} \\ \phantom{\text{Group 2}} \phantom{\underline{}} \phantom{\underline{}} \\ \phantom{\text{Group 2}} \phantom{\underline{}} \phantom{\underline{}} \\ \phantom{\text{Group 2}} \phantom{\underline{}} \phantom{\underline{}} \end{array}$$

$$\begin{array}{r} \phantom{\text{Group 3}} \phantom{\underline{}} \\ \phantom{\text{Group 3}} \phantom{\underline{}} \\ \text{Group 3} - \phantom{\underline{}} \phantom{\underline{}} \\ \phantom{\text{Group 3}} \phantom{\underline{}} \phantom{\underline{}} \\ \phantom{\text{Group 3}} \phantom{\underline{}} \phantom{\underline{}} \\ \phantom{\text{Group 3}} \phantom{\underline{}} \phantom{\underline{}} \end{array}$$

- Ask each group to answer the question keeping in mind to subtract milliliter from milliliter and liter from liter.
- Visit all groups and guide if required.
- Ask a student from each group to present their work to the class.
- Ask students to comment if the answer is correct or incorrect.
- Guide students where required.

Activity 2:

- Write the following question on the board:
A small plastic water tank holds 84 L 700 ml water. The gardener used 24 L 300 ml water for watering the grass. Find out the amount of water left in the water tank.



- Let the students work in pairs to answer the above question in their notebooks.
- Ask a student to volunteer to set up the question on the board.
- Ask another student to volunteer and answer the question on the board.
- Help the student answer the question on the board as follows:

Water in the tank = 84 L 700 ml

Used water in the garden = 24 L 300 ml

Water left in the tank = 60 L 400 ml

The water left in the tank is 60 L 400 ml.



CONCLUSION / SUM UP

Tell students that today we have learned to subtract measures of capacity.



ASSESSMENT

1. Write the following questions on the board and ask students to answer them in their notebooks.
2. Guide students where needed.

$$\begin{array}{r} 25L \quad 900ml \\ - 15L \quad 700ml \\ \hline \\ \hline \end{array}$$

$$\begin{array}{r} 95L \quad 800ml \\ - 62L \quad 200ml \\ \hline \\ \hline \end{array}$$



HOMEWORK / FOLLOW UP

Do questions 1-4 on pages 121 and 122 of the textbook.

**STUDENT LEARNING OUTCOMES**

- Use a.m. and p.m. to record the time from 12-hour clock.
- Read and write time from analogue and digital clocks.

INFORMATION FOR TEACHERS

The teachers should know:

1. About the format of time of a 12-hour clock.
2. The difference between analogue and digital clock that analogue clock shows the time with hands while the digital clock shows the time in digits.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Flashcards showing time, Digital and analogue clocks, Chart showing time

**INTRODUCTION**

1. Start the lesson with the following questions:
 - i. How do we measure time?
 - ii. How many types of clocks are there?
 - iii. Can you tell the difference between analogue and digital clocks?
2. Take students' responses and tell them that today we will use a.m. and p.m. to tell the time and the difference between analogue and digital clocks.

**DEVELOPMENT****Activity 1:**

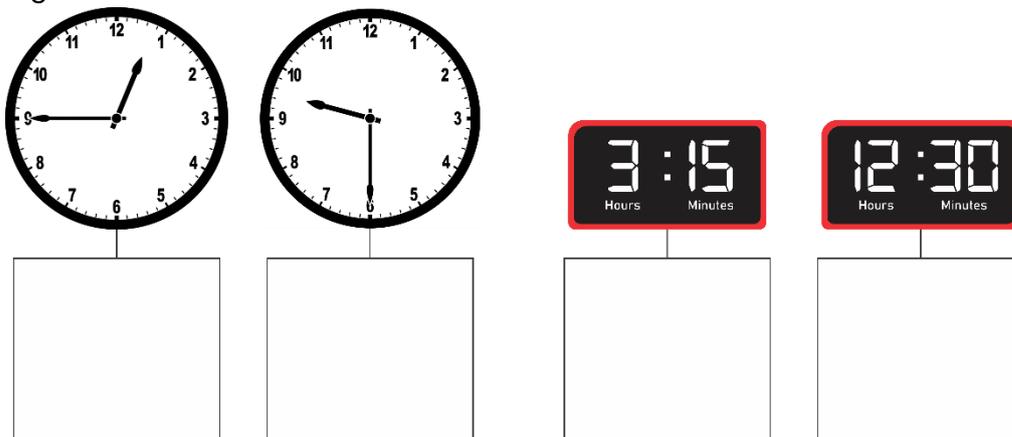
1. Write the following statement on the board.

Sana wakes up at 6 o'clock in the morning. She finishes her homework at 6 o'clock in the evening.

2. Ask the students is there any difference in writing the time of morning and evening?
3. Take their responses and then tell them that we write a.m. (ante meridiem) with the time which lies between 12:00 midnight to 12:00 noon and write p.m. (post meridiem) with time which lies between 12:00 noon to 12:00 midnight.
4. Tell them that in the given example, Sana wakes up at 6 o'clock in the morning, so the time will be written as 6:00 a.m. She finishes her homework at 6 o'clock in the evening, so the time will be written as 6:00 p.m.
5. Select students randomly and ask the following questions. Ask them to answer using a.m. or p.m.
 - i. When do you get up from bed in the morning?
 - ii. What does your school start?
 - iii. At what time do you sleep at night?
6. Take students' responses and guide where required.

Activity 2:

1. Show an analogue clock to the students.
2. Tell the class that there are 1 to 12 digits on the dial of an analogue clock. It shows time with hands. The long hand shows the minutes and the small hand shows hours.
3. Show a digital clock to the students.
4. Tell the class that there are only digits on a digital clock so it shows time in digits. The left side digits show the hours while the right side digits show the minutes.
5. Call four students and give each of them a flashcard showing time on the analogue and digital clocks.



6. Ask them to show their flashcards to the class.
7. Ask students to read the time shown on their flashcards and record it in the blank box.
8. Check students' answers.
9. Guide students where required.



CONCLUSION / SUM UP

Tell students that:

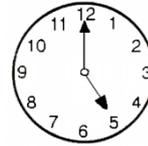
1. We write a.m. with the time which lies between 12:00 midnight to 12:00 noon and write p.m. with time which lies between 12:00 noon to 12:00 midnight.
2. There are 1 to 12 digits on the dial of an analogue clock. It shows time with hands.
3. There are only digits on a digital clock so it shows time in digits.



ASSESSMENT

1. Paste the following chart on the board.
2. Select three students randomly and ask them to give answers using a.m. or p.m.

i. What time do you play?



ii. When does your father go to work?



iii. When do you have dinner?



3. Take students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do questions 1 and 2 on pages 130 and 131 of the textbook.

TIME



STUDENT LEARNING OUTCOME

- Read and write days and dates from the calendar.

INFORMATION FOR TEACHERS

The teachers should know how to read a calendar.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Chart showing calendar, Calendar of four months



INTRODUCTION

1. Paste the following picture showing the calendar on the board.

August 2018						
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

2. Ask the student, which month is shown on the calendar.
3. Take his/her response.
4. Ask another student, which date is highlighted in August.
5. Take his/her response.
6. Select another student randomly and ask, which day is on 14th of August.
7. Take his/her response.
8. Tell the class that in today's lesson we will practice using the calendar.



DEVELOPMENT

Activity 1:

1. Divide the class into four groups and give each group a calendar as follows:

Group 1	Group 2																																																																																																		
<p>June 2016</p> <table border="1"> <thead> <tr> <th>S</th> <th>M</th> <th>T</th> <th>W</th> <th>T</th> <th>F</th> <th>S</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> </tr> <tr> <td>11</td> <td>12</td> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> </tr> <tr> <td>18</td> <td>19</td> <td>20</td> <td>21</td> <td>22</td> <td>23</td> <td>24</td> </tr> <tr> <td>25</td> <td>26</td> <td>27</td> <td>28</td> <td>29</td> <td>30</td> <td></td> </tr> </tbody> </table>	S	M	T	W	T	F	S					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		<p>August 2018</p> <table border="1"> <thead> <tr> <th>M</th> <th>T</th> <th>W</th> <th>T</th> <th>F</th> <th>S</th> <th>S</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> </tr> <tr> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> </tr> <tr> <td>20</td> <td>21</td> <td>22</td> <td>23</td> <td>24</td> <td>25</td> <td>26</td> </tr> <tr> <td>27</td> <td>28</td> <td>29</td> <td>30</td> <td>31</td> <td></td> <td></td> </tr> </tbody> </table>	M	T	W	T	F	S	S			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																
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2. Guide students that first we will go to the month and then date.
3. Tell them that we will go up in the column of the date to find the day.
4. Ask each group to read the given month's calendar and write the day, month, date and year as follows.
Friday, March 12th, 2020
5. Visit each group and guide where required.



CONCLUSION / SUM UP

Tell students that today we have learned to use the calendar.



ASSESSMENT

1. Write the following question on the board.
Using a solar calendar of 2021, find out the day on the following dates.
 - i. Your birthday this year
 - ii. 25th October
2. Check students' responses and guide them where required.



HOMEWORK / FOLLOW UP

TIME**STUDENT LEARNING OUTCOMES**

- Add measures of time in hours.
- Solve real-life situations involving measure of time for addition.

INFORMATION FOR TEACHERS

The teachers should know that:

1. The units to measure time are seconds, minutes and hours.
2. One hour has 60 minutes.
3. To add time, hours are added to hours and minutes are added to minutes.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster

**INTRODUCTION**

1. Ask the following question from the students:
Suppose that it takes 2 hours to reach the bus stop from your home and then 3 hours to reach the other city. What is the total time you have spent in travelling?
2. Ask students, which mathematical operation will be used to find out the total time.
3. Take their responses and write 'addition' on the board.
4. Ask a student to add 2 hours and 3 hours.
5. Take the student's response and write $2 \text{ hours} + 3 \text{ hours} = 5 \text{ hours}$ on the board.
6. Tell students that today we will learn the addition of time and how it is used in real-life situations.

**DEVELOPMENT****Activity 1:**

1. Ask the students to work in pairs and write the amount of time they spent in doing Mathematics and English homework. Add the time and answer as the total time.

- Give appropriate time to students to discuss and record their answers.
- Meanwhile, divide the board into two columns and label each column as Mathematics homework and English homework.
- Call a member of each group to copy their work in their column on the board and explain it to the other group.

Mathematics Homework	
Time spent by student 1	= 2 hours
Time spent by student 2	= 1 hour
Total time spent	= 3 hours

English Homework	
Time spent by student 1	= 2 hours
Time spent by student 2	= 3 hours
Total time spent	= 5 hours

- Check students' work and guide where required.

Activity 2

- Write the following question on the board.
Mohsin studies a book of General Knowledge for 10 hours and a Mathematics book for 12 hours in a week. How much time does he spend in studying both subjects altogether?
- Ask students to copy the question in their notebooks in the vertical form and answer it.
- Take students' responses.
- Ask a student to come to the board to share his/her work.

Time spent on General Knowledge	=	10 hours
<u>Time spent on Mathematics</u>	=	<u>+ 12 hours</u>
Total time spent	=	22 hours

The total time spent on two subjects is 22 hours.
- Guide students where required.



CONCLUSION / SUM UP

Tell students that today we have learned about the addition of time and how it is used in real-life situations.



ASSESSMENT

- Write the following questions on the board and ask the students to complete them in their notebooks.

12hrs <u>+ 10hrs</u> _____	8hrs <u>+ 2hrs</u> _____	3hrs <u>+ 1hr</u> _____
----------------------------------	--------------------------------	-------------------------------

- Guide students where required.



HOMEWORK / FOLLOW UP

Do questions 1 to 4 on page 136 of the textbook.

Month

7

TIME**STUDENT LEARNING OUTCOMES**

- Subtract measure of time in hours.
- Solve real-life situations involving subtraction of measure of time in hours.

INFORMATION FOR TEACHERS

The teachers should know how to subtract measures of time in hours and how can we use this in real-life situations.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster

**INTRODUCTION**

1. Write the following number story on the board.
There are two brothers, Asim and Zafar. Asim takes 6 hours for studying English and Zafar takes 4 hours for studying English. How much more times does Asim take than Zafar for studying English?
2. Ask the class, which mathematical operation will be used to find out the answer.
3. Take students' responses and write 'subtraction' on the board.
4. Ask a student to subtract 4 hours from 6 hours.
5. Take his/her response and write on the board: 6 hours – 4 hours = 2 hours
6. Tell students that today we will learn about subtraction of time in hours and how to use it in real-life situations.

**DEVELOPMENT****Activity 1:**

1. Divide the class in two groups and label them as Group 1 and Group 2.

- Write the following questions on the board and assign them to both groups as follows:

Group 1	Group 2
11 hours	12 hours
– 12 hours	– 10 hours
_____	_____
_____	_____

- Visit each group to check their work and help them in reaching the correct answer.
- Call a member of each group to present their work to the other group.
- Guide students where required.

Activity 2:

- Write the following question on the board.

Faiza spends 4 hours for studying science and 2 hours for studying mathematics.
How much more time does she spend studying science than mathematics?

- Answer the question on the board involving students.

Time spent for studying science	= 4 hours
Time spent for studying mathematics	= 2 hours
Difference in time spent	= 2 hours
Faiza spends 2 hours more for studying science than mathematics.	

- Repeat the steps of subtraction for students to develop better understanding.



CONCLUSION / SUM UP

Tell students that today we have learned to subtract measures of time in hours and how to use it in real-life situations.



ASSESSMENT

- Write the following questions on the board and ask students to answer them in their notebooks.

18 hours	21 hours
– 11 hours	– 8 hours
_____	_____
_____	_____
16 hours	18 hours
_____	_____

- 10 hours

- 7 hours

2. Make pairs of students and ask them to exchange their work.
3. Facilitate the students and help them check each other's work.
4. Guide students where required.

0/0

HOMEWORK / FOLLOW UP

Do questions 1 to 4 on page 138 of the textbook.

GEOMETRICAL SHAPES



STUDENT LEARNING OUTCOME

- Draw and measure line segments to the nearest centimeter and millimeter.

INFORMATION FOR TEACHERS

The teacher should know that:

1. The line segment is a part of a line it has two endpoints.
2. Line segment AB can be written as \overline{AB} .
3. A line segment cannot be extended to any direction. It has a fixed length.
4. A ruler measures in centimeter (cm) and millimeter (mm).
5. 1 cm = 10 mm



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



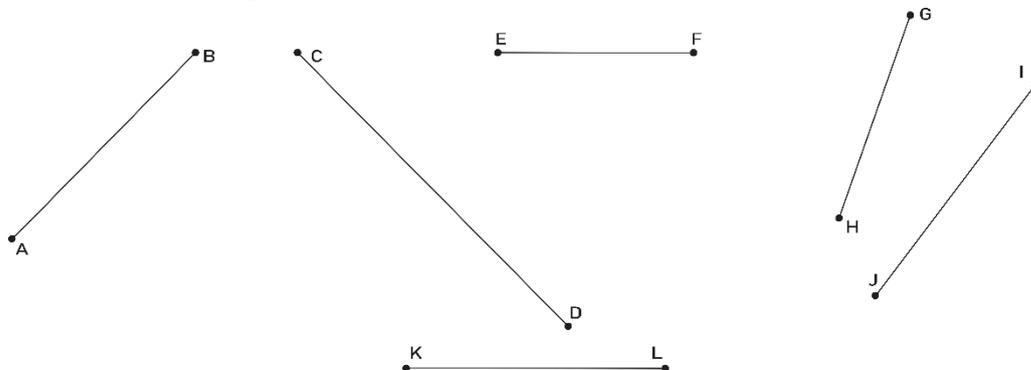
MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Chart showing line segments of different lengths



INTRODUCTION

1. Paste the following chart on the board.



2. Tell students that these are line segments of different lengths.

Describe a line segment to the students as follows:

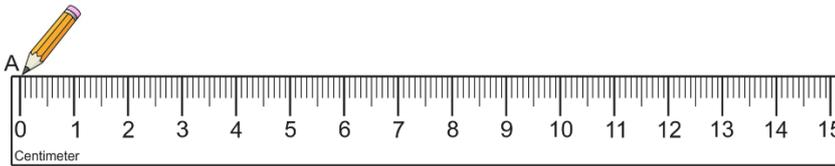
A line segment is a part of a line. It has two points. It can be written as \overline{AB} . It has a fixed length. It cannot be extended to any direction.

3. Tell students that in today's lesson, we will learn to draw a line segment of a given length in cm and mm.

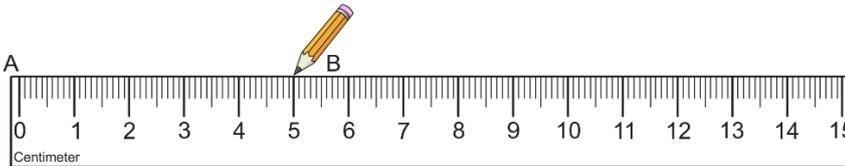


Activity 1:

1. Tell students to draw a line segment of 5 cm in their notebooks.
2. Explain the method on the board as follows:
 - i. Take a ruler and place it on the page of your notebook.
 - ii. Look at the numbers 0, 1, 2, 3, .. on the scale. The distance from 0 to 1 is equal to 1 cm. The small lines in 1 cm show millimeter.
 - iii. Make a point A at 0 cm of the scale.



- iv. Make a point B at 5 cm of the scale.



- v. Join the points A and B.

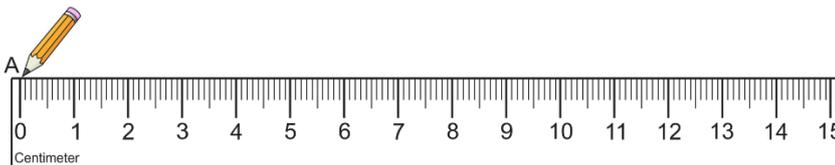


- vi. Thus, the required line segment $AB = 5$ cm.

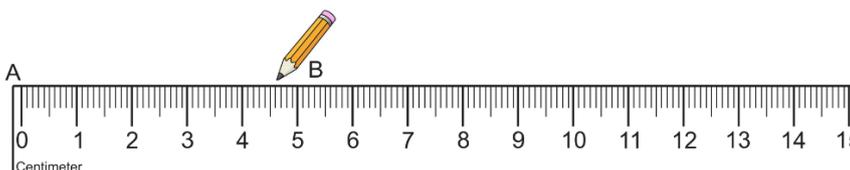
3. Help the students to draw the required line segment.

Activity 2:

1. Tell students to draw a line segment of 4 cm 6 mm in their notebooks.
2. Explain the method on the board as follows:
 - i. Take a ruler and place it on the page of your notebook.
 - ii. Make a point A at 0 cm of the scale.



- iii. Make a point B at 4 cm 6 mm of the scale. For drawing 6 mm, count 6 small lines after 4.



- iv. Join the points A and B.

- v. Thus, the required line segment $AB = 4\text{ cm } 6\text{ mm}$.
3. Help the students to draw the required line segment.



CONCLUSION / SUM UP

Tell students that today we have learned to draw a line segment.



ASSESSMENT

1. Draw a line segment of the following lengths in your notebooks.
 - i. 7 cm
 - ii. 9 cm 4 mm
2. Check students' work and guide where required.



HOMEWORK / FOLLOW UP

Do questions 2 and 3 on page 147 of the textbook.

GEOMETRICAL SHAPES



STUDENT LEARNING OUTCOME

- Recognize point, line, ray and line segment.

INFORMATION FOR TEACHERS

The teachers should know that:

1. The points are used for the location of the place or position of objects.
2. Point is represented by a dot (.)
3. A line has no endpoints and it can be extended in both directions.
4. A ray has only one endpoint and can be extended in one direction.
5. A line segment cannot be extended in any direction. It has a fixed length.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Picture of map showing streets



INTRODUCTION

1. Ask students to open page 142 of the textbook and look at the first map.



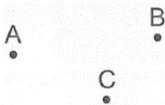
2. Ask students the following questions.
 - i. What is located at point A on the map?
Take students' responses and tell them, Gold City Shopping Mall.
 - ii. What is located at point B on the map?
Take students' responses and tell them, Serena Hotel.
3. Tell students that points are used for the location of place or positions of objects. Today, we will learn about point, line segment, line and ray.



DEVELOPMENT

Activity 1:

1. Draw some points on the board and label them as A, B and C.



2. Tell students that these are called points. The points are used for location of place or positions of objects. A point is represented by a dot (.). It is denoted by capital letters.

Activity 2:

1. Ask students to make two points in their notebooks as A and B.



2. Ask them to draw a line between these two points.



- Tell the students that the line between A and B is called a line segment. It has two endpoints. It is represented by \overline{AB} . It cannot be extended in any direction. It has a fixed length.

Activity 3:

- Ask students to make two points in their notebooks at some distance from each other and label them as C and D.



- Join points C and D and make arrows at the end.



- Tell students that this is called a line. It has no endpoints and can be extended in both directions. It is represented by \overleftrightarrow{AB} .

Activity 4:

- Ask the students to make two points in their notebook at some distance as E and F.



- Join points E and F and make an arrow at one end only.



- Tell students that it is ray. A ray is a part of a line. It has a fixed initial point but can be extended at the other point. It is represented by \overrightarrow{EF} .



CONCLUSION / SUM UP

Tell students that today we have learned about point, line segment, line and ray.



ASSESSMENT

- Draw the following on the board and ask students to draw and identify them in their notebooks.



ii.



- Check students' responses.

3. Guide students where required.



HOMEWORK / FOLLOW UP

Do the activity on page 144 of the textbook.

GEOMETRICAL SHAPES**STUDENT LEARNING OUTCOME**

- Classify figures according to number of sides as quadrilaterals (Rectangle, Squares and Triangles).

INFORMATION FOR TEACHERS

The teachers should know that:

- A closed figure with four sides and four corners is called a quadrilateral. The four corners are called vertices.
- A closed figure with three sides and three vertices is called a triangle.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

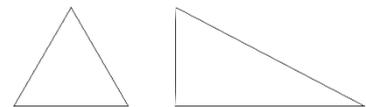
- Textbook, Board, Marker/Chalk, Duster, Shapes drawn on card sheet: square, rectangle and triangle, 4 worksheets

**INTRODUCTION**

- Ask students to look at the different objects in the classroom and name any four-sided objects.
- Take students' responses and write the names of some four-sided objects on the board.
- Ask students, do you see any objects having three sides.
- Take students' responses and write the names of some three-sided objects on the board.
- Tell students that today we will learn about four-sided and three-sided geometrical objects/figures.

**DEVELOPMENT****Activity 1:**

- Show a triangle made of card sheet to the students.
- Ask them to count the sides and corners of the shape.
- Take students' responses.
- Tell students that a triangle has three straight sides and three corners/vertices. The three sides of a triangle may not be equal.



Activity 2:

1. Show a rectangle made of a card sheet to the students.
2. Ask them to count the sides and corners of the shape.
3. Take students' responses.
4. Tell students that a rectangle has four straight sides and four corners/vertices. The length of the opposite sides of a rectangle is equal.



Activity 3:

1. Show a square made of card sheet to the students.
2. Ask them to count the sides and corners of the shape.
3. Take students' responses.
4. Tell students that a square has four straight sides and four corners/vertices. The length of all four sides of a square is equal.
5. Tell students that a closed figure with four sides and four corners/vertices are called a quadrilateral.
6. Ask students, tell which of the shapes that we have studied today are examples of the quadrilateral.
7. Take students' responses and guide where required.



CONCLUSION / SUM UP

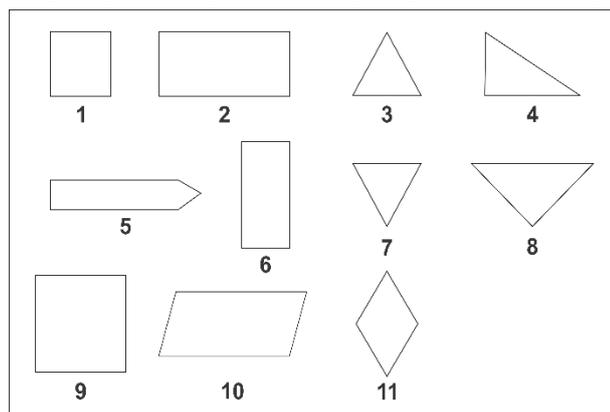
Tell students that:

1. A triangle has three straight sides and three corners/vertices. The three sides of a triangle may not be equal.
2. A closed figure with four sides and four corners/vertices is called a quadrilateral.
3. A rectangle is an example of a quadrilateral that has four straight sides and four corners/vertices. The length of the opposite sides of a rectangle is equal.
4. A square is an example of quadrilateral which has four straight sides and four corners/vertices. The length of all four sides of a square is equal.



ASSESSMENT

1. Divide the class into four groups and give each group the following worksheet to answer.



Using numbers, classify the given shapes as four-sided or three-sided figures in the table.

Four-sided Figure	Three-sided Figure

2. Check the work of each group and guide where required.



HOMEWORK / FOLLOW UP

Do question 1 on page 156 of the textbook.

GEOMETRICAL SHAPES**STUDENT LEARNING OUTCOME**

- Calculate the perimeter of square, rectangle and triangle.

INFORMATION FOR TEACHERS

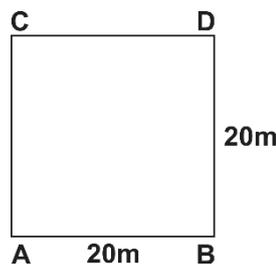
The teacher should know that a perimeter is a closed figure equal to the sum of lengths of all sides.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster

**INTRODUCTION**

1. Write the following number story on the board.
Azra runs around a square-shaped ground. The length of each side of the ground is 20 m.
How much distance does Azra cover in one round?



2. Take students' responses.
3. Tell students that today we will learn to calculate the perimeters of closed figures.

**DEVELOPMENT****Activity 1:**

1. Use the above number story.
2. Call a student to come and add the length of all the sides of the square.
 $20\text{ m} + 20\text{ m} + 20\text{ m} + 20\text{ m} = 80\text{ m}$

Total length = 80 m
3. Tell students that the formula to find out the perimeter of a square is:

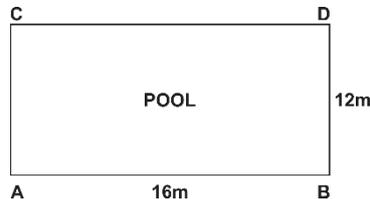
Perimeter of a square = Sum of all sides

Or

Perimeter of a square = 4 x length of a side

Activity 2:

1. Write the following number story on the writing board.
The length of a rectangular pool is 16 m and its width is 12 m.



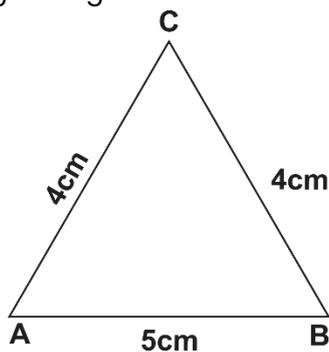
2. Call a student to come and add the length and width as follows:
Length + Length + Width + Width = 16 m + 16 m + 12 m + 12 m = 56 m
3. Tell students that the formula to find out the perimeter of a rectangle is:
Perimeter of a rectangle = Sum of all sides

Or

Perimeter of a rectangle = 2 Length + 2 Width

Activity 3:

1. Draw the given figure on the board.



2. Call a student to come and add all the sides of a triangle as follows:
5 cm + 4 cm + 4 cm = 13 cm
3. Tell students that the formula to find out the perimeter of a triangle is:
Perimeter of a triangle = Sum of all three sides



CONCLUSION / SUM UP

Tell students that the sum of lengths of all the sides of a closed figure is called its perimeter.



ASSESSMENT

1. Divide the class into three groups.
2. Write the following questions on the board and assign one question to each group as follows:

Group 1: Find the perimeter of a square whose one side is 5 cm.

Group 2: Find the perimeter of a door with a length of 240 cm and a width of 128 cm.

Group 3: Find the perimeter of a triangle whose sides are 3 cm, 4 cm and 5 cm.

3. Visit each group to help them reach the correct answer.
4. Check students' work and guide if required.



HOMEWORK / FOLLOW UP

Do question 2 on pages 156 and 157 of the textbook.

GEOMETRICAL SHAPES



STUDENT LEARNING OUTCOME

- Identify center, radius and diameter of a circle.

INFORMATION FOR TEACHERS

The teachers should know that:

1. A line segment that joins two points of a circle and passes through the center of a circle is called the diameter of a circle.
2. The half of the diameter is called the radius of the circle.
3. The center point where the two diameters of a circle meet is called the center of the circle.



DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, Paper, Scissors



INTRODUCTION

1. Call some students and ask them to stand in the shape of a circle in front of the class.
2. Ask students, which shape is this?
3. Call few more students and ask them to stand in a line in the center of the circle.
4. Tell students that this line of the students dividing the circle into two parts is called the diameter of the circle.
5. Ask half of the students representing the diameter to go back.
6. Tell students that the remaining students standing in the center represent the radius of the circle.
7. Tell students that today we will learn about the center, radius and diameter of the circle.

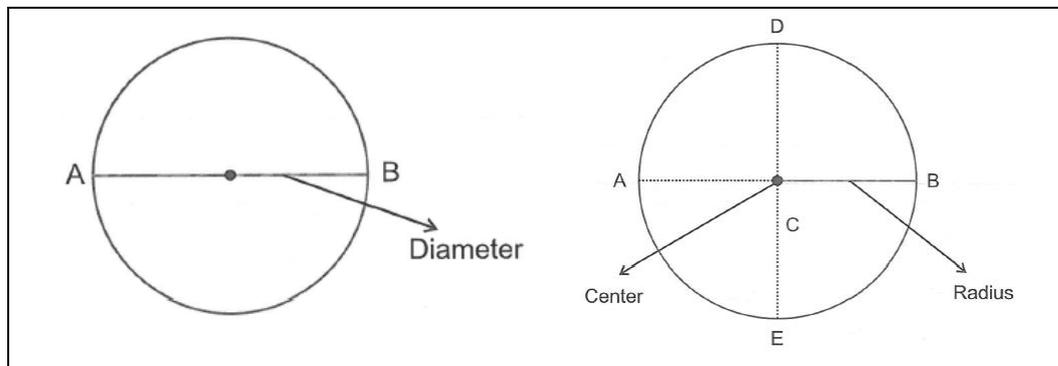


DEVELOPMENT

Activity 1:

1. Cut a piece of paper in the shape of a circle.
2. Show it to the students and tell them that it is a circle.
3. Fold the paper in half and unfold it.

- Show the line that is developed at the folding point to the students and tell them that it divides the circle into two halves. This line is called the diameter of the circle.
- Fold the paper into a quarter and unfold it.
- Show the lines that are developed at the folding points to the students and tell them that they divide the circle into four equal halves. The point on which the two lines are joining is called the center of the circle and the distance from the center of the circle to the side of the circle is called the radius of the circle. The radius of a circle is defined as, half of the diameter.
- Draw the following figures on the board and repeat the explanation of each term.



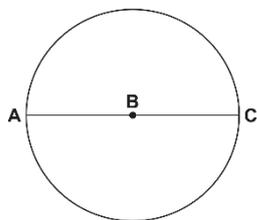
CONCLUSION / SUM UP

Tell students that:

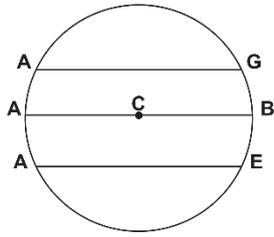
- The line segment which joins two points of a circle and passes to the mid-point is called the diameter of a circle.
- The half of the diameter is called the radius of a circle.
- The point where two diameters meet is called the center of a circle.



ASSESSMENT

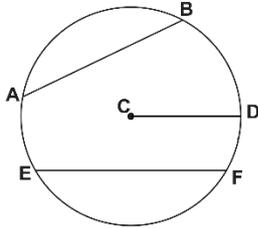


- Which point in the above figure is the center of the circle?
 (a) C (b) A (c) B



2. Which of the line segments shows the diameter in the above figure?

- (a) \overline{AG} (b) \overline{AB} (c) \overline{AE}



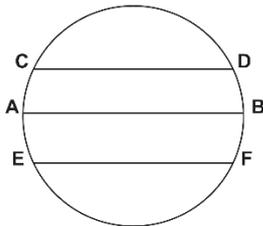
3. In the above figure which line segment shows the radius?

- (a) \overline{AB} (b) \overline{CD} (c) \overline{EF}



HOMework / FOLLOW UP

1. Draw the following figure on the writing board.



2. Ask students to draw the given figure in their notebooks and identify the diameter in it.

SYMMETRY**STUDENT LEARNING OUTCOME**

- Identify reflective symmetry in a two-dimension (2-D) shape.

INFORMATION FOR TEACHERS

The teachers should know that:

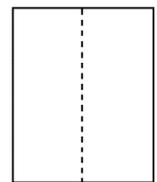
- In symmetrical shapes, one part of an object is the mirror image of the other.
- The line of folding is called the line of symmetry.

**DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD****MATERIALS / RESOURCES REQUIRED**

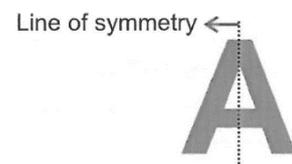
- Textbook, Board, Marker/Chalk, Duster, Paper, Chart showing symmetrical objects

**INTRODUCTION**

- Take plain paper and draw a line in the center of the paper.
- Ask students, is the right side of the paper exactly the same as the left side.
- Take students' responses and tell them that the paper is an example of a symmetrical object. When one part of the paper, to the left of the line, is folded it exactly covers the right part of the paper.
- Tell students that in today's lesson, we will learn about symmetrical objects.

**DEVELOPMENT****Activity 1:**

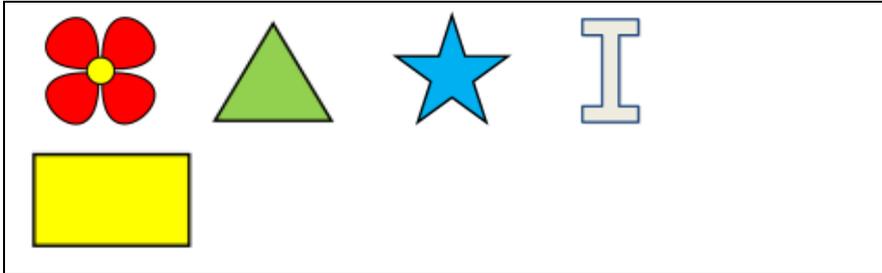
- Draw the alphabet 'A' on the board.
- Draw a line through the alphabet 'A' which divides it into two halves.
- Tell students that the line which divides the 'A' into two halves is called the line of symmetry.



- Cut small rectangle shapes from a piece of paper.
- Give these rectangles to students and ask them to fold them in a way that when the left part is folded over the right, it should exactly cover the right side.
- Guide students during the activity and ask them to identify the line of symmetry.
- Tell students that the shapes which have no line of symmetry are called non-symmetrical shapes.

Activity 2:

- Draw/Paste the following chart on the board:



- Call students one by one to draw a line of symmetry on one object.
- Take students' responses and guide where required.



CONCLUSION / SUM UP

Tell students that:

- In symmetrical shapes, one part of an object is the mirror image of the other.
- The line of folding is called the line of symmetry.



ASSESSMENT

- Draw the following figures on the board and ask students to answer the question in their notebooks.

Identify the line of symmetry in the following shapes.

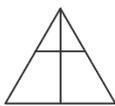


Figure A

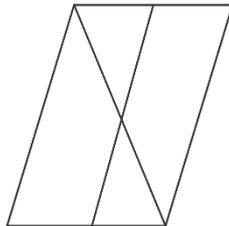


Figure B

- Check students' responses and guide where required.



HOMEWORK / FOLLOW UP

Do question 1 on page 161 of the textbook.

SYMMETRY**STUDENT LEARNING OUTCOME**

- Identify and draw lines of symmetry.

INFORMATION FOR TEACHERS

The teachers should know that:

To draw a line of symmetry first the central part of the figure is marked then the lines are drawn which exactly divide the figure into two equal parts.



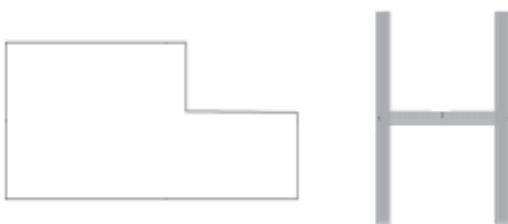
DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD

**MATERIALS / RESOURCES REQUIRED**

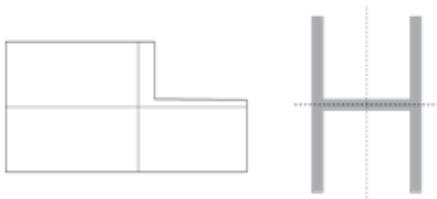
- Textbook, Board, Marker/Chalk, Duster

**INTRODUCTION**

- Draw the following figures on the board.



- Call a student to draw a line of symmetry on both shapes.
- Take the student's answer. (The student will not be able to draw a line of symmetry on the first figure.)
- Tell students that in the case of the first object, we will not be able to divide the shape into two halves. However, we can easily draw a line of symmetry on the other figure (H). Thus, there are two types of 2-dimensional shapes; one has a line of symmetry and are called symmetrical shapes and the other has no line of symmetry and are called non-symmetrical shapes.



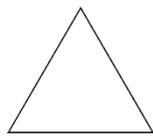
5. Ask the class, which one is a non-symmetrical shape.
6. Take students' responses and guide if required.
7. Tell students that in today's lesson, we will practice drawing lines of symmetry.



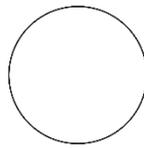
DEVELOPMENT

Activity 1:

1. Draw the following shapes on the board.



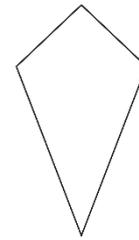
A



B

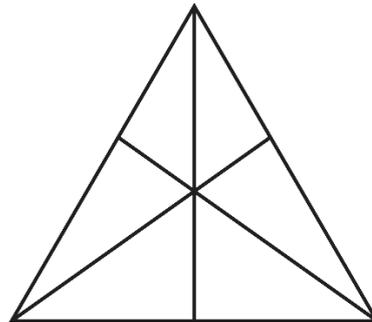


C



D

2. Select four students randomly and ask each student to draw a line of symmetry on one figure.
3. Check students' work and guide if required.
4. Tell students that there are shapes that can have more than one line of symmetry. E.g., triangle.
5. Draw a triangle on the board and draw three lines of symmetry on it.



6. Tell students that the triangle has three lines of symmetry.
7. Ask students to draw more lines of symmetry on the figures drawn on the board.

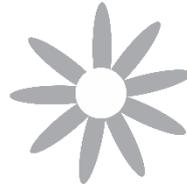
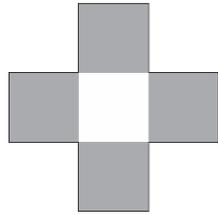


CONCLUSION / SUM UP

Tell students that:

1. There are two types of 2-dimensional shapes; one has a line of symmetry and are called symmetrical shapes and the other has no line of symmetry and are called non-symmetrical shapes.
2. There are objects which can have more than one line of symmetry.

1. Draw the following figures on the board.
2. Call two students one by one to draw lines of symmetry on one figure.



3. Check students' work and guide where required.

Do question 2 on page 161 of the textbook.

Month

8

THREE DIMENSIONAL (3-D) OBJECTS



STUDENT LEARNING OUTCOMES

- Describe 3-D objects (cubes, cuboids and pyramid) with respect to the number of edges and faces.
- Differentiate 3-D objects (cube, cuboid and pyramids) with respect to the number of edges and faces.

INFORMATION FOR TEACHERS

The teachers should be able to describe and differentiate between cubes, cuboids and pyramids with respect to their number of edges and faces.



DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1



MATERIALS / RESOURCES REQUIRED

- Textbook, Board, Marker/Chalk, Duster, 3 Dice, 3 Matchboxes, Cone-shape hat, Chart about cube and cuboid, Prism, 3 flashcards showing 3-shapes, Worksheets



INTRODUCTION

1. Bring some real objects like dice, matchbox, cone-shaped hat, and place them in front of the class.
2. Ask the following questions.
 - i. Are all these objects same in shape?
 - ii. What is the main difference between the shapes of these objects?
3. Take students' responses and tell them that they are different because of faces and edges.
4. Tell students that in today's lesson, they will learn about 3-D objects.



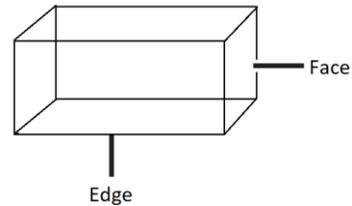
DEVELOPMENT

Activity 1:

1. Show a matchbox to the students.
2. Ask students, how many faces does a matchbox have.
3. Take students' responses and tell them that a matchbox has also 6 faces.
4. Ask students what is the shape of each face of the matchbox.
5. Take students' responses and tell them that all faces are rectangles.

6. Draw a labelled diagram of a cuboid on the board and tell students that a matchbox is a cuboid with the following characteristics:

- i. It has 6 faces.
- ii. All faces are rectangles.
- iii. It has 12 edges.
- iv. It has 8 vertices.



7. Tell students that the face is the shape's surface, edges are the lines between the faces and vertex is the point where two edges meet.

8. Divide the class into 3 groups and give each group a dice and a matchbox.

9. Let each group identify the vertices, edges and faces of both objects.



CONCLUSION / SUM UP

Tell students that:

1. A cube has 6 faces. All its faces are square. It has 12 edges of the same length and 8 vertices.
2. A cuboid has 6 faces. All its faces are rectangles. It has 12 edges and 8 vertices.

THREE DIMENSIONAL (3-D) OBJECTS



DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2



INTRODUCTION

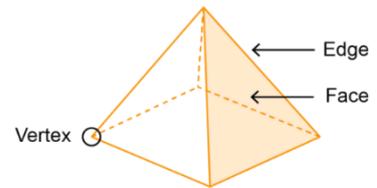
1. Take a recap of the previous lesson by asking the following questions:
 - i. Identify face of the dice. (Show a dice to the students)
 - ii. Identify edge of the matchbox. (Show a matchbox to the students)
 - iii. How many vertices does a cuboid have?
 - iv. How many faces does a cube have?
2. Take students' responses.
3. Guide students where required.



DEVELOPMENT

Activity 3:

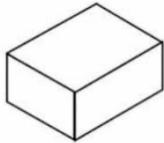
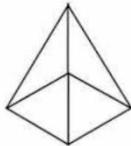
1. Show a prism to the students.
2. Tell students that it is a pyramid that has 8 edges, 5 faces and 5 vertices.
3. Show the prism to students in groups and let them identify its vertices, edges and faces.



Activity 4:

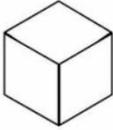
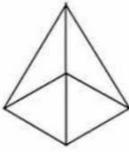
1. Divide the class into four groups.
2. Give each group the following worksheet to answer.

Group 1:

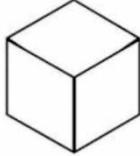
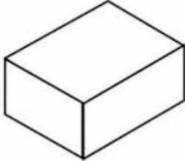
Difference between cuboid and pyramid based on edges and faces	
Cuboid No. of edges of cuboid = No. of faces of cuboid =	
Pyramid No. of edges of pyramid = No. of faces of pyramid =	

Group 2:

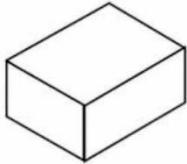
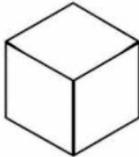
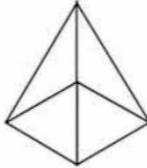
Difference between cube and pyramid based on edges and faces
--

Cube No. of edges of cube = No. of faces of cube =		Pyramid No. of edges of pyramid = No. of faces of pyramid =	
--	---	---	---

Group 3:

Difference between cube and cuboid based on edges and faces			
Cube No. of edges of cube = No. of faces of cube =		Cuboid No. of edges of cuboid = No. of faces of cuboid =	

Group 4:

Difference between cube, cuboid and pyramid based on edges and faces					
Cuboid 	Cube 	Pyramid 			
No. of edges of cuboid = No. of faces of cuboid =	No. of edges of cube = No. of faces of cube =	No. of edges of pyramid = No. of faces of pyramid =			

3. Guide students during this activity and help them to differentiate the objects properly with respect to their faces and edges.



CONCLUSION / SUM UP

Tell students that:

1. A prism has 8 edges, 5 faces and 5 vertices.
2. We can differentiate between a cube, cuboids and pyramid by counting their number of vertices, edges and faces.

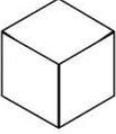


ASSESSMENT

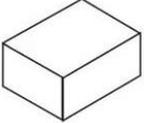
1. Divide the whole class into three groups.
2. Give one flashcard to each group as shown below.
3. Ask each group to recognize the shape given to them and write about its edges, faces and vertices.

Flashcard 1 for group 1:

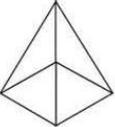
Shape	Name	No. of faces	No. of edges	No. of vertices
-------	------	--------------	--------------	-----------------

				
---	--	--	--	--

Flashcard 2 for group 2:

Shape	Name	No. of faces	No. of edges	No. of vertices
				

Flashcard 3 for group 3:

Shape	Name	No. of faces	No. of edges	No. of vertices
				

4. Call one student from each group to present their work to the class.
5. Check students' work and guide where required.



HOMEWORK / FOLLOW UP

Complete the table given on page 164 of the textbook.

DATA REPRESENTATION**STUDENT LEARNING OUTCOMES**

1. Representation of data by
 - i. Carroll diagram
 - ii. Tally chart
2. Read and interpret a Carroll diagram and a Tally chart.

INFORMATION FOR TEACHERS

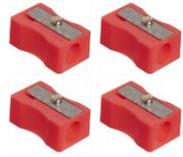
The teachers should know that Lewis Carroll developed Carroll diagram for the handling of data. Carroll diagram is a diagram in which different things are sorted out according to any two characteristics.

**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 1****MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, 5 blue pencils, 4 red pencils, 7 blue sharpeners, 4 red sharpeners. Chart showing pencils and sharpeners, Worksheet for homework

**INTRODUCTION**

1. Show some blue and red pencils and some blue and red sharpeners to the students.
2. Count the number of blue pencils and tell the total to the students i.e., 5.
3. Count the number of red pencils and tell the total to the students i.e., 4.
4. Ask one student to count the number of blue and red sharpeners. (Suppose 7 blue sharpeners and 4 red sharpeners)
5. Draw/Paste the following chart on the board.

Blue colour		
Red colour		

6. Tell students that we have sorted out the objects on the basis of colour i.e., blue pencils and sharpeners are separated from red pencils and sharpeners. If you want to know how

many blue pencils and sharpeners are there, you can use the above diagram to get the answer quickly.

- Tell students that today we will learn about representation of data by Carroll diagram and tally chart.



DEVELOPMENT

Activity 1:

- Write the following numbers on the board.
3, 8, 10, 12, 16, 18, 21, 25, 28, 33
- Ask students what are the possible ways in which we can make groups of these numbers.
- Take students' responses and tell them that among other ways, we can use the size of the number for sorting numbers less than 14 and greater than 14 or we can separate the numbers which are divisible by 2.
- Tell students that we use a diagram, called Carroll diagram to represent data. It is a diagram in which different things are sorted out according to any two different characteristics.
- Draw the following table on the board to show Carroll diagram for the given situation.

	Numbers less than 14	Numbers greater than 14
Numbers divisible by 2		
Numbers not divisible by 2		

- Tell students that in the first box, we will write numbers which are less than 14 and divisible by 2. Guide them as follows:
 - Look at the given set of numbers and circle the numbers which are less than 14.
 - Cross out the encircled numbers which cannot be divided by 2.
 - The remaining encircled numbers are the ones which are less than 14 and are divisible by 2.
 - Write 8, 10, 12 in the first box.
- Tell students that in the second box (across), we will write numbers which are greater than 14 and divisible by 2. Guide them as follows:
 - Look at the given set of numbers and circle the numbers which are greater than 14.
 - Cross out the encircled numbers which cannot be divided by 2.
 - The remaining encircled numbers are the ones which are greater than 14 and are divisible by 2.
 - Write 16, 18, 28 in the second box.
- Make pairs of students and ask them to fill in the rest of the boxes of the Carroll diagram.

	Numbers less than 14	Numbers greater than 14
Numbers divisible by 2	8, 10, 12	16, 18, 28
Numbers not divisible by 2	3	21, 25, 33

9. Check students' input and guide where required.



CONCLUSION / SUM UP

Tell students that we have learned the comparison of different objects based on capacity using observation.

DATA REPRESENTATION**DURATION / NO. OF PERIODS: 35 MINUTES / PERIOD 2****INTRODUCTION**

1. Ask students to take out their notebooks and a pencil.
2. Tell students, we will do counting till 20 but in a different way.
3. Ask students to draw one small line on each count till 4 and cross out the four lines on the count of 5 as shown below.



1. Repeat the step till we complete counting till 20.
2. Tell students that these small lines are called tally marks. It is used to denote number of observations in a data.
3. Tell students that today we will learn about tally charts used for representing data.

**DEVELOPMENT****Activity 2:**

1. Karishma's father gave her pocket money from 1st day of the month to the last day of the month in rupees as follows:
3, 4, 5, 2, 2, 4, 3, 5, 2, 3, 5, 4, 3, 5, 2, 4, 2, 3, 5, 4, 2, 3, 4, 2, 5, 3, 4, 5, 2, 4
2. Draw the following table on the board and tell students that we can represent this data through a tally chart.

Pocket money received in rupees	Number of times
2	
3	
4	
5	

3. Guide students to interpret the tally chart in the following way:
Karishma received Rs. 2 as pocket money for 8 days
Karishma received Rs. 3 as pocket money for 7 days
Karishma received Rs. 4 as pocket money for 8 days

Karishma received Rs. 5 as pocket money for 7 days

4. Tell students that using tally charts which can deduce useful information.
5. Repeat the explanation of tally chart for students to develop better understanding.



CONCLUSION / SUM UP

Tell students that today we have learned how to interpret tally charts to get useful information.



ASSESSMENT

1. Write the following numbers on the board and draw Carroll diagram.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

	Numbers less than 10	Numbers greater than 10 but less than 16
Numbers divisible by 2		
Numbers not divisible by 2		

2. Ask students to answer the following questions. Enter their answers in the Carroll diagram.

- i. Which numbers are less than 10 and divisible by 2?
- ii. Which numbers are less than 10 and not divisible by 2?
- iii. Which numbers are greater than 10 and less than 16 and also divisible by 2?
- iv. Which numbers are less than 16 and not divisible by 2?

	Numbers less than 10	Numbers greater than 10 but less than 16
Numbers divisible by 2	2, 4, 6, 8	12, 14
Numbers not divisible by 2	1, 3, 5, 7, 9	11, 13, 15

3. Check students' responses and guide where required.

1. Give the following worksheet to the students.
2. The tally chart below shows the number of students who celebrated their birthday in different months. Using the tally marks, answer the questions given below.

Months	Tally marks
January	
February	
March	
April	
May	

- i. In which months did the least number of students celebrate their birthday?
- ii. In which month did the greatest number of students celebrate their birthday?
- iii. In January and April, what number of students celebrated their birthday?
- iv. What is the total number of students who celebrated their birthday in these 5 months?

DATA REPRESENTATION**STUDENT LEARNING OUTCOME**

- Read and interpret picture graphs.

INFORMATION FOR TEACHERS

Read and interpret picture graphs.



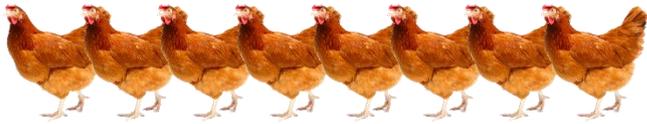
DURATION / NO. OF PERIODS: 35 MINUTES / 1 PERIOD

**MATERIALS / RESOURCES REQUIRED**

- Textbook, Board, Marker/Chalk, Duster, 3 Charts showing picture graphs

**INTRODUCTION**

1. Paste the following picture graph on the board.
2. Ask students to study the given picture carefully and answer the following questions.

PICTURE GRAPH	
Parrot	
Hens	
Pigeons	
Ducks	

- i. Tell the number of parrots as shown in the picture graph.
Take students' responses and write 5 on the board.
 - ii. Tell the number of hens as shown in the picture graph.
Take students' responses and write 8 on the board.
 - iii. Tell the number of pigeons as shown in the picture graph.
Take students' responses and write 6 on the board.
 - iv. Tell the number of ducks as shown in the picture graph.
Take students' responses and write 4 on the board.
3. Tell students that in today's lesson we will learn to read a picture graph.



DEVELOPMENT

Activity 1:

1. Paste the following picture graph on the board.
The following picture graph shows the number of students absent during the last week.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

2. Ask a student to read the picture graph and explain it to the class.
3. Check the student's understanding and guide if required.
4. Tell students that in the given graph, 1 picture = 1 student
5. Select five students randomly and one by one ask them to answer one of the following questions.
 - i. How many students were absent on Monday?
 - ii. How many students were absent on Tuesday?
 - iii. On what day, the greatest number of students were absent?

- iv. On what day, the least number of students were absent?
 - v. What is the total number of students absent on Tuesday and Wednesday?
6. Take students' responses and guide where required.



CONCLUSION / SUM UP

Tell students that in a picture graph, the number of pictures of different things helps us to reach the actual data behind the picture.



ASSESSMENT

1. Paste the following chart on the board.
2. Ask students to study the given picture carefully and answer the questions that follow.

The following picture graph shows the number of cars available in different colours.
1 figure = 2 cars (Means count 1 car as 2 cars)

Colour	Number of Cars
Red	
Blue	
Grey	
Black	

- i. How many red cars are there?
3. Guide students to count 1 car as 2 cars. Tell them that the number of red cars in the picture graph is 4. Multiply 4 with 2 to get the actual number of red cars.
 $4 \times 2 = 8$ red cars
- ii. How many blue cars are there?
 - iii. What is the total number of blue and grey cars?
 - iv. In which colour, the least number of cars are there?
4. Take students' responses and guide them where required.



HOMEWORK / FOLLOW UP

Do question 3 on page 179 of the textbook.

A teacher's purpose is not to create students in his own image, but to develop students who can create their own image.



**Directorate of Curriculum and Teacher Education
Khyber Pakhtunkhwa Abbottabad**



قومی ترانہ

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تُو نشانِ عزمِ عالی شان ارضِ پاکستان!

مرکزِ یقین شاد باد

پاک سر زمین کا نظام قوتِ اُخوتِ عوام
قوم، ملک، سلطنت پابندہ، تابندہ باد

شاد باد منزلِ مراد

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