

# Teacher Companion Book

classklap  
BY Eupheus



## Mathematics

Name of teacher: \_\_\_\_\_

Section(s) taught: \_\_\_\_\_

Class **4**  
Part **1**

Annual Academic  
Calendar

Curriculum to  
Learning Objectives

Vision-to-Action  
Plans

Exit  
Assessments



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# Textbook Features

## Let Us Learn About

Contains the list of learning objectives to be covered in the chapter

## Think

Introduces the concept and arouses curiosity among students

## Recall

Discusses the prerequisite knowledge for the concept from the previous academic year/chapter/ concept/term

## Remembering and Understanding

Explains the elements in detail that form the basis of the concept Ensures that students are engaged in learning throughout

## Application

Connects the concept to real-life situations by enabling students to apply what has been learnt through the practice questions

## Higher Order Thinking Skills (H.O.T.S.)

Encourages students to extend the concept learnt to advanced scenarios

## Drill Time

Additional practice questions at the end of every chapter

# Workbook Features

## Recall



Aims at revising the prerequisite knowledge for the concept from the previous year/chapter/concept/term

## Remembering and Understanding



Provides opportunities for practising the basic elements involved in the learning of the concept

## Application



Applies the understanding of the concept to questions related to real-life scenarios

## Higher Order Thinking Skills (H.O.T.S.)



Extends the concept to more advanced and challenging questions that meet the criteria of higher order thinking skills

## Practice Questions



Aims at revising the chapter with supplemental practice questions

# Pedagogical Explainer

Indicates the class

Knowledge that learners are expected to have in order to understand the concept better. This is acquired from the previous lessons or classes.

Indicates the chapter name

Indicates the sub-concept name

Indicates how the concept taught is related to concepts covered in the previous, current and next class(es)

**A – Curriculum to Learning Objectives: Geometry**

Prior Knowledge		• Basic lines and figures				
Class	C. No.	Chapter Name	SC. No.	Sub-concept Name	KC No.	Key Concept
1	1	Shapes	1.1	Understand Spatial Words	1.1.a	• basic flat and solid figures
					1.1.b	• corners and sides of objects/figures
					1.1.c	• outlines of the bases of the objects
2	1	Shapes	1.1	Identify the Geometrical Features of Objects	1.1.a	• lines, open figures and closed figures
					1.1.b	• drawing figures using lines
					1.1.c	• basic flat and solid figures
					1.1.d	• flat figures as outlines of the surfaces of solid figures
3	1	Shapes	1.1	Vertices and Diagonals of Two-dimensional Shapes	1.1.a	• identifying 2D shapes with straight and curved lines
					1.1.b	• identifying sides, corners and diagonals
					1.1.c	• making a tangram
					1.1.d	• recognising 3D shapes and their faces and edges
4	1	Shapes	1.1	Circle and its Parts	1.1.a	• circle and its parts
			1.2	Reflection and Symmetry	1.1.b	• drawing a circle
					1.2.a	• reflection and symmetry in figures
			1.2.b	• tessellation and tiling		
5	1	Shapes	1.1	Identify and Classify Angles	1.1.a	• angles and naming the angles
					1.1.b	• using a protractor
					1.1.c	• properties of a protractor
					1.1.d	• types of angles
			1.2	Nets and Views of Solids	1.2.a	• nets of cubes, cuboids, cylinders and cones
					1.2.b	• top, front and side views of objects

**LIST OF ABBREVIATIONS USED**

- C. No. - Chapter number
- SC. No. - Sub-concept number
- KC No. - Key concept number
- Comp. No. - Indicates the Competency numbers as per NCF 2022
- TB - Textbook
- WB - Workbook
- THK - Think
- RCL - Recall
- REM/UND - Remembering and Understanding
- APP - Application
- HOTS/H.O.T.S. - Higher Order Thinking Skills
- CW/HW – Classwork/Homework
- PTM - Parent Teacher Meeting
- PRS - Personal Revision Sheet
- FA – Formative Assessment
- PA – Periodic Assessment
- MYA – Mid-Year Assessment
- AA – Annual Assessment

Teaching day for the lesson and the actual date on which the plan is taught

Indicates the textbook/workbook page numbers and the section(s) covered on that day

The class level outcomes or enabling objectives for the day

Teaching strategies for the day

The list of teaching resources to be procured/arranged before the class

The suggested CW/HW for the day

Space for teacher's notes

Checklist for textbook/workbook implementation

Space for the teacher to write how to handhold/challenge learners

**B Vision-to-Action Plan: 1.1 Vertices and Diagonals of Two-dimensional Shapes**

Day and Planned Date	TB Page No. and Section	KC No.	Daily Learning Outcome(s)	Teaching Strategies	Resources	Practice		Teacher's Notes
						CW	HW	
1 DD/MM/YYYY	1-3 – THK, RCL	1.1.a	<ul style="list-style-type: none"> <li>Recall types of lines and figures.</li> <li>Draw and identify 2D shapes using lines.</li> </ul>	<ul style="list-style-type: none"> <li>Using Concrete Material</li> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Sheets of paper for each learner</li> </ul>	TB: Pg. 2 (Try this) TB: Pg. 3 (Table)	WB: Pg. 1 (Q. 1-3)	
2 DD/MM/YYYY	3,4 – REM/UND, TMB	1.1.b	<ul style="list-style-type: none"> <li>Identify and name shapes, sides, vertices and diagonals.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Activity Method</li> </ul>	<ul style="list-style-type: none"> <li>Chart of 'Diagonals and Vertices'</li> <li>drinking straws</li> </ul>	TB: Pg. 4 (Try this, TMB) WB: Pg. 2 (Q. 7-12)	WB: Pgs. 1, 2 (Q. 4, 5, 6) WB: Pgs. 2, 3 (Q. 13-16)	

Written Work																							Comp. Qs./ Total Qs.
Section	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9	Q.10	Q.11	Q.12	Q.13	Q.14	Q.15	Q.16	Q.17	Q.18	Q.19	Q.20	Q.21	Q.22	
A																							
B																							
C																							

	Names	Teacher's Notes
Handhold Learners		
Challenge Learners		

Indicates the current day out of the total days allotted for the chapter

Indicates the textbook/workbook page number(s)

All the important words covered in the last class or on that day

Suggested ways to teach the concept effectively using the teaching strategies provided in the Teaching Strategies section of this book

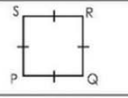
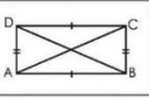
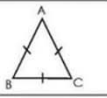
Annual Day:  
**3/64**

Day:  
**3/6**

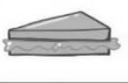


Actual Date: \_\_\_\_\_

Page:  
**3, 4**

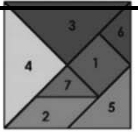
The given triangle has 3 sides named as AB, BC and CA. We can also name them as BA, CB and AC.  
The different number of markings on the sides of the triangle show that the lengths of all the 3 sides are different.  
If all the sides have the same number of markings, we can say that the lengths of all the 3 sides are the same.  
Let us now find the number of sides of a few 2D shapes and name them.

Shape			
Name of the shape	Square	Rectangle	Triangle
Number of sides	4 (All sides are equal.)	4 (Opposite sides are equal.)	3 (All sides are equal in this case.)
Names of sides	PQ, QR, RS, SP	AB, BC, CD, DA	AB, BC, CA

We find objects of various shapes around us.  
Complete in the following table by writing the basic shapes, number of the vertices and diagonals of the given objects.


Object			
Basic shape			
Number of vertices			
Number of diagonals			

**Tangram**  
A tangram is a Chinese geometrical puzzle. It consists of a square that is cut into pieces as shown in the given figure.  
To create different shapes, we arrange these tangram pieces with their sides or vertices touching one another.



**Important Words** **Duration: 1 min**

- Last class: sides, vertex, diagonal
- Today: equal sides

**Teaching Transaction** **Duration: 27 min** 

**Peer Learning (20 min):**

- Use TB: Pg. 3, 4 to show how to label equal sides of 2D shapes by using small lines.
- Have learners read and discuss the first table given in the TB: Pg. 4.
- Have each learner make a table of their own, using different shapes in the first column, without labels.
- Learners trade tables with their partners. Each learner will fill out the remaining columns of their partner's table. They will label vertices and equal sides, and write shape names, number of sides and names of sides.

**Guided Learning (7 min):**

- Show some everyday objects and ask learners to give the basic shape of each one.
- Ask learners to complete the second table given in TB: Pg. 4.

**Class Pulse Check** **Duration: 2 min**

- What is the shape of the wall of classroom?
- How many diagonals are there for a carrom board?

Indicates the pages of the book where the teacher can spend more time than suggested when needed

Indicates the pages of the book that the teacher can speed up when needed

Quick questions to check learners' understanding

Questions to test the key concept(s) on suggested days or for revising the concepts taught

Space for the teacher to write approximately how many learners answered correctly

Space to track TB and WB completion; also to reflect on the learners' understanding of a concept

📝 C – Exit Assessment			
	Suggested questions to test the key concept(s)	Key Concept(s)	Number of learners who answered correctly
1	How many curved lines does a rectangle have? (Ans. zero)	Day 1 - identifying 2D shapes with straight and curved lines	
2	How many diagonals does a circle have? (Ans. zero)	Days 2, 3 - identifying sides, corners and diagonals	
3	How many diagonals does a square have? How many vertices? (Ans. 2, 4)	Day 4 - making a tangram	
4	What is the shape of a face of a cuboid? (Ans. rectangle)	Day 5 - recognising 3D shapes and their faces and edges	
5	Which 3-D figure can you make using six square-shaped cards of the same size? (Ans. cube)	Day 5 - recognising 3D shapes and their faces and edges	

Space for the teacher to write the names of learners who need handholding or learners who need to be challenged

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😊 <input type="checkbox"/>			
Concept clarity in the classroom 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😊 <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😊 <input type="checkbox"/>		App Report    Number _____	Signature _____

Helps the teacher identify if the concept is to be retaught, revised or practised for exams

# Teaching Strategies

## Practising

**What?**

- ✓ Enables learning and skill-building through repetitive practice to ensure that the learners practise independently

**Why?**

**To help in building independent mastery of the skill taught, reinforce the development of skills through repetition and improve problem-solving and critical thinking abilities**

**Teacher**

- ✓ State the learning outcomes/skills that the learners will practise.
- ✓ Instruct the step-by-step method to solve/learn a skill.
- ✓ Let each learner independently practise by solving a similar sum or applying a skill.
- ✓ Make sure that all learners are able to solve the problems independently.
- ✓ Provide help individually to learners during the practice.

**How to use?**

**Learners**

- ✓ Understand the sum to solve/skill to develop while the teacher is instructing.
- ✓ Follow the same instructions to solve the problems independently.
- ✓ Ask questions to clarify doubts.

## Sample

- Discuss number names of 4-digit numbers as shown in the textbook.
- Ask the learners to work through the examples independently, checking the solution in the textbook.
- Closely look into how each learner is solving and correct their mistakes if any.
- Conclude by saying, 'We have learnt to write the number names of 4-digit numbers.'

# Activity Method

## What?

- ✓ Helps learners explore and learn by designing role plays, dramas, games, songs and so on

## Why?

To provide learners a classroom environment which encourages them to participate actively, collaborate and learn; facilitates multisensory learning of concepts

## Teacher

- ✓ Plan for the type of activity based on the learning outcome.
- ✓ Arrange the resources, if required.
- ✓ Arrange the classroom so that it is convenient to conduct the activity.
- ✓ State the purpose of the activity by writing it on the blackboard.
- ✓ Ensure all learners participate and have hands-on experience while conducting the activity.
- ✓ Summarise the activity by clearly stating what the learners did, what they observed and the learning from it.

## How to use?

## Learners

- ✓ Organise for the activity as per the instructions.
- ✓ Understand the rules and the purpose of the activity.
- ✓ Participate in the activity and note down the observations/results.
- ✓ Relate the activity to the concept to be learnt.

## Sample

**Learning outcome:** To mark the angles in the different letters of the alphabet; name the angles and their types

- Before class, arrange for chart paper and markers. Ask the learners to bring their protractors.
- Use an example from the textbook (different angles marked on letters of the alphabet).
- Ask learners to make charts showing different letters of the alphabet.
- Then, instruct learners to:
  - show the angles made by the vertices in each letter,
  - measure the angles,
  - name the types of angles.



# Using Concrete Material

**What?**

- ✓ Makes learning engaging by using objects and teaching materials to get a hands-on understanding of a concept

**Why?**

**To help learners better understand an abstract concept by seeing, touching and feeling**

**Teacher**

**How to use?**

**Learners**

- ✓ Decide the type of concrete material for a particular concept. For example, counting blocks, place value board, geoboard, etc.
- ✓ Based on the concrete material, group the learners. (Consider: How many items are available? How much space is needed?)
- ✓ Distribute the concrete material to groups, pairs or individual learners.
- ✓ Tell students how to use the material. E.g., measure, move, count, etc.
- ✓ Help them make the connection to the mathematical concept involved.
- ✓ Conclude/Summarise by connecting the concrete material to the expected learning outcomes.

- ✓ Use the concrete material as per the teacher's instructions.
- ✓ Make the connection between concrete material and abstract concepts.
- ✓ Ask relevant questions to develop a better understanding.

## Sample

**Learning outcome:** To measure and learn—sum of the 3 interior angles of a triangle equals 180 degrees.

- Prepare cutouts of different types of triangles in paper/chart for every learner and protractor.
- Distribute cutouts of triangles, one for every learner. Include different types (acute, obtuse and right triangles).
- Group learners into pairs.
- Ask each learner to measure all the angles of one triangle using a protractor and then find the sum of all three angles.
- Let each learner in the pair share the measures of the angle and their sum.
- To conclude, use an example from the textbook to discuss and explain how the sum of all the interior angles of a triangle is 180 degrees.

# Direct Instruction

**What?**

- ✓ Uses straightforward and explicit instructions, usually to teach a specific skill or introduce a new concept

**Why?**

**To help learners understand the correct approach/procedure to solve sums or build a skill**

**Teacher**

**How to use?**

**Learners**

- ✓ Introduce the topic with a motivating question or idea (For example, read the 'I Think' section of TB).
- ✓ Relate it to prior knowledge.
- ✓ Instruct clearly about the concept/skill that you want the learners to know/understand, i.e., what you are doing and why you are doing it.
- ✓ Ensure the instructions are explained step-by-step.
- ✓ Ask questions in between to check for understanding.
- ✓ Set the pace of the instruction to ensure all learners understand.
- ✓ After the direct instruction, ask learners to independently demonstrate the skills or solve the sums using the steps you have shown.

- ✓ Be alert and listen to the teacher's explicit instructions.
- ✓ Write down the steps.
- ✓ When in doubt, ask questions.
- ✓ Solve/Answer questions.

## Sample

- Use a geoboard to make figures as shown in the textbook. Show how angles are formed by two rays.
- Draw the same figures on the blackboard and show how to name an angle.
- Draw several intersecting line segments as given in the textbook on the blackboard and show the different angles made by the lines at the intersection.
- Show how to name and identify the different angles.
- Explain step by step how to draw and label the angles and how to identify the type of an angle.
- Have learners draw three intersecting lines and label all the angles.

# Guided Learning

## What?

- ✓ Facilitates and guides the learners to try new skills with teacher support; crucial for lower age groups

## Why?

**To build the basic skills of solving sums and understanding concepts; helps in transitioning from direct instruction to independent learning**

## Teacher

- ✓ Plan the learning for the entire class or in groups.
- ✓ Play the lead role in the class.
- ✓ Introduce the skill/concept or the sum to be solved.
- ✓ Ensure the learners follow the instructions and repeat the teacher actions as directed.
- ✓ Be aware of learners who need more support and focus on them.
- ✓ To conclude, call a few learners to the blackboard and make them repeat the skill/concept learnt.

## How to use?

## Learners

- ✓ Listen to the instructions and follow the teacher.
- ✓ Repeat the action as instructed by the teacher.
- ✓ Answer questions.

## Sample

- Use your arm to show the different types of angles given in the textbook—acute, right, obtuse and straight angles.
- Let each learner repeat the angle that you have shown using their arms.
- Now make each angle using your arm, and name the type of angle. Let each learner repeat it after you.
- Bring a few learners to the front. Guide them to make the angles using their arms and name them.
- Conclude by drawing different types of angles, marking the rays and also naming them.
- Let each learner note them down in their books.

# Interactive Discussion

## What?

- ✓ Engages learners in a discussion to share their inputs

## Why?

**To involve learners in a conversation to discuss the concept/related example/scenario with the class**

## Teacher

## How to use?

## Learners

- ✓ Ask questions to check previous knowledge.
- ✓ Introduce a new concept by asking questions/sharing an example/describing a scenario.
- ✓ Initiate a discussion among learners either in groups, pairs or individually.
- ✓ Capture learners' responses on the blackboard using appropriate graphic organisers, where applicable.
- ✓ Conclude the discussion by arriving at the expected learning outcome.

- ✓ Respond to the questions.
- ✓ Have doubts clarified.

## Sample

- Display a calendar page for the month of March in class.
- Explore why the different patterns emerge in the calendar through an interactive discussion:
  - Ask how many Fridays occur in a month with 31 days.
  - Show how Saturday appears every 7 days. It is a growing pattern with the rule of 'adding 7'.
  - Ask the learners explain how that pattern is made.
- Show a few patterns made by the dates as shown in the textbook.
- Have learners discuss the rules followed by the different patterns.
- Conclude the discussion by categorising the patterns that were observed.

# Peer Learning

**What?**

- ✓ Encourages learners to interact with each other and learn from each other

**Why?**

**To engage and involve all types of learners and build cooperative learning, in order to collaborate, work in a team and build confidence among learners**

**Teacher**

**How to use?**

**Learners**

- ✓ Frame the specific learning outcome for a concept/problem to be solved/tasks to be completed for peer learning.
- ✓ Group learners as a team or a pair with complementary strengths.
- ✓ Tell the groups about the expected outcome, what to do, and the time frame in which it has to be completed.
- ✓ Supervise and moderate the discussions/work in the groups.
- ✓ Ensure that learners have learnt from their peers by asking questions, helping them write, or solving the problems in the notebooks or on the blackboard.

- ✓ Understand the question to be solved and the learner's role in peer learning.
- ✓ Contribute according to the learner's individual strength in the group.
- ✓ Help all the members to understand and learn.
- ✓ Present information as asked in the notebook/on the blackboard to demonstrate learning.

## Sample

- Group the learners in pairs.
- Let each of them read and discuss the table of geometrical features of shapes from the textbook.
- Ask all learners to make a table of their own using different shapes in the first column but without labels.
- Let each of the learners share the tables with their partners.
- Each partner must complete the table, including labelling vertices and equal sides, shape names, number of sides and names of sides.
- Conclude the learning by telling learners about labelling and naming shapes.

# Questioning

## What?

- ✓ Asks questions during the teaching-learning process to prompt learners to think about what is being taught and also assess the learning levels

## Why?

**To adjust the instructions/pace of the teaching-learning process to achieve the learning outcomes and allow the teacher to assess the class mastery in a fun and quick way.**

## Teacher

## How to use?

## Learners

- ✓ Frame different types of questions at various stages of the teaching-learning process.
- ✓ Ask questions at different intervals during the teaching-learning process.
- ✓ Based on the responses, pace the teaching-learning process.
- ✓ Change the questioning technique to build curiosity and add variety.
- ✓ Avoid yes/no type of questions.
- ✓ Use quiz as a questioning technique at the end of the chapter to know how much the learners have learnt.

- ✓ Be attentive to the instructions and the questions.
- ✓ Answer only if the learner knows the answer.
- ✓ Participate in the quiz.

## Sample

- Show some everyday objects such as a book, a scale, the top of a table and so on.
- Ask the learners to tell the basic shape of each of the objects shown.
- Question the learners about each shape:
  - the number of sides
  - the number of vertices
  - the number of diagonals
- Ask the questions individually to every learner.
- Record the answers on the blackboard for every shape.
- Summarise by telling learners about the shapes and their properties.

# Summarising

What?

- ✓ Presents the most important ideas in the chapter/concept in short, often in the form of a graphic organiser using keywords or key phrases

Why?

To help learners to remember and understand the most important information, and integrate the central ideas in a meaningful way

Teacher

- ✓ Make a list of the main points for a concept, or the steps of the skill.
- ✓ Alternatively, have learners make their own list of main points.
- ✓ Ensure the keywords and phrases are highlighted.
- ✓ Where applicable, use an appropriate graphic organiser to present the information.

How to use?

Learners

- ✓ Underline the keywords and phrases.
- ✓ Revise the summarised points.
- ✓ When needed, make a list of main points.

## Sample

- Recall the Roman numbers from 1 to 100.
- Recall the rules for writing these Roman numerals.
- Categorise these rules by clearly stating the character and value of the Roman numeral. For example, 1 to 10.
- Show the difference between writing 4 (IV) and 6 (VI). Subtract and add with reference to 5; similarly, apply the same rule for 9 and 11 using 10 as a reference.
- Now, summarise the rules by stating the Roman values for 1, 5, 10, 50, 100 and how the other numbers are written applying the rule of adding and subtracting.
- Summarise using a mind map.

**Note:** Descriptions provided for samples of teaching strategies may vary from the content in the 'Transactional Tip' section of the lesson plan. Teachers need to plan on the same lines.

## Graphic Organisers (Blackboard Information Organising Tips)

- Graphic organisers mostly use words or phrases and drawings at times. They help learners see and think about information in a more systematic and connected way.
- Different organisers serve different functions. Describing processes, comparing, sequencing, arranging, showing relationships are some of the functions that graphic organisers have.
- Using these helps learners to process, store and recall information and discover new relationships.

**Mind map**

**Word splash**

**KWL chart**

**Tip chart**

**Table**

**Venn diagram**

**Bubble  
diagram**

**Star diagram**

**Timeline**

**Process chart**

**Cycle chart**

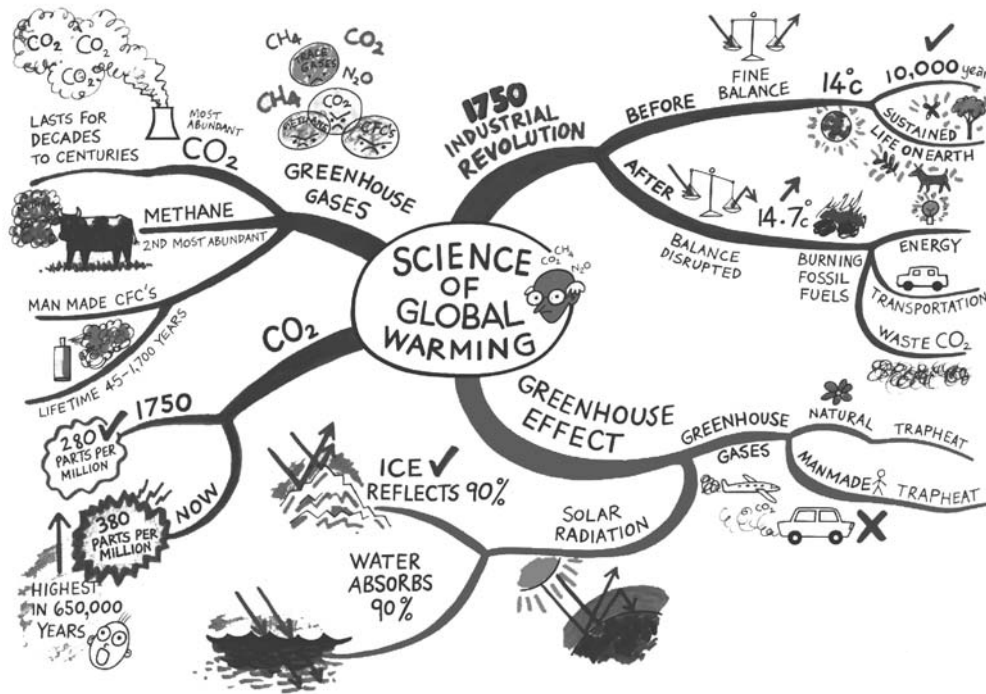
**Tree diagram**

**Spider  
diagram**

**Layered  
triangle/  
Pyramid**



# Mind map

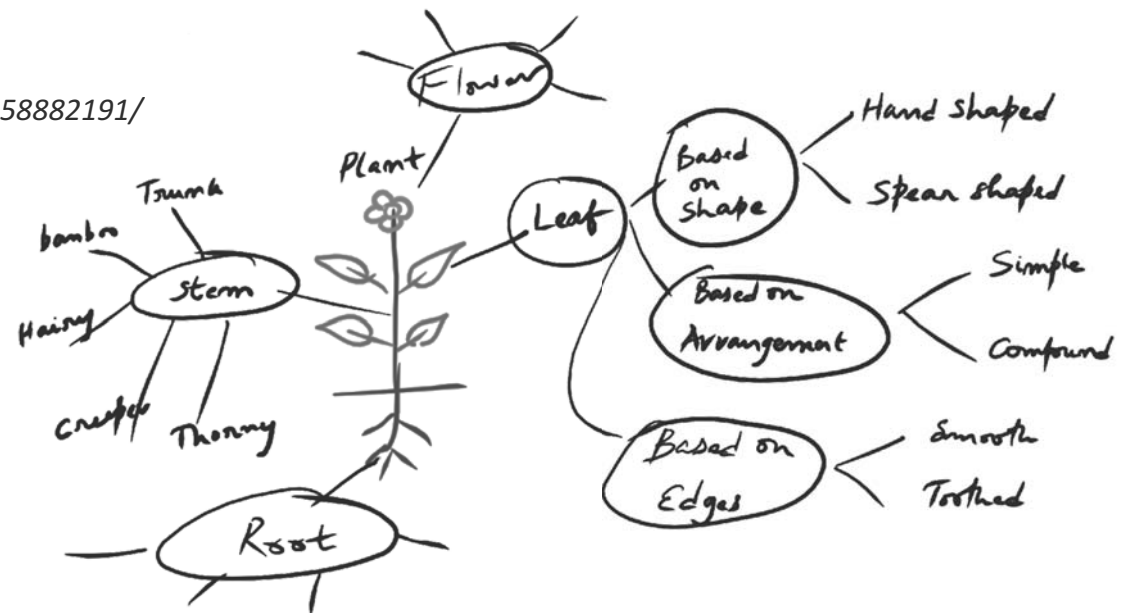


Source: <https://in.pinterest.com/pin/107101297358882191/>

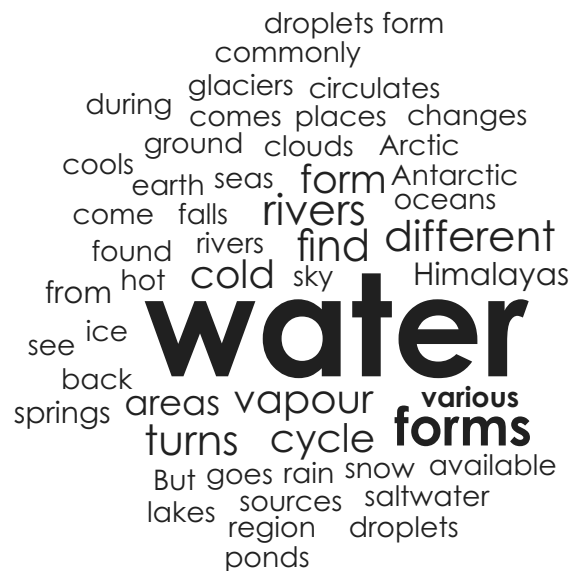


- Useful to build connections between concepts
- Helps in understanding information and discovering new relationships

Sample blackboard illustration:



## Word splash

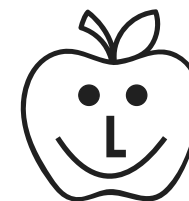
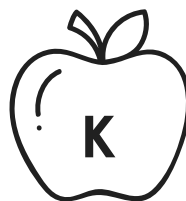


- Makes learning terminology easier for learners
- Helps make connections
- Keywords discussed can be written on the board and learners can be asked to make the connections

## KWL chart

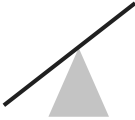
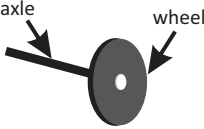


Builds outcome orientation and help learners/teachers to organise information before, during and after a lesson/activity



I know	I want to know	I have learned
Air is everywhere.	Why do we need air?	<ul style="list-style-type: none"> <li>• We need air to breath.</li> <li>• Air helps in burning.</li> </ul>

## TIP chart

<u>T</u> erm	<u>I</u> nformation	<u>P</u> icture
<b>Lever</b>	A lever is a bar, rod or platform that can move about a fixed point.	
<b>Wheel and axle</b>	Wheel and axle make work easier by reducing friction. A wheel helps things to move. The axle helps the wheel turn.	



Helps learners to remember and understand complex terms with the help of pictures and information

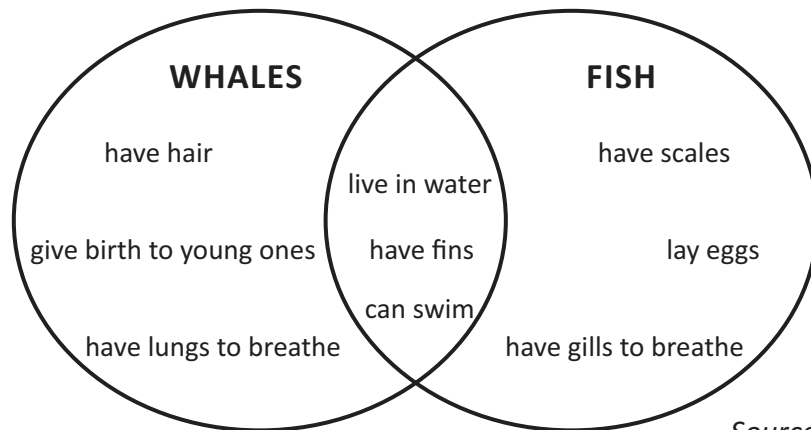
## Table



- Useful to note down information after discussions and clearly bring out points about different things from different perspectives
- Helps build modular thinking ability in learners

<b>Planet</b>	<b>Key Feature</b>	<b>No. of Moons</b>	<b>Position from the Sun</b>
Mercury	Smallest planet	Zero	1 <sup>st</sup>
Venus	---	---	---
Earth	---	---	---

## Venn diagram



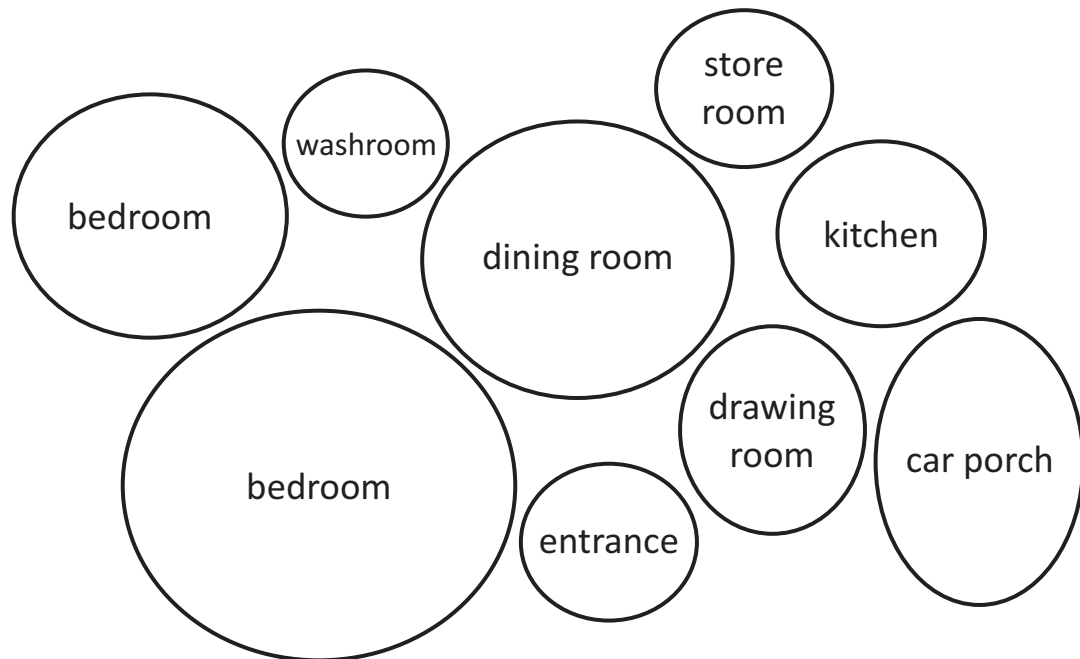
- Useful for remembering logical relationships between groups of things
- Can be used to indicate what is common and what is different between two things or groups of things

Source: <http://www.learnnc.org/lp/pages/2646>

## Bubble diagram



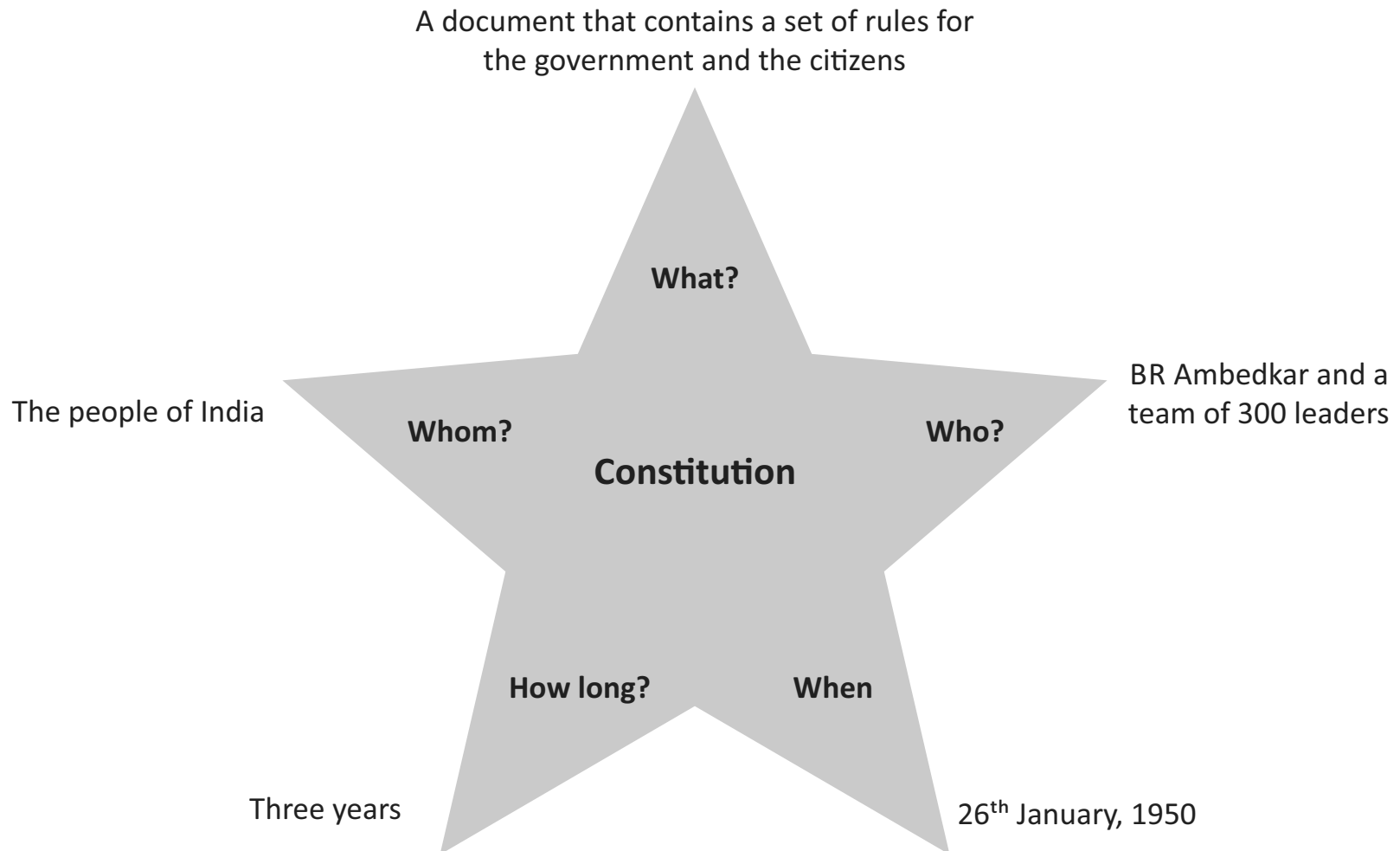
Can be used to visualise the components of a concept along with their relative sizes, quantity and connections between them



# Star diagram



Can be used to describe the key points of a story or event using the 5Ws

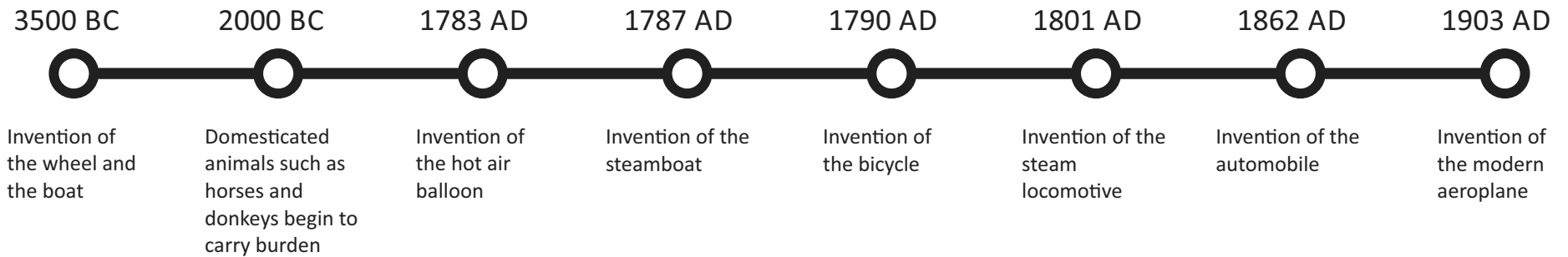


# Timeline

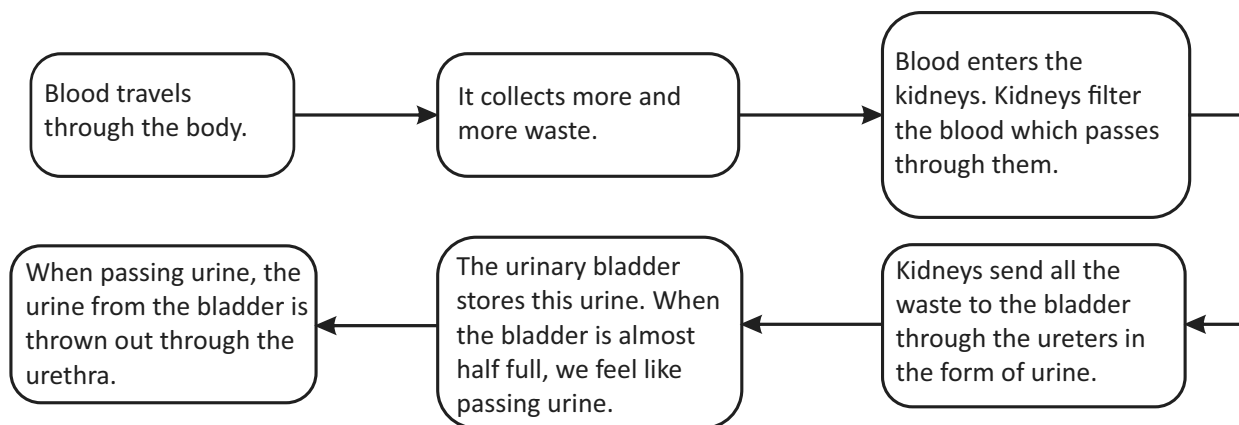


Useful to recall events in chronological order with dates

## Timeline of evolution of transportation

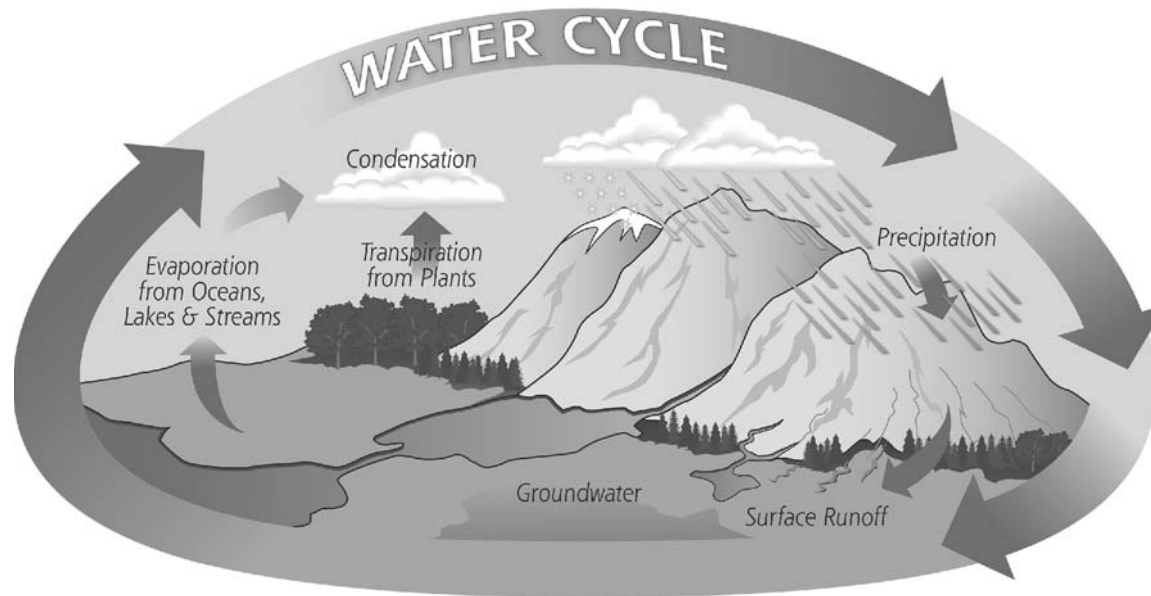


# Process chart



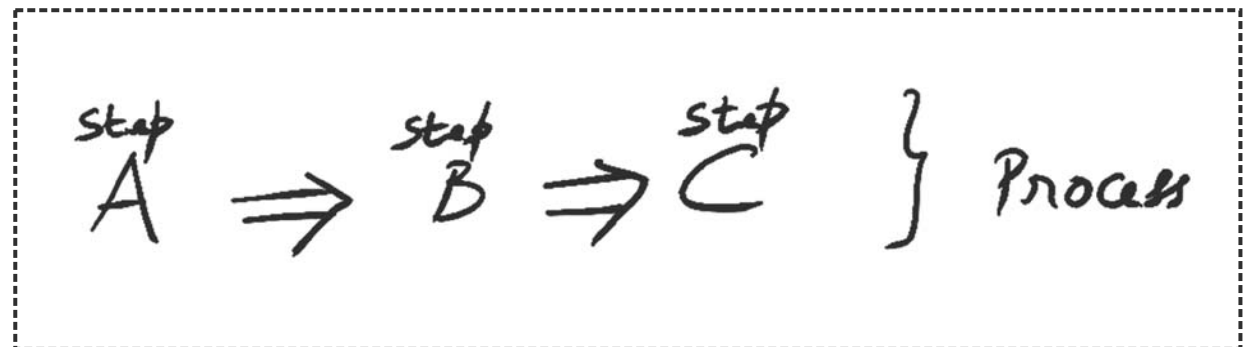
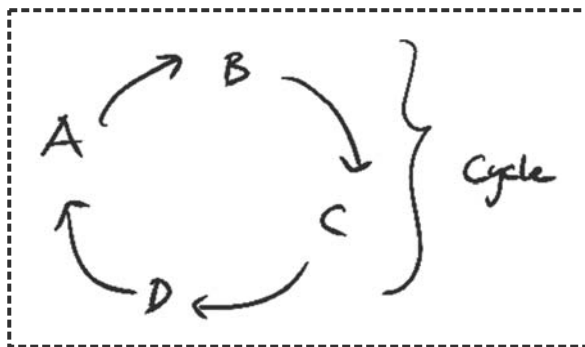
Useful to represent and remember information that follows a particular sequence

# Cycle chart

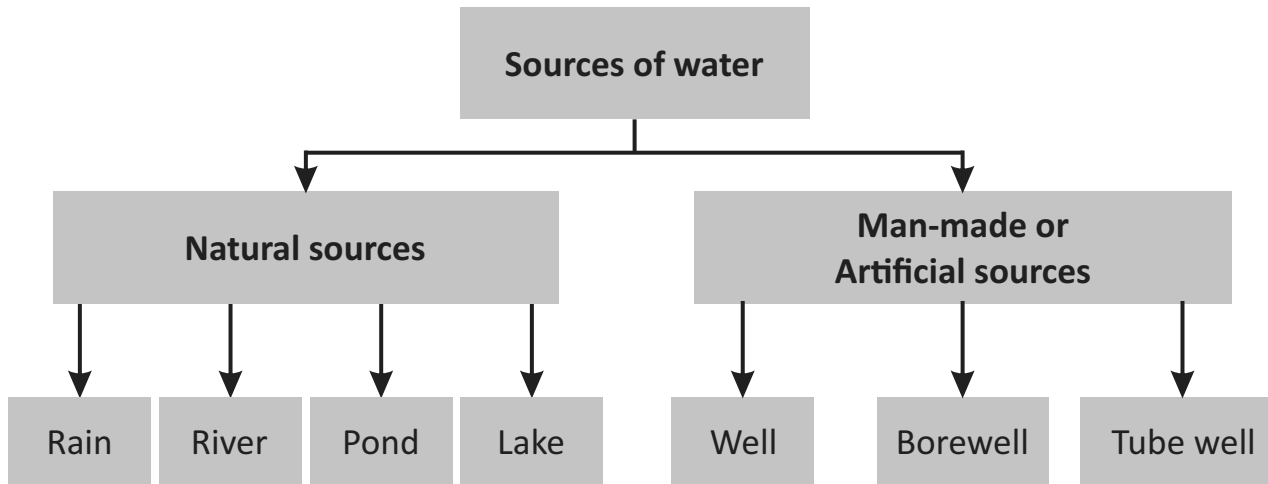


- Useful to represent and remember information that follows a particular sequence
- Both open-ended simple process or closed cycles can be used

Sample blackboard illustrations:



# Tree diagram

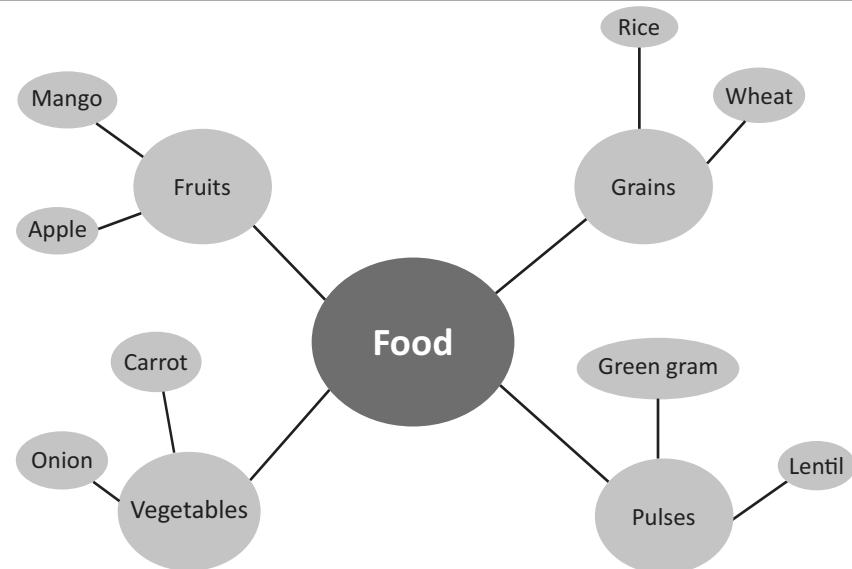


Helps in classifying or categorising information

# Spider diagram



- Useful to represent and remember complex topics
- Useful to build connections within a concept or between concepts



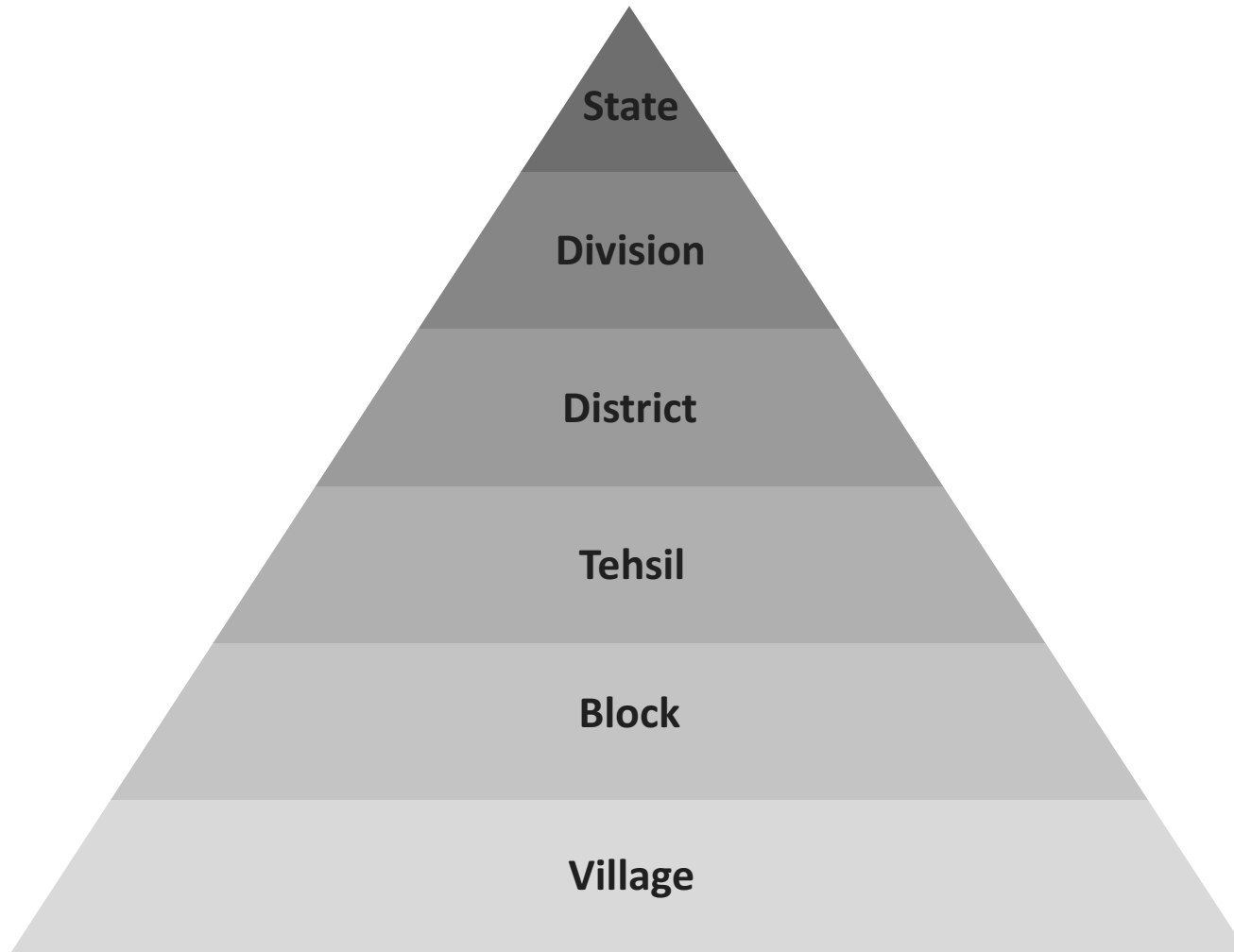


## Layered triangle/Pyramid

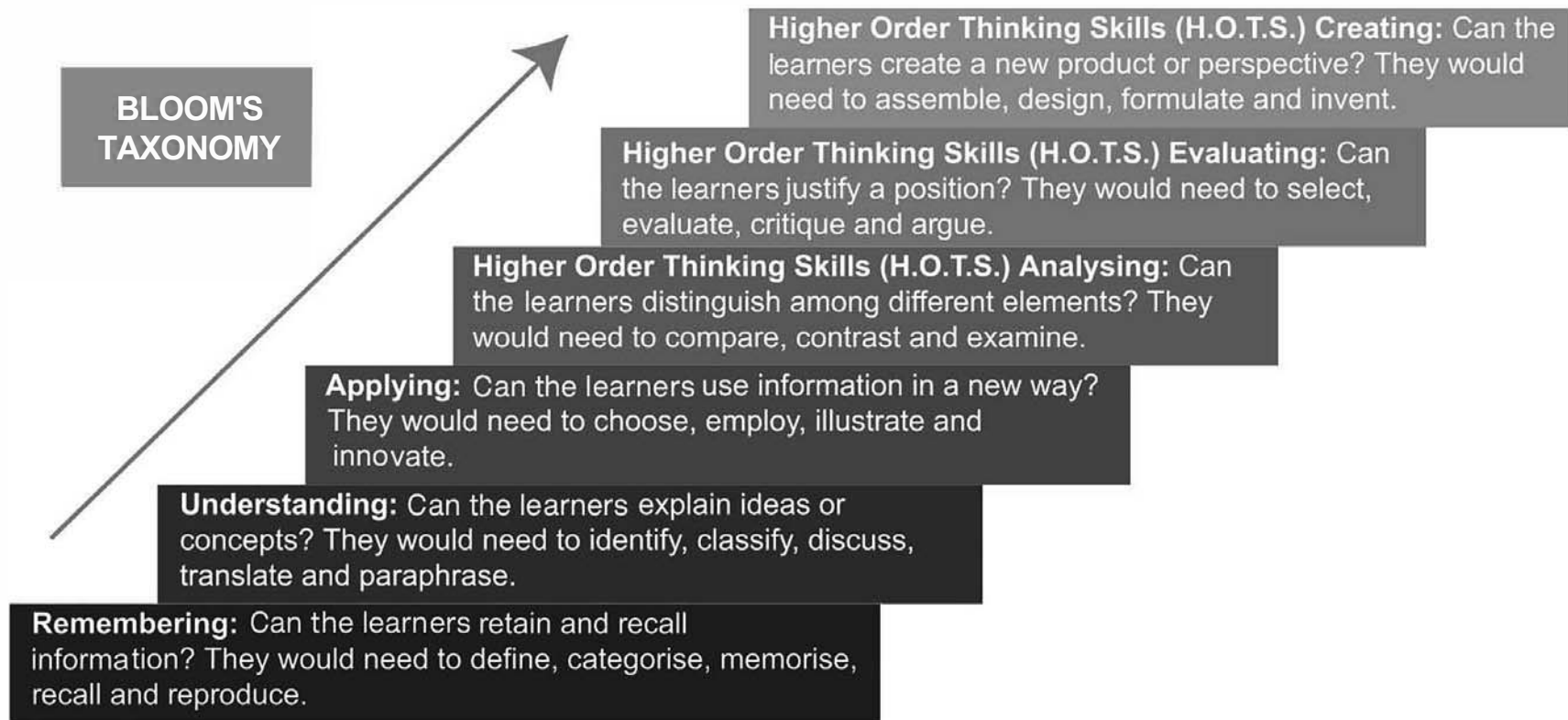


- Can be used to start with a broad topic and move to a more focussed or complex topic
- Can be used to start with a basic topic and move to a more evolved/complex topic

### Structure of State Administration



# Bloom's Taxonomy in Class



Grade 4 Maths 2 Part								
Part	Chapter No.	Chapter Name	Concept Number	Concept Name	Teaching Days	Exam Syllabus		
						FA Coverage	SA Coverage	PA Coverage
1	1	Shapes	1.1	Circle and its Parts	7	FA1	SA1	PA1
1	1	Shapes	1.2	Reflection and Symmetry	6	FA1	SA1	PA1
1	2	Patterns	2.1	Patterns Based on Symmetry	4	FA1	SA1	PA1
1	3	Numbers	3.1	Count by Ten Thousands	4	FA1	SA1	PA1
1	3	Numbers	3.2	Compare and Order 5-digit Numbers	4	FA2	SA1	PA1
1	3	Numbers	3.3	Round off Numbers	3	FA2	SA1	PA1
1	4	Addition and Subtraction	4.1	Add and Subtract 5-digit Numbers	5	FA2	SA1	X
1	5	Multiplication	5.1	Multiply 3-digit and 4-digit Numbers	5	FA2	SA1	X
1	5	Multiplication	5.2	Multiply Using Lattice Algorithm	5	FA2	SA1	X
1	5	Multiplication	5.3	Mental Maths Techniques: Multiplication	4	X	SA1	X
1	6	Time	6.1	Duration of Events	4	X	SA1	X
1	6	Time	6.2	Estimate Time	4	X	SA1	X
1	7	Division	7.1	Divide Large Numbers	7	X	SA1	X
2	8	Fractions - I	8.1	Equivalent Fractions	6	FA3	SA2	PA2
2	8	Fractions - I	8.2	Identify and Compare Like Fractions	6	FA3	SA2	PA2
2	8	Fractions - I	8.3	Add and Subtract Like Fractions	5	FA3	SA2	PA2

Notes:

1) SA1 = MYA, SA2 = AA

2) Please utilise available classroom time for practice on MathBuddy to provide additional and engaging maths practice to students.

This will also facilitate their performance during assessment.

**Grade 4 Maths 2 Part**

Part	Chapter No.	Chapter Name	Concept Number	Concept Name	Teaching Days	Exam Syllabus		
						FA Coverage	SA Coverage	PA Coverage
2	9	Fractions - II	9.1	Fraction of a Number	6	FA3	SA2	PA2
2	9	Fractions - II	9.2	Conversions of Fractions	5	FA4	SA2	PA2
2	10	Decimals	10.1	Conversion Involving Fractions	8	FA4	SA2	PA2
2	11	Money	11.1	Conversion of Rupees and Paise	4	FA4	SA2	X
2	11	Money	11.2	Add and Subtract Money with Conversion	3	FA4	SA2	X
2	11	Money	11.3	Multiply and Divide Money	4	FA4	SA2	X
2	12	Measurements	12.1	Multiply and Divide Lengths, Weights and Capacities	7	X	SA2	X
2	13	Data Handling	13.1	Bar Graphs	6	X	SA2	X

Notes:

1) SA1 = MYA, SA2 = AA

2) Please utilise available classroom time for practice on MathBuddy to provide additional and engaging maths practice to students. This will also facilitate their performance during assessment.

# Annual Planning Tool for Teachers (to be filled as per Term/Semester)

Month	No of Working Days in School	Assessments (if Any)	Other Non-Teaching Events if Any	No of Teaching Days in School	No of "Teaching Periods" based on the Subject Time-Table (Referred to as "Teaching Days" going forward)	Lesson/Concept List to be Covered	CK Teaching Days Total	Days Allocated for CK PRS	Buffer Days
Sample Month	20	None	Opening PTM (1 Day)	19	25	1, 2, 3	16	7	2
April									
May									
June									
July									
August									
September									
October									
November									
December									
January									
February									
March									

## Assessment Blueprint - Maths - Beginner FA\_20M

Question Source	Summary
DIRECT	Direct questions from TB/WB
DIRECT PLUS	DIRECT questions with minor changes.
MODIFIED	DIRECT questions with changes in skill and/or question type
MODIFIED PLUS	MODIFIED questions with increased difficulty
TWISTED	NEP/BOARD question types based on TB/WB content

### Maths - Class 4

			<i>Beginner</i>	<i>Values</i>
			20M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	No. of Questions	Marks
A	Multiple Choice Questions	DirectPlus	2	2
		Modified		
B	Very Short Answer Questions	DirectPlus	5	5
		Modified		
C	Short Answer Questions	DirectPlus	1	2
		Modified	2	4
D	Long Answer Questions	Modified	2	4
E	Graphic Organisers	Modified	1	3
<b>Grand Total</b>			<b>13</b>	<b>20</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

## Assessment Blueprint - Maths - Beginner PA\_40M

### Maths - Class 4

			<i>Beginner</i>	<i>Values</i>
			40M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	No. of Questions	Marks
A	Multiple Choice Questions	DirectPlus	3	3
B	Very Short Answer Questions	DirectPlus	7	7
C	Short Answer Questions	DirectPlus	4	8
		Modified	1	2
D	Graphic Organisers	Modified	2	8
E	Long Answer Questions	Modified	6	12
<b>Grand Total</b>			<b>23</b>	<b>40</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

## Assessment Blueprint - Maths - Beginner MYA/AA\_40M

### Maths - Class 4

			<i>Beginner</i>	<i>Values</i>
			40M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	<b>No. of Questions</b>	<b>Marks</b>
A	Multiple Choice Questions	DirectPlus	3	3
		Modified	1	1
B	Very Short Answer Questions	DirectPlus	6	6
		Modified	2	2
C	Short Answer Questions	DirectPlus	5	10
		Modified	3	6
D	Graphic Organisers	Modified	1	4
E	Long Answer Questions	Modified	4	8
<b>Grand Total</b>			<b>25</b>	<b>40</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.



## Assessment Blueprint - Maths - Beginner MYA/AA\_50M

### Maths - Class 4

			<i>Beginner</i>	<i>Values</i>
			50M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	No. of Questions	Marks
A	Multiple Choice Questions	DirectPlus	5	5
B	Very Short Answer Questions	DirectPlus	9	9
C	Short Answer Questions	DirectPlus	5	10
		Modified	1	2
D	Graphic Organisers	Modified	2	8
E	Long Answer Questions	Modified	8	16
<b>Grand Total</b>			<b>30</b>	<b>50</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

## Assessment Blueprint - Maths - Beginner MYA/AA\_80M

### Maths - Class 4

			<i>Beginner</i>	<i>Values</i>
			80M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	<b>No. of Questions</b>	<b>Marks</b>
A	Multiple Choice Questions	DirectPlus	6	6
		Modified	4	4
B	Very Short Answer Questions	DirectPlus	10	10
		Modified	4	4
C	Short Answer Questions	DirectPlus	7	14
		Modified	5	10
D	Graphic Organisers	Modified	3	12
E	Long Answer Questions	DirectPlus	2	4
		Modified	4	8
		ModifiedPlus	4	8
<b>Grand Total</b>			<b>49</b>	<b>80</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

## Assessment Blueprint - Maths - Proficient FA\_20M

### Maths - Class 4

			<i>Proficient</i>	<i>Values</i>
			20M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	<i>No. of Questions</i>	<i>Marks</i>
A	Multiple Choice Questions	DirectPlus	1	1
		Modified	1	1
		Twisted	1	2
B	Very Short Answer Questions	DirectPlus	2	2
		Modified	2	2
C	Short Answer Questions	DirectPlus	1	2
		Modified	1	2
D	Long Answer Questions	ModifiedPlus	4	8
<b>Grand Total</b>			<b>13</b>	<b>20</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

## Assessment Blueprint - Maths - Proficient PA\_40M

### Maths - Class 4

			<i>Proficient</i>	<i>Values</i>
			40M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	<i>No. of Questions</i>	<i>Marks</i>
A	Multiple Choice Questions	DirectPlus	1	1
		Modified	2	2
		ModifiedPlus	1	1
		Twisted	1	4
B	Very Short Answer Questions	DirectPlus	2	2
		Modified	5	5
		ModifiedPlus	1	1
C	Short Answer Questions	DirectPlus	2	4
		Modified	2	4
D	Long Answer Questions	DirectPlus	2	4
		ModifiedPlus	6	12
<b>Grand Total</b>			<b>25</b>	<b>40</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

## Assessment Blueprint - Maths - Proficient MYA/AA\_40M

### Maths - Class 4

			<i>Proficient</i>	<i>Values</i>
			40M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	<b>No. of Questions</b>	<b>Marks</b>
A	Multiple Choice Questions	DirectPlus	1	1
		Modified	1	1
		ModifiedPlus	2	2
		Twisted	1	4
B	Very Short Answer Questions	DirectPlus	6	6
		Modified	2	2
C	Short Answer Questions	DirectPlus	2	4
		Modified	2	4
D	Long Answer Questions	Modified	3	4
		ModifiedPlus	5	12
<b>Grand Total</b>			<b>25</b>	<b>40</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.

2. In most cases, there is external choice for long answers type questions.

## Assessment Blueprint - Maths - Proficient MYA/AA\_50M

### Maths - Class 4

			<i>Proficient</i>	<i>Values</i>
			50M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	<b>No. of Questions</b>	<b>Marks</b>
A	Multiple Choice Questions	DirectPlus	3	3
		Modified	1	1
		Twisted	1	4
B	Very Short Answer Questions	DirectPlus	5	5
		Modified	2	2
		ModifiedPlus	1	1
C	Short Answer Questions	DirectPlus	3	6
		Modified	3	6
		ModifiedPlus	1	2
D	Long Answer Questions	Modified	3	8
		ModifiedPlus	7	12
<b>Grand Total</b>			<b>30</b>	<b>50</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

## Assessment Blueprint - Maths - Proficient MYA/AA\_80M

### Maths - Class 4

			<i>Proficient</i>	<i>Values</i>
			80M	
<i>Section Name</i>	<i>Section Heading</i>	<i>Question Source</i>	<b>No. of Questions</b>	<b>Marks</b>
A	Multiple Choice Questions	DirectPlus	3	3
		Modified	2	2
		ModifiedPlus	1	1
		Twisted	1	4
B	Very Short Answer Questions	DirectPlus	5	5
		Modified	8	8
		ModifiedPlus	1	1
C	Short Answer Questions	DirectPlus	6	12
		Modified	7	14
		ModifiedPlus	5	10
D	Long Answer Questions	Modified	4	8
		ModifiedPlus	6	12
<b>Grand Total</b>			<b>49</b>	<b>80</b>

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

## Teaching Aids List (For Planning)

Type of Teaching Aid	Name of the Teaching Aid	Chapter Used in
K V O P Resource	Geoboard	1.1: Circle and its Parts
	Chart of Parts of a Circle	1.1: Circle and its Parts
	Grid Board	1.2: Reflection and Symmetry 2.1: Patterns Based on Symmetry
	Bean Strips	2.1: Patterns Based on Symmetry 3.1: Count by Ten Thousands
	Place Value Board and Place Value Stamps	3.1: Count by Ten Thousands 3.2: Compare and Order 5-digit Numbers 3.3: Round off Numbers
	Number Strip	7.1: Divide Large Numbers
	Place Value Flash Cards	3.1: Count by Ten Thousands 3.2: Compare and Order 5-digit Numbers 3.3: Round off Numbers 4.1: Add and Subtract 5-digit Numbers
	Chart of Multiplication Tables	5.2: Multiply Using Lattice Algorithm



## Teaching Aids List (For Planning)

Type of Teaching Aid	Name of the Teaching Aid	Chapter Used in
Learners to bring	thread and circular objects	1.1: Circle and its Parts
	playing alphabet	1.2: Reflection and Symmetry
	coloured paper	2.1: Patterns Based on Symmetry
	wall clock	6.1: Duration of Events
Teacher to arrange	blackboard compass	1.1: Circle and its Parts
	pocket calendar	6.2: Estimate Time

## Teaching Aids List (For Planning)

Type of Teaching Aid	Name of the Teaching Aid	Concept Used in
Online resource	chart of Equivalent Fractions	8.1: Equivalent Fractions
	flash cards of fractions	8.3: Add and Subtract Like Fractions
	Decimal System Chart	10.1: Conversion Involving Fractions
	place value board	11.1: Conversion of Rupees and Paise
	Flash Cards of money	11.2: Add and Subtract Money with Conversion
	Chart of Measurement	12.1: Multiply and Divide Lengths, Weights and Capacities
	Grid Board	13.1: Bar Graphs
Teacher to arrange	Fraction Flash cards A4 size papers	8.1: Equivalent Fractions 8.2: Identify and Compare Like Fractions
	Picture flash cards	10.1: Conversion Involving Fractions
	Flash cards of money Play Money	11.1: Conversion of Rupees and Paise
Storyweaver resource	How Far is Far? <a href="https://storyweaver.org.in/stories/4445-how-far-is-far">https://storyweaver.org.in/stories/4445-how-far-is-far</a>	12.1: Multiply and Divide Lengths, Weights and Capacities



**LESSON PLANS  
AND  
TEACHER  
REFERENCE  
MATERIAL**

## A – Curriculum to Learning Objectives: Geometry

Prior Knowledge		• <i>Basic 2D shapes</i>					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives	
1	1	Shapes	1.1	Understand Spatial Words	1.1.a	• basic flat and solid figures	
					1.1.b	• corners and sides of objects/figures	
					1.1.c	• outlines of the bases of the objects	
2	1	Shapes	1.1	Identify the Geometrical Features of Objects	1.1.a	• lines, open figures and closed figures	
					1.1.b	• drawing figures using lines	
					1.1.c	• basic flat and solid figures	
					1.1.d	• flat figures as outlines of the surfaces of solid figures	
3	1	Shapes	1.1	Vertices and Diagonals of Two-dimensional Shapes	1.1.a	• identifying 2D shapes with straight and curved lines	
					1.1.b	• identifying sides, corners and diagonals	
4	1	Shapes	1.1	Circle and its Parts	1.1.a	• circle and its parts	
					1.1.b	• drawing a circle	
5	1	Shapes	1.1	Identify and Classify Angles	1.1.a	• angles and naming the angles	
					1.1.b	• using a protractor	
			1.1.c		• properties of a protractor		
			1.1.d		• types of angles		
	14	Data Handling	14.1	14.1	Circle Graphs	14.1.a	• the term 'circle graph'
						14.1.b	• interpreting and constructing circle graphs

## B – Vision-to-Action Plan: 1.1 Circle and its Parts

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	1, 2 – THK, RCL	1.1.a	<ul style="list-style-type: none"> <li>Recall 2-dimensional figures.</li> <li>List and identify different closed and open figures.</li> </ul>	<ul style="list-style-type: none"> <li>Using Concrete Material</li> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Geoboard</li> </ul>	TB: Pg. 2 (Q. a-d)	WB: Pg. 1 (Q. 1-3)	
2 DD/MM/YYYY	2, 3 – REM/UND	1.1.a	<ul style="list-style-type: none"> <li>List and identify different parts of a circle.</li> </ul>	<ul style="list-style-type: none"> <li>Activity Method</li> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Chart of Parts of a Circle</li> </ul>	WB: Pgs. 1, 2 (Q. 4-11)	WB: Pg. 3 (Q. 16)	
3 DD/MM/YYYY	4, 5 – REM/UND	1.1.b	<ul style="list-style-type: none"> <li>Draw a circle with the help of a compass.</li> </ul>	<ul style="list-style-type: none"> <li>Using Concrete Material</li> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>blackboard compass</li> </ul>	TB: Pgs. 4, 5 (Examples 1, 2)	–	
4 DD/MM/YYYY	5, 11 – REM/UND, Drill Time	1.1.b	<ul style="list-style-type: none"> <li>Draw and name all parts of a circle.</li> </ul>	<ul style="list-style-type: none"> <li>Peer Learning</li> </ul>	–	TB: Pg. 11 (Drill Time Q. 1)	WB: Pgs. 2 (Q. 12-15)	
5 DD/MM/YYYY	5, 6 – APP	1.1.a	<ul style="list-style-type: none"> <li>Find the diameter of a circle from its radius, or radius from diameter.</li> </ul>	<ul style="list-style-type: none"> <li>Interactive Discussion</li> <li>Practising</li> </ul>	<ul style="list-style-type: none"> <li>thread and circular objects</li> </ul>	TB: Pgs. 5, 6 (Examples 3, 4) WB: Pg. 4 (Q. 17, 18)	WB: Pg. 4 (Q. 19, 20)	

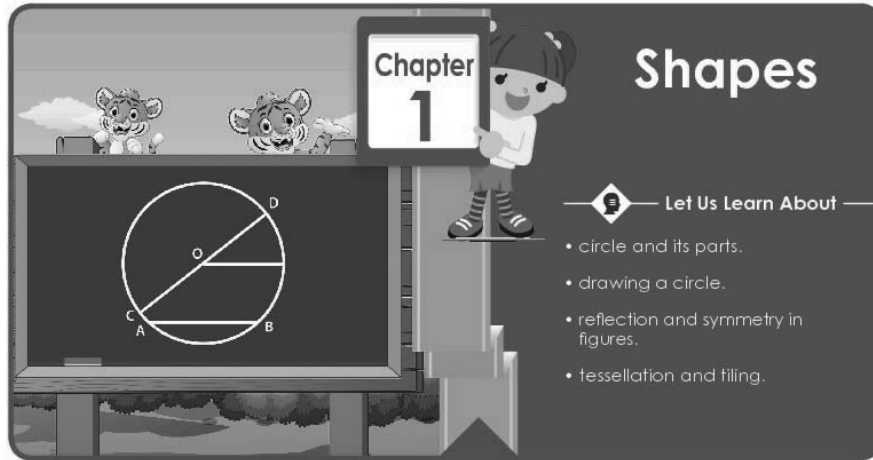
Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
6 DD/MM/YYYY	6, 11 – Drill Time, APP	1.1.a	<ul style="list-style-type: none"> <li>Find the diameter of a circle from its radius, or radius from diameter.</li> </ul>	<ul style="list-style-type: none"> <li>Practising</li> </ul>	–	TB: Pg. 6 (Examples 3, 4) TB: Pg. 11 (Drill Time Q. 2)	–	
7 DD/MM/YYYY	6 – HOTS	1.1.b	<ul style="list-style-type: none"> <li>Draw figures using circles and concentric circles.</li> </ul>	<ul style="list-style-type: none"> <li>Interactive Discussion</li> <li>Practising</li> </ul>	–	TB: Pg. 6 (Examples 5, 6)	WB: Pg. 5 (Q. 21, 22)	

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### Concept 1.1: Circle and its Parts



#### Think

Jasleen drew around the inner edge of a bangle on a sheet of paper. She got a circle. She cut the circle and folded it twice in such a way that each of the folds passes over the other. She was excited to show it to her teacher.

What do you think those lines are?



#### Recall

We have learnt about 2-dimensional figures. We also know the different types of open figures and closed figures.

Let us recall them.

#### Important Words

Duration: 1 min

- **Today:** open and closed figures

#### Transactional Tip(s)

Duration: 27 min



#### Using Concrete Material:

- Instruct learners to read TB: Pg. 1, 'Think'.
- Ask learners to:
  - draw a circle on a paper and cut it out,
  - fold it twice in such a way that each of the folds passes over the other,
  - note down their observations.

#### Direct Instruction:

- Use Classklap Geoboard to explain and differentiate: open and closed figures.
- Draw some shapes on the blackboard and ask the learners to identify them as open or closed figures.
- Ask learners solve TB: Pg. 2, 'Recall', a-d.

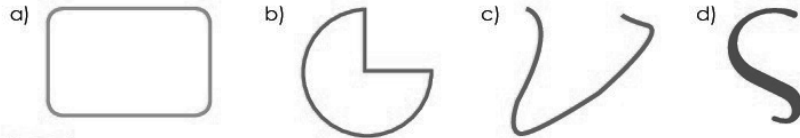
#### Class Pulse Check

Duration: 2 min



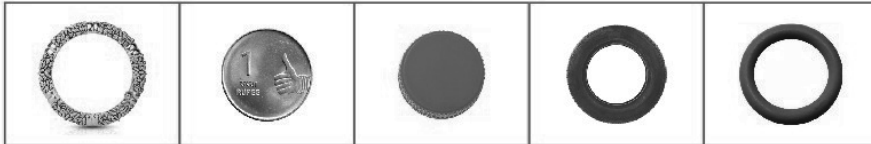
- 1) A square is an example of a \_\_\_ figure.
- 2) A curve is an example of a \_\_\_ figure.

Identify the following 2-dimensional figures as open or closed.



**Remembering and Understanding**

We know that a circle is a simple closed 2D figure with no edges or corners. A circle is formed by joining many points from the same fixed point. A bangle, a coin, a bottle lid, a tyre and a ring are a few common items which are in the shape of a circle.

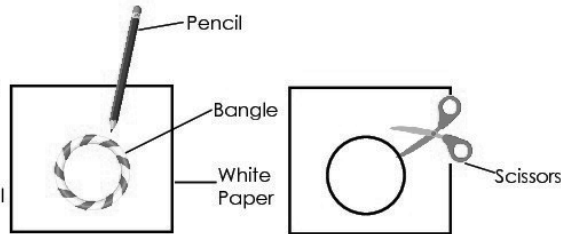


**Parts of a circle**

Let us now understand the different parts of a circle through an activity.

**What we need:**

A paper sheet, a bangle, a pencil or pen, a pair of scissors

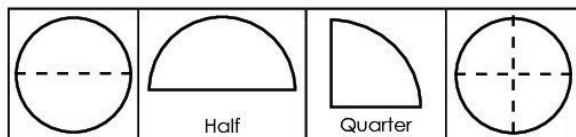


**Step 1:** Take a white sheet of paper and draw a circle on it using a bangle.

**Step 2:** Take a pair of scissors and cut along the circle drawn on the sheet.

**Step 3:** Separate the circle from the sheet of paper.

Fold the circle into two halves and four quarters as shown.



**Important Words**

**Duration: 1 min**

- **Last class:** open and closed figures
- **Today:** circle, fixed point, fixed distance

**Transactional Tip(s)**

**Duration: 11 min**



**Activity Method:**

- Conduct the activity to find the parts of a circle as given in TB: Pg. 2.
- Inform learners about bringing all the required material as given in 'What we need' for the activity in advance.
- Divide the class into small groups and then ask them to read all the details given in the TB and carry them out simultaneously.
- Refer Classklap Chart of Parts of a Circle.
- Ask learners to solve WB: Pgs. 1, 2, Q. 4-11.

**Class Pulse Check**

**Duration: 1 min**



- 1) How many quarters did you get after folding the paper twice?



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When we unfold the circle, two lines appear on it. These lines cross each other at a point.

Let us now define the parts of a circle.

**Centre:** The fixed point 'O' of a circle is called its centre. This point is at the same distance from any point on the edge of the circle.

**Radius:** The line segment drawn from the centre 'O' to the edge of the circle is called its **radius**. The plural of radius is radii. We can draw any number of radii in a circle. The length of radius is same for a circle.

All radii of a circle are of the same length. A radius of a circle is denoted as 'r'. In the figure,  $\overline{AO}$  and  $\overline{BO}$  are two radii.

**Chord:** A **chord** is a line segment that joins any two points on a circle. In the figure, AB and CD are two chords.

**Diameter:** A line segment drawn from one point on a circle to another and passing through the centre is known as its **diameter**.

The diameter is the longest chord of a circle. We can draw any number of diameters in a circle. All the diameters of a circle are of the same length. A diameter of a circle is denoted as 'd'. In the figure,  $\overline{AD}$ ,  $\overline{BE}$  and  $\overline{CF}$  are three diameters.

From the figure, we observe that  $d = 2 \times r$  or  $r = d \div 2$ .

**Semicircle:** The diameter of a circle divides the circle into two halves. Each half is called a **semicircle**.

**Circumference:** The length of a circle is called the **circumference** of the circle.

Let us summarise the parts of a circle from the figure:

O = Centre of the circle

$\overline{OA}$  = Radius

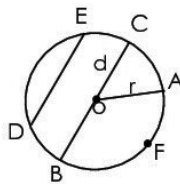
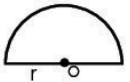
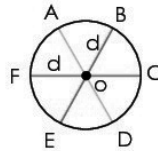
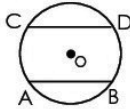
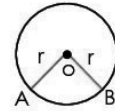
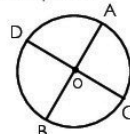
$\overline{BC}$  = Diameter

$\overline{DE}$  = Chord

$\widehat{BFC}$  = Semicircle

Try This!

Draw circles using a bangle and the cap of a bottle. Show the radii, centres and diameters of these circles.



### Important Words

- **Today:** centre, radius, radii, diameter, chord, semicircle, circumference

### Transactional Tip(s)

Duration: 16 min



### Direct Instruction:

- Use the same paper and Classklap chart of Parts of Circle to explain all the parts of a circle.
- Give definitions.
- Instruct learners to practise TB: Pg. 3, 'Try This'.

### Class Pulse Check

Duration: 1 min



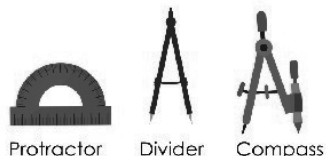
- 1) Draw a circle and name all its parts. Ask learners to identify the circle, its radius, chord, diameter, semicircle and circumference.

Let us now learn to draw a circle using a compass.

### Drawing a circle using a compass

In your geometry box or compass box, there are instruments such as a ruler, a divider, a compass, a protractor, a set squares, a pencil and an eraser.

Look at the picture of the compass.



Protractor

Divider

Compass

**The needle of the compass:** It is kept on a sheet of paper while drawing a circle. It should not be moved from its position while drawing a circle. It marks the centre of the circle on the sheet of paper.



Ruler

Set-square

**Hinge:** It is used to tighten the compass to control the movement of its two arms.

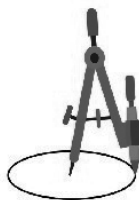
**Pencil holder:** It holds the pencil used to draw the circle.

### How to use a compass

**Step 1:** Insert a well-sharpened small pencil in the pencil holder. Tighten the screw of the pencil holder till the pencil is fixed firmly.

**Step 2:** Align the pencil with the needle of the compass.

**Step 3:** Press down the needle on a sheet of paper. The point where the needle touches the paper is the centre of the circle. Turn the arm having the pencil holder to the right or left till the pencil returns to the starting point. The curve drawn is the required circle. The distance between the needle and pencil tip is the radius of the circle.



To draw a circle of a given radius follow the steps given below:

**Example 1:** Draw a circle of radius 3 cm.

**Solution:** Follow the steps given below to draw a circle of a given radius.

**Step 1:** Fix the pencil in the pencil holder. Align it with the tip of the needle by placing it on a flat surface.

**Step 2:** Adjust the pencil holder to get some distance between the needle and the tip of the pencil.

**Step 3:** Place the needle of the compass at '0' cm mark on the ruler.

Adjust the pencil holder such that the pencil is at the 3 cm mark on the ruler. The distance between the needle and the pencil is the radius, which is 3 cm.



### Important Words

Duration: 1 min

- **Last class:** circle, fixed point, fixed distance, centre, radius, radii, diameter, chord, semicircle, circumference
- **Today:** protractor, compass, divider, ruler, set square, hinge

### Transactional Tip(s)

Duration: 27 min



### Using Concrete Material:

- Show a geometry box.
- Explain the instruments in it.
- Use a blackboard compass and demonstrate.
- Explain the steps given in TB: Pg. 4.

### Direct Instruction:

- Use the steps given in TB: Pg. 4.
- Demonstrate how to draw a circle using a compass on the blackboard.
- Use different radii to draw circles of different sizes.
- Ask learners to:
  - read through the steps given on TB: Pg. 4,
  - solve TB: Pgs. 4, 5, Examples 1, 2.
  - draw circles of different radii.

### Class Pulse Check

Duration: 2 min



- 1) What instrument do you need to draw a circle?
- 2) What measurement do you need to draw a circle?

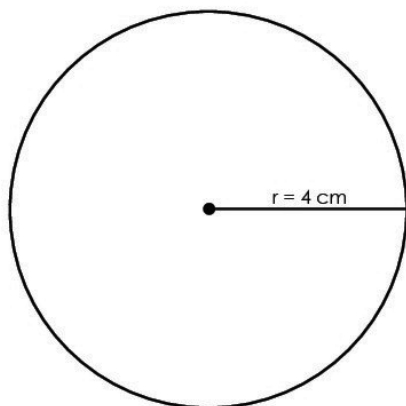
**Step 4:** Place the needle of the compass on the sheet of paper. Without moving this arm, hold the hinge. Move the pencil holder arm right or left, till the pencil returns to the point where it started.

**Step 5:** Remove the compass from the paper. Mark the needle point as 'O', the centre of the circle.  
Using a ruler, draw a line from O to a point A on the circle. This line  $\overline{OA}$  is the radius of the circle, which is 3 cm long.

Thus, the circle of the given radius can be drawn.

**Example 2:** Draw a circle of radius 4 cm.

**Solution:**



### Application

Let us see a few examples where we use the concept of radius and diameter.

We know that the diameter of a circle is two times its radius. So, the radius of a circle is half its diameter.

$$d = 2 \times r \text{ and } r = d \div 2$$

**Example 3:** Sonu has a circular disc of diameter 6 cm. What is its radius?

**Solution:** We know that radius,  $r = d \div 2$

Diameter of the disc = 6 cm

So, radius  $r = 6 \div 2 \text{ cm} = 3 \text{ cm}$

### Important Words

- **Last class:** protractor, compass, divider, ruler, set square, hinge
- **Today:** –

### Transactional Tip(s)

Duration: 27 min



### Peer Learning - Pair/Group:

- Divide the class into groups.
- Discuss all the steps to draw a circle using a compass.
- Learners should:
  - draw circles with different radii and discuss their experiences,
  - draw circles and will measure their radii and diameters,
  - solve TB: Pg. 11, 'Drill Time', Q. 1,
  - discuss their experiences.

### Class Pulse Check

Duration: 3 min



- 1) Draw a circle on the blackboard and name all its parts. Then, ask learners to identify: a) radius, b) diameter, c) centre d) chords

Therefore, the radius of the circular disc is 3 cm.

**Example 4:** The cap of a water bottle is 2 cm in radius. What is its diameter?

**Solution:** Radius of a bottle cap = 2 cm

We know that diameter,  $d = \text{radius} \times 2$ .

So, the diameter,  $d = 2 \times 2 \text{ cm} = 4 \text{ cm}$ .

Therefore, the diameter of the cap of the bottle is 4 cm.



### Higher Order Thinking Skills (H.O.T.S.)

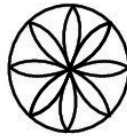
Let us now see some figures drawn using circles.

Can you guess how these figures are drawn?

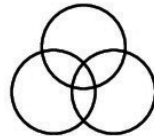
a)



b)



c)



a) We observe that all the circles in this figure have the same centre. These circles are drawn with the same centre but different radii. Such circles are called **concentric circles**.

Now try guessing how the figures b) and c) are drawn.

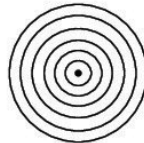
**Example 5:** Draw a figure that has only circles.

**Solution:** The symbol of the Olympic games has only circles.



**Example 6:** How many circles can be drawn with the same point as the centre?

**Solution:** We can draw any number of circles with the same point as the centre.



### Important Words

–

### Transactional Tip(s)

Duration: 27 min



### Practising:

- Ask learners to:
  - find the radius of an object using a piece of thread,
  - solve TB: Pgs. 5, 6, Examples 3, 4,
  - solve WB: Pg. 4, Q. 17, 18.

### Interactive Discussion:

- Ask learners to draw circles having different radii and measure their diameters.
- Teach them to use a piece of thread and circular objects to carry out the activity.
- Instruct learners to:
  - discuss and draw a conclusion about the relationship between the radius and diameter,
  - draw chords and discuss whether the diameter is also a chord or not,
  - draw a conclusion about the longest chord.

### Class Pulse Check

Duration: 3 min



- 1) Explain the relation between the radius and the diameter of a circle.
- 2) State true or false - Diameter is smaller than the radius.

Therefore, the radius of the circular disc is 3 cm.

**Example 4:** The cap of a water bottle is 2 cm in radius. What is its diameter?

**Solution:** Radius of a bottle cap = 2 cm

We know that diameter,  $d = \text{radius} \times 2$ .

So, the diameter,  $d = 2 \times 2 \text{ cm} = 4 \text{ cm}$ .

Therefore, the diameter of the cap of the bottle is 4 cm.



### Higher Order Thinking Skills (H.O.T.S.)

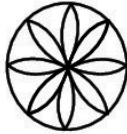
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Can you guess how these figures are drawn?

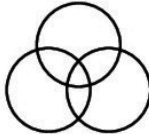
a)



b)



c)



a) We observe that all the circles in this figure have the same centre. These circles are drawn with the same centre but different radii. Such circles are called **concentric circles**.

Now try guessing how the figures b) and c) are drawn.

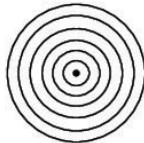
**Example 5:** Draw a figure that has only circles.

**Solution:** The symbol of the Olympic games has only circles.



**Example 6:** How many circles can be drawn with the same point as the centre?

**Solution:** We can draw any number of circles with the same point as the centre.



### Important Words

–

### Transactional Tip(s)

Duration: 29 min



### Practising:

- Instruct learners to:
  - draw circles of different given diameters and radii,
  - find the value of the other measurement (radius or diameter) for each circle,
  - check the relationship between the radii and diameters in each solution,
  - solve TB: Pg. 11, 'Drill Time', Q. 2.

### Class Pulse Check

Duration: 1 min



- 1) What will happen when two concentric circles have the same radius?

- **Today:** concentric circles

Therefore, the radius of the circular disc is 3 cm.

**Example 4:** The cap of a water bottle is 2 cm in radius. What is its diameter?

**Solution:** Radius of a bottle cap = 2 cm

We know that diameter,  $d = \text{radius} \times 2$ .

So, the diameter,  $d = 2 \times 2 \text{ cm} = 4 \text{ cm}$ .

Therefore, the diameter of the cap of the bottle is 4 cm.



### Higher Order Thinking Skills (H.O.T.S.)

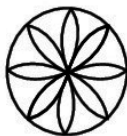
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Can you guess how these figures are drawn?

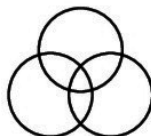
a)



b)



c)



a) We observe that all the circles in this figure have the same centre. These circles are drawn with the same centre but different radii. Such circles are called **concentric circles**.

Now try guessing how the figures b) and c) are drawn.

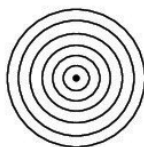
**Example 5:** Draw a figure that has only circles.

**Solution:** The symbol of the Olympic games has only circles.



**Example 6:** How many circles can be drawn with the same point as the centre?

**Solution:** We can draw any number of circles with the same point as the centre.



### Transactional Tip(s)

Duration: 25 min



#### Practising:

- Instruct learners to solve TB: Pg. 6, Examples 5, 6.

#### Interactive Discussion:

- Discuss the three diagrams in TB: Pg. 6, a-c.
- Ask learners to note their differences.
- Divide the class into groups to have a discussion.
- Ask learners to draw similar figures.

### Class Pulse Check

Duration: 4 min



- 1) Will two circles having the same radii differ in size?
- 2) Can we draw a circle with a radius larger than its diameter?
- 3) How many circles can you draw from the given centre?
- 4) Are the radii of concentric circles equal?

## ✍️ C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	The length of the longest chord in a circle is 15 cm. Calculate the length of the diameter of the circle. (Ans. 15 cm)	Period 2 - circle and its parts	
2	What is circumference? (Ans. The length of a circle is called the circumference of the circle.)	Period 3 - circle and its parts	
3	How many chords can be drawn for a circle ? (Ans. Many)	Period 4 - circle and its parts	
4	Draw a circle with diameter 12 cm. (Ans. Learner's response)	Period 5 - drawing a circle	
5	How many measurements do you require to draw a circle? (Ans. One)	Period 4 - drawing a circle	
6	The length of chord which is passing through the centre of the circle is 14 cm. Can you draw a circle using this information? If 'Yes', what is the radius? (Ans. Yes, 7 cm)	Period 5 - drawing a circle	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>			
Concept clarity in the classroom 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>		App Report    Number _____	Signature _____

## A – Curriculum to Learning Objectives: Geometry

Prior Knowledge	• <i>Basic geometrical concepts, shapes</i>					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	1	Shapes	1.1	Understand Spatial Words	1.1.a	• basic flat and solid figures
					1.1.b	• corners and sides of objects/figures
					1.1.c	• outlines of the bases of the objects
2	1	Shapes	1.1	Identify the Geometrical Features of Objects	1.1.a	• lines, open figures and closed figures
					1.1.b	• drawing figures using lines
					1.1.c	• basic flat and solid figures
3	1	Shapes	1.1	Vertices and Diagonals of Two-dimensional Shapes	1.1.a	• identifying 2D shapes with straight and curved lines
					1.1.b	• identifying sides, corners and diagonals
					1.1.c	• making a tangram
					1.1.d	• recognising 3D shapes and their faces and edges
4	1	Shapes	1.2	Reflection and Symmetry	1.2.a	• reflection and symmetry in figures
					1.2.b	• tessellation and tiling
5	1	Shapes	1.1	Identify and Classify Angles	1.1.a	• angles and naming the angles
					1.1.b	• using a protractor
					1.1.c	• properties of a protractor
					1.1.d	• types of angles
			1.2	Nets and Views of Solids	1.2.a	• nets of cubes, cuboids, cylinders and cones
					1.2.b	• top, front and side views of objects



## B – Vision-to-Action Plan: 1.2 Reflection and Symmetry

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	7 – THK, RCL	1.2.a	<ul style="list-style-type: none"> <li>Recall various 2-dimensional shapes.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	–	WB: Pg. 6 (Q. 1-3)	–	
2 DD/MM/YYYY	7, 8 – REM/UND	1.2.a	<ul style="list-style-type: none"> <li>Define terms: reflection and line of reflection, mirror image, water image.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Activity Method</li> </ul>	<ul style="list-style-type: none"> <li>Grid Board</li> <li>playing alphabet</li> </ul>	TB: Pg. 8 (Example 7) WB: Pgs. 6, 7 (Q. 4-12)	WB: Pgs. 7, 8 (Q. 13-16)	
3 DD/MM/YYYY	8, 9 – REM/UND	1.2.a	<ul style="list-style-type: none"> <li>Define terms: symmetry, line of symmetry, symmetrical shapes, asymmetrical shapes.</li> </ul>	<ul style="list-style-type: none"> <li>Peer Learning</li> </ul>	–	WB: Pgs. 8, 9 (Q. 17, 18)	WB: Pg. 9 (Q. 19, 20)	
4 DD/MM/YYYY	9, 10 – APP	1.2.b	<ul style="list-style-type: none"> <li>Identify periodic tiling and tessellation</li> <li>Create tiling patterns from the given shapes.</li> </ul>	<ul style="list-style-type: none"> <li>Guided Learning</li> <li>Practising</li> </ul>	<ul style="list-style-type: none"> <li>Grid Board</li> </ul>	TB: Pgs. 10, 11 (Examples 11, 12)	WB: Pg. 10 (Q. 21, 22)	

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
5 DD/MM/YYYY	10, 11 – HOTS	1.2.b	<ul style="list-style-type: none"> <li>Identify whether the given shapes can tessellate by drawing the shapes.</li> <li>Make a tessellation using the given shape.</li> </ul>	<ul style="list-style-type: none"> <li>Interactive Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Grid Board</li> </ul>	TB: Pg. 11 (Try these)	–	
6 DD/MM/YYYY	12 – Drill Time	1.2.a 1.2.b	<ul style="list-style-type: none"> <li>Solve problems based on reflection, symmetry and tessellation.</li> </ul>	<ul style="list-style-type: none"> <li>Practising</li> </ul>	–	TB: Pgs. 11, 12 (Drill Time Q. 3–5)		

Annual Day:  
8/62

Day:  
1/6

Actual Date:

Page(s)  
7

### Concept 1.2: Reflection and Symmetry



#### Think

Jasleen was standing near a pond. She saw herself in the water.

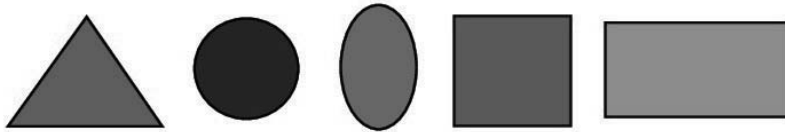
She was excited to see her image in the water. Do you know what such images are called?



#### Recall

We have learnt various 2-dimensional shapes. They are triangle, circle, oval, square, rectangle and so on.

Name the given 2-D shapes.

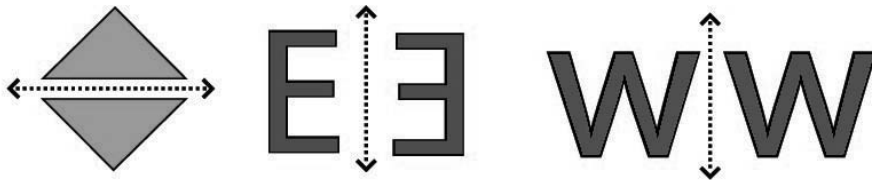


#### Remembering and Understanding

##### Reflection

When an object is placed in front of a mirror, we see its image in the mirror. This image is called the **reflection** of the object. Reflections can be seen in mirrors, water, oil, shiny surfaces and so on.

Consider these examples.



#### Important Words

Duration: 1 min

- **Today:** reflection, circle, rectangle, square, triangle, oval

#### Transactional Tip(s)

Duration: 27 min



##### Direct Instruction:

- Ask learners to read TB: Pg. 7, 'Think'.
- Recall the basic 2D shapes.
- Ask learners to draw the basic 2D shapes in different angles.
- Discuss how they look like in different angles.
- Instruct learners to solve WB: Pg. 6, Q. 1-3.
  
- **Note:** Ask learners to bring playing alphabets for the next class.

#### Class Pulse Check

Duration: 2 min

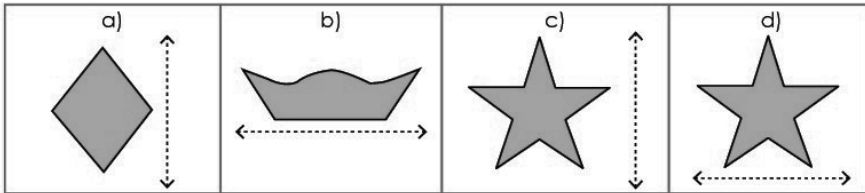


- 1) How many sides are there in a circle?
- 2) What are 2D shapes?

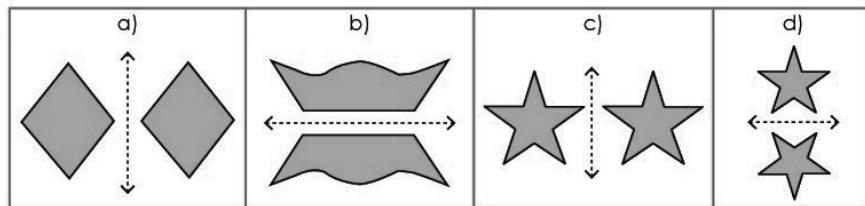
The mirror image or reflection of an object is exactly the same as the object. The dotted line known as the **line of reflection** represents the mirror.

The image so formed is called the **mirror image**. The image formed by a horizontal line of reflection is called the **water image**.

**Example 7:** Draw the reflections of the given figures with the dotted line as the line of reflection.



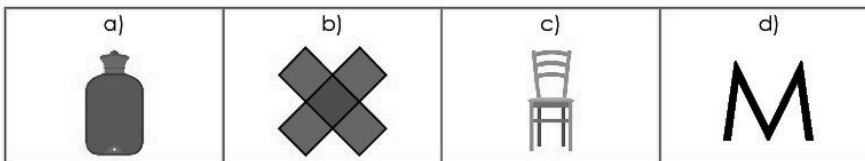
**Solution:**



**Symmetry**

When a line divides a shape into two parts where both parts are reflections of each other, the line is called the **line of symmetry**. Shapes with one or more lines of symmetry are called **symmetrical shapes**. Shapes with no line of symmetry are called **asymmetrical shapes**.

**Example 8:** Draw the lines of symmetry of the given shapes.



**Important Words**

**Duration: 1 min**

- **Last class:** reflection, circle, rectangle, square, triangle, oval
- **Today:** line of reflection, mirror image, water image

**Transactional Tip(s)**

**Duration: 28 min**



**Activity Method:**

- Ask learners to bring play alphabets and a chart.
- Draw a line and keep a letter on one side of the line.
- Draw the outline of the letter.
- Now keep the letter on other side as if it is reflected and draw the outline.
- Use Classklap Grid Board.
- Repeat the same with different alphabets or shapes.
- Ask learners to solve TB: Pg. 8, Example 7.

**Direct Instruction:**

- Introduce the concept of reflection.
- Share examples of reflection on a mirror, reflection on water to elaborate the concept in detail.
- Define: reflection, line of reflection, mirror image, water image. Explain these concepts with diagrams.
- Draw different letters or objects on the blackboard and draw their reflections.

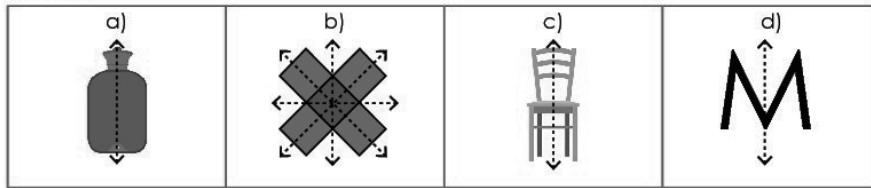
**Class Pulse Check**

**Duration: 1 min**



- 1) Draw the reflection of an object such as a bottle and ask learners, 'What is the line of reflection?'

Solution:



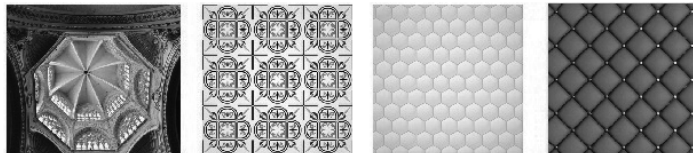
Application

Symmetry can also be seen in tiling. We know that a tiling pattern is formed by repeating a basic tile. A tiling pattern that has a repeating pattern is called a **periodic** tiling. A tiling pattern that does not have a repeating pattern is called a **non-periodic** or **aperiodic** tiling.

Using reflection of tiles either about a vertical or a horizontal line results in different designs to the tile. Arranging such tiles in different ways, we can create decorative patterns on floors, walls, roofs, pavements and so on.

**Tessellation** is a tiling pattern made of ceramic or cement hexagons or squares. Tessellations are found on floors, pavements, roofs of historical monuments, quilting and so on.

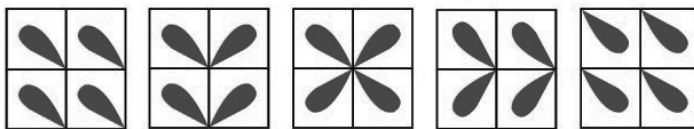
The arrays of hexagonal cells in honeycombs are a classic example of tessellation in nature.



**Example 9:** Create a few tessellations using the given basic tile.



Solution:



Important Words

Duration: 1 min

- **Last class:** line of reflection, mirror image, water image
- **Today:** symmetry, asymmetry, line of symmetry

Transactional Tip(s)

Duration: 27 min



Peer Learning - Pair/Group:

- Divide the class into small groups.
- Explain the terms: symmetry, line of symmetry, symmetrical shapes and asymmetrical shapes.
- Explain TB: Pg. 8, Example 8.
- Ask learners to:
  - draw two shapes each,
  - identify symmetrical shapes and asymmetrical shapes,
  - find the line of symmetry,
  - solve WB: Pg. 13, Q. 7-12.

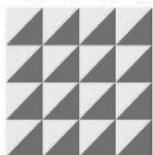
Class Pulse Check

Duration: 2 min



- 1) Draw symmetrical shapes and ask learners to identify the line of symmetry in each?

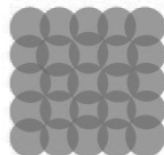
**Example 10:** Find the basic shape in each of these tessellations.






a)



b)



c)

**Solution:** Basic shapes are: a)  b)  c) 

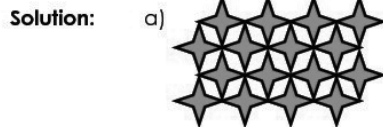
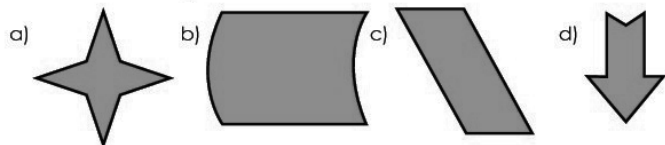


**Higher Order Thinking Skills (H.O.T.S.)**

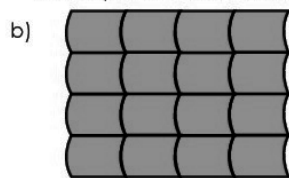
We can identify if a given shape can tessellate or not by placing/drawing the shape such that there are no overlaps or gaps.

Let us now identify the shapes that tessellate and those that do not.

**Example 11:** Which of these shapes tessellate?



Forms patterns but does not tessellate



Forms patterns and also tessellates.

**Important Words**

**Duration: 1 min**

- **Last class:** symmetry, asymmetry, line of symmetry
- **Today:** tiling, periodic, non-periodic

**Transactional Tip(s)**

**Duration: 27 min**



**Guided Learning:**

- Show tessellations and periodic and non-periodic tiling from the surroundings.
- Explain the concepts with more examples.
- Have a discussion with learners.

**Practising:**

- Ask learners to:
  - create tiling patterns with shapes,
  - solve TB: Pgs. 9, 10, Examples 9, 10 in 'Application',
  - solve WB: Pgs. 8, 9, Q. 17, 18,
  - use Classlap Grid Board.

**Class Pulse Check**

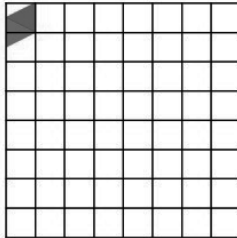
**Duration: 2 min**



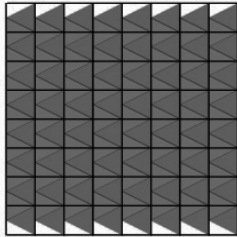
- 1) Which tiling has repeating patterns?
- 2) What is non-periodic tiling?

Try the remaining.

**Example 12:** Make a tessellation using the given shape.



**Solution:**



**Try these!**

- a) Use two 4-sided figures and a triangle to create a tessellation.
- b) Use a 4-sided figure and a triangle to create a tessellation.
- c) Make a tessellation using any three shapes.



### Drill Time

**Concept 1.1: Circle and its Parts**

**1) Draw circles with the given measures.**

- a) diameter = 8 cm
- b) radius = 6 cm
- c) radius = 7 cm
- d) radius = 5 cm
- e) radius = 1 cm

**2) Word problems**

- a) Reena has a bangle of radius 2 cm. What is its diameter?
- b) The lid of a soft drink can is 8 cm in diameter. What is its radius?

### Important Words

**Duration: 1 min**

- **Last class:** tiling, periodic, non-periodic
- **Today:** overlap, gap

### Transactional Tip(s)

**Duration: 27 min**



### Interactive Discussion:

- Discuss how a given shape can tessellate or not.
- Ask learners to:
  - list different shapes that create tessellation,
  - solve TB: Pgs. 10, 11, Examples 11, 12 in 'H.O.T.S.'
- Explain TB: Pg. 11, 'Try these'.
- Use Classklap Grid Board.

### Class Pulse Check

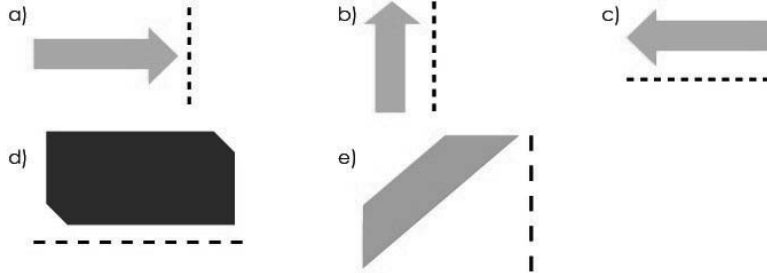
**Duration: 2 min**



- 1) Can we make tessellation from any shape?
- 2) How many times do we need to draw the same shape to make a tessellation?

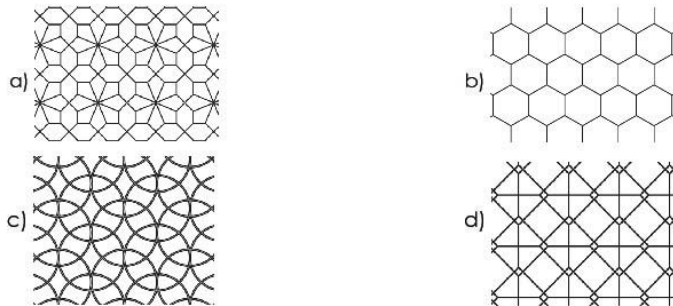
Concept 1.2: Reflection and Symmetry

3) Draw the reflections of following figures.



4) Draw lines of symmetry for the symmetrical letters of the English alphabet.

5) Find the basic shape in each of the following tessellations.



Important Words

Duration: 1 min

- Last class: overlap, gap
- Today: –

Transactional Tip(s)

Duration: 29 min



Practising:

- Divide the class into small groups.
- Ask learners to solve TB: Pg. 12, 'Drill Time'.
- Share answers within groups and correct wrong answers, if any.


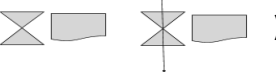


Class Pulse Check












1) -



## ✍️ C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	Draw the reflection of the given figure with the dotted line as the line of reflection. (Ans.  )	Period 2 - reflection and symmetry in figures	
2	Draw the lines of symmetry. (Ans.  )	Period 3 - reflection and symmetry in figures	
3	Complete the diagram which is symmetrical about the horizontal line. (Ans.  )	Period 3 - reflection and symmetry in figures	
4	Which of these shapes tessellate? (Ans. Both) 	Period 5 - tessellation and tiling	
5	Draw your own shape which tessellates. (Ans. Learner's response)	Period 4 - tessellation and tiling	
6	Draw your own tessellation. (Ans. Learner's response)	Period 4 - tessellation and tiling	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>			
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		App Report    Number _____	Signature _____

# Teacher Reference: Textbook

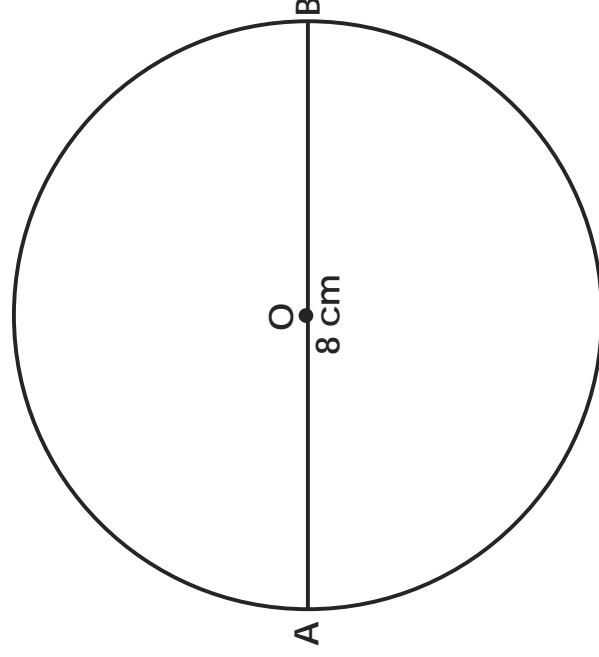
**Note to teacher:** The Workbook Teacher Reference shows step-by-step solutions with extra detail, to help teachers guide students. While supporting learners to solve sums, teachers should not look for language that exactly matches the 'Teacher Reference'. Instead, teachers should check if the learners have followed the correct steps to find the solution.

## Chapter 1: Shapes

### Concept 1.1: Circle and its Parts

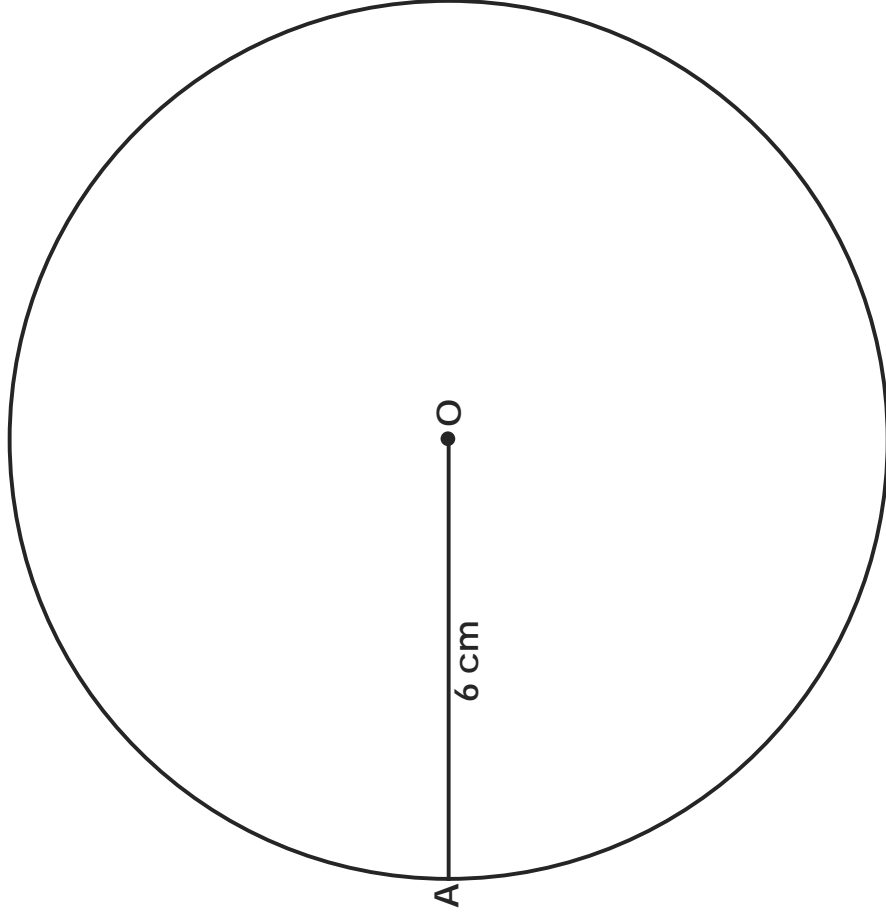
#### Drill Time

- 1) Draw circles with the given measures.
  - a) diameter = 8 cm



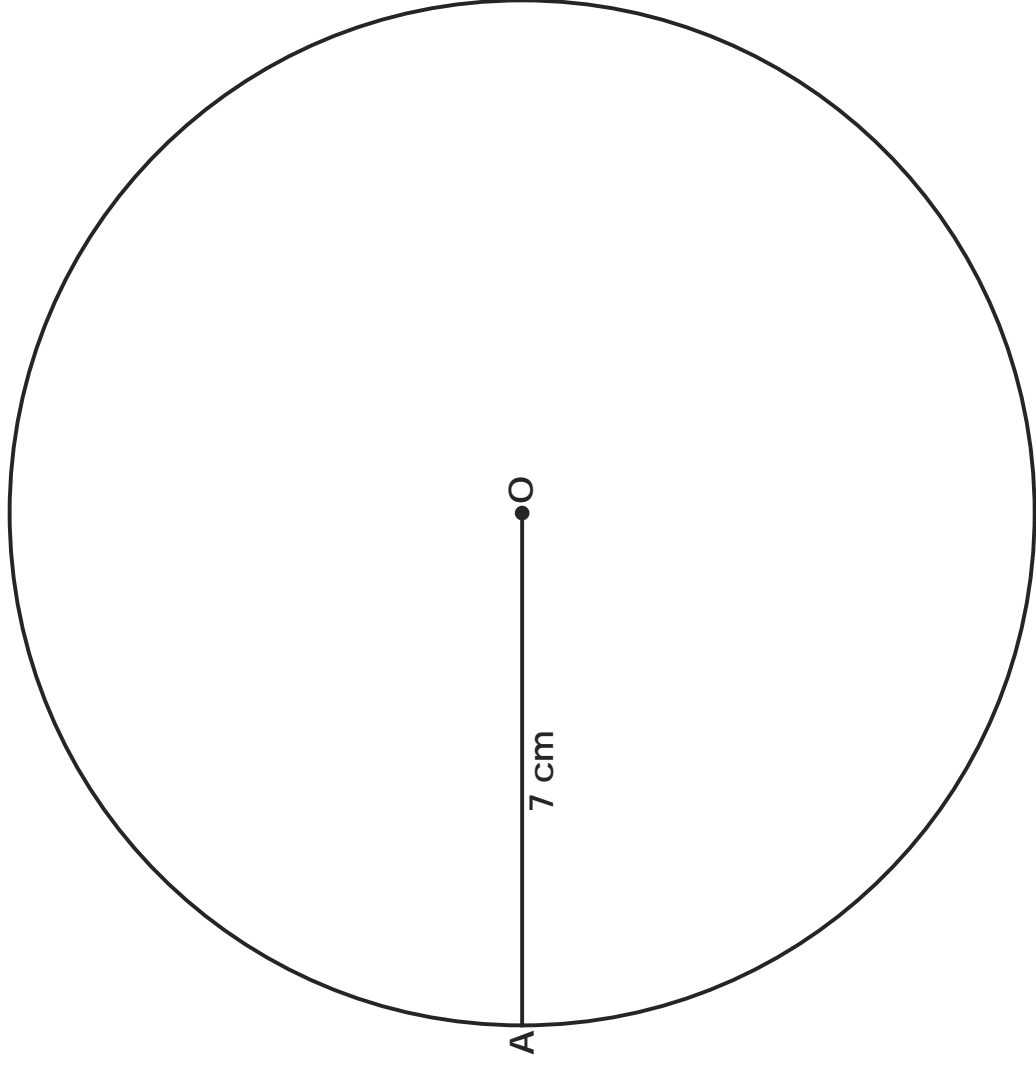
# Teacher Reference: Textbook

b) radius = 6 cm

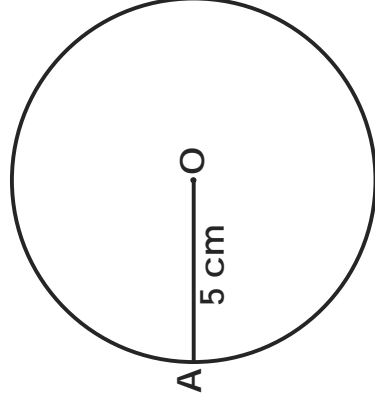


# Teacher Reference: Textbook

c) radius = 7 cm

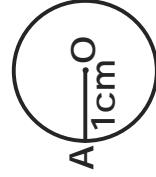


d) radius = 5 cm



# Teacher Reference: Textbook

e) radius = 1 cm



2) Word problems

a) Reena has a bangle of radius 2 cm. What is its diameter?

b) The lid of a soft drink can is 8 cm in diameter. What is its radius?

**Solution:** a) 4 cm

b) 4 cm

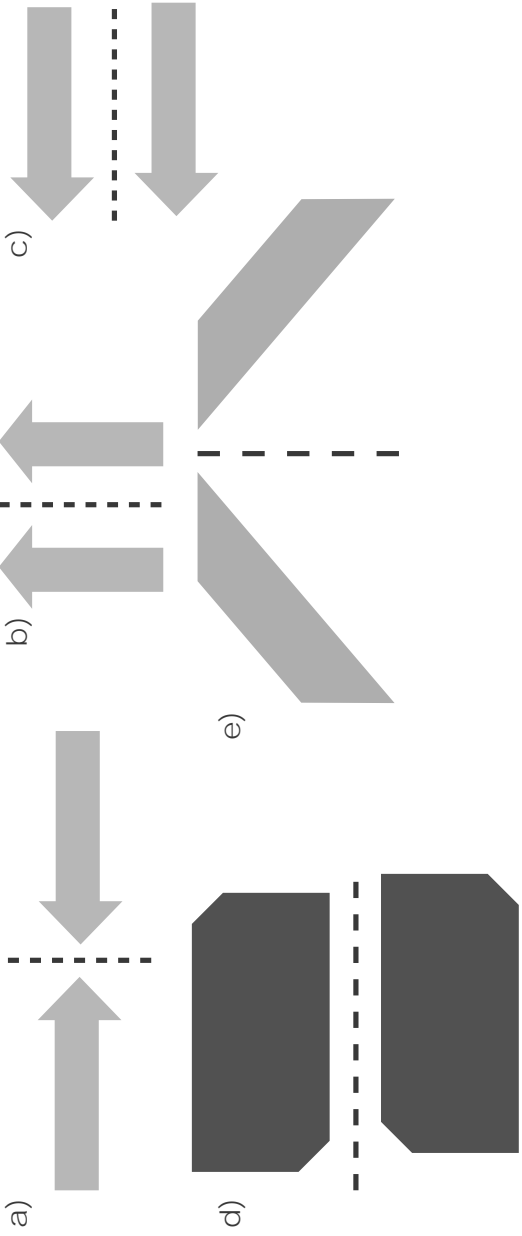
# Teacher Reference: Textbook

## Chapter 1: Shapes

### Concept 1.2: Reflection and Symmetry

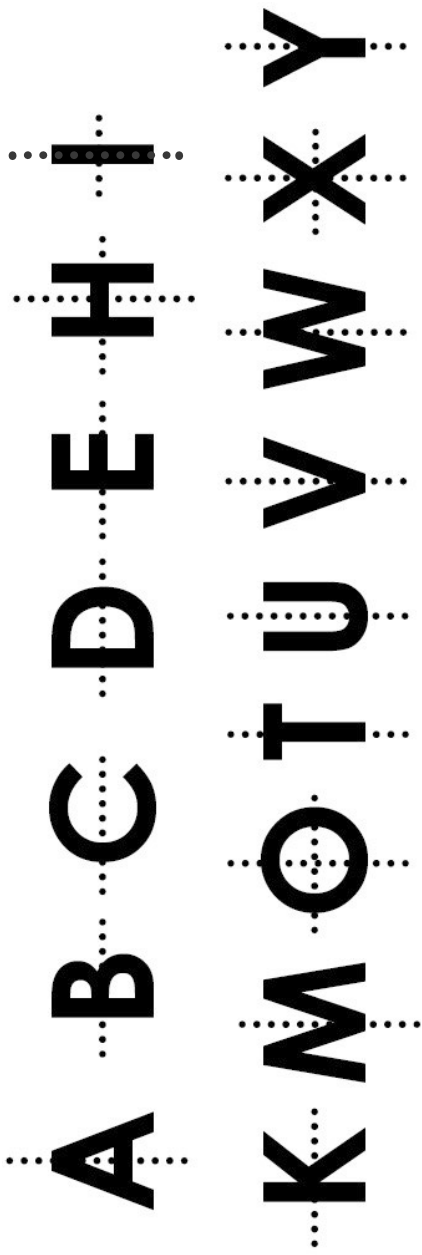
#### Drill Time

3) Draw the reflections of following figures.



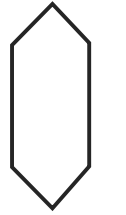
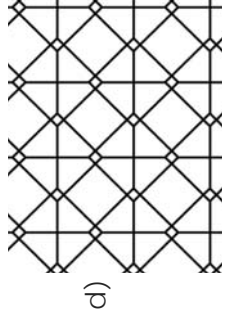
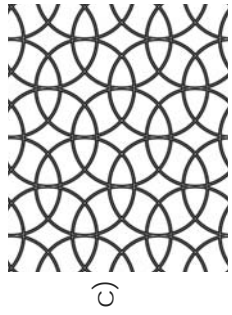
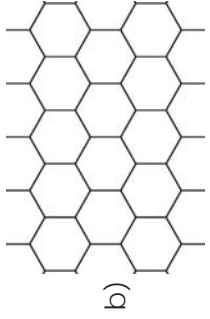
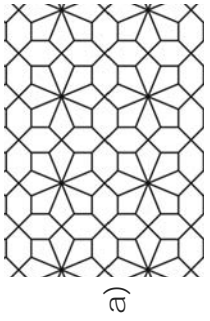
4) Draw lines of symmetry for the symmetrical letters of the English alphabet.

Solution:



# Teacher Reference: Textbook

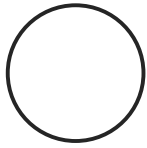
5) Find the basic shape in each of the following tessellations.



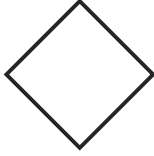
Solution: a)



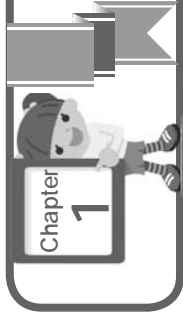
b)



c)



d)




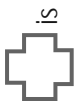

# Shapes

## Concept 1.1: Circle and its Parts



### Recall

#### Multiple Choice Questions

- 1) The figure  is \_\_\_\_\_. [ A ]  
(A) a closed figure (B) an open figure (C) a 3D figure (D) a 1D figure
- 2) The figure  is \_\_\_\_\_. [ D ]  
(A) a closed figure (B) an open figure (C) a 2D figure (D) both (A) and (C)
- 3) The figure  is \_\_\_\_\_. [ B ]  
(A) a closed figure (B) an open figure (C) a 3D figure (D) a 1D figure

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### Remembering and Understanding

#### Multiple Choice Questions

- 4) A circle is \_\_\_\_\_. [ A ]  
(A) a closed figure (B) an open figure (C) a 3D figure (D) a 1D figure
- 5) If the radius of a circle is 'r' then, its diameter 'd' is equal to \_\_\_\_\_. [ D ]  
(A) r (B) 3r (C) 4r (D) 2r
- 6) A chord is a \_\_\_\_\_. [ B ]  
(A) line (B) line segment (C) centre (D) circumference





### Fill in the Blanks

- 7) The diameter divides a circle into two halves.
- 8) The length of a circle is called its circumference.
- 9) The diameter of a circle is its longest chord.

### Very Short Answer Questions

- 10) Are all the radii of a circle equal in length?

**Solution:** Yes.....

- 11) By which letter is the 'diameter' of a circle denoted?

**Solution:** 'd'.....

- 12) Which instrument from the geometry box can be used to draw a circle?

**Solution:** A compass.....

### Short Answer Questions

- 13) What is the use of the hinge and pencil holder in a compass.

**Solution:** A hinge is used to tighten the compass to control the movement of its two arms.....

A pencil holder holds the pencil used to draw the circle.....

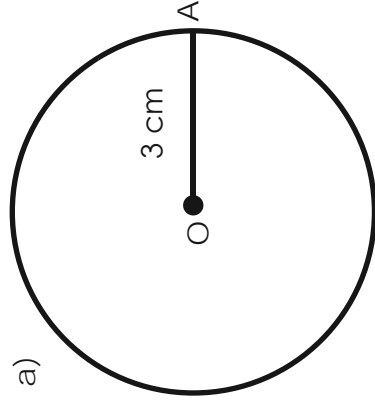
- 14) List the different instruments in a geometry box.

**Solution:** A ruler, a divider, a compass, a protractor, a set of square, a pencil and an eraser.....

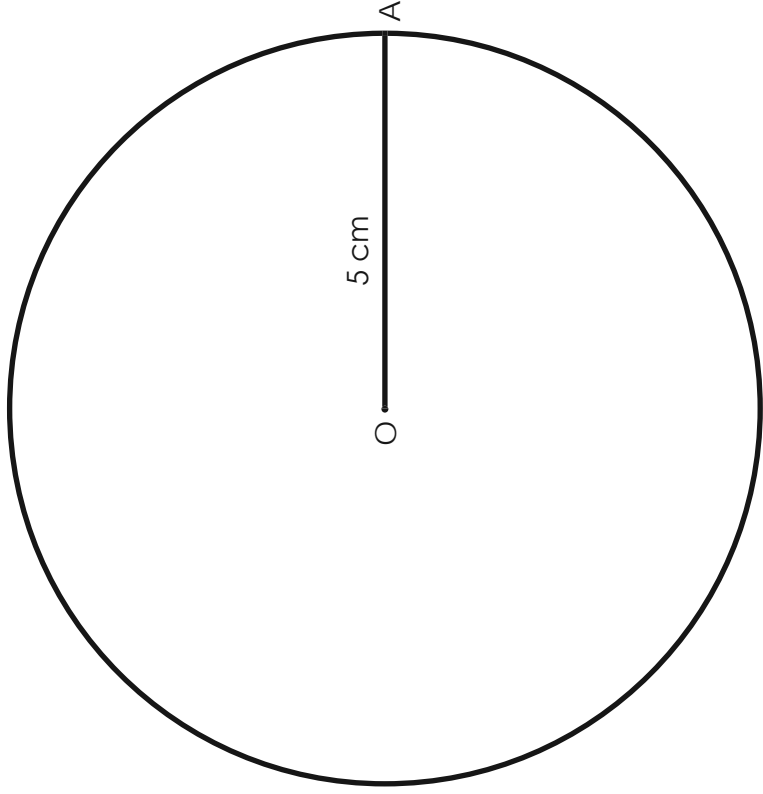
### Long Answer Questions

- 15) Draw a circle of radius: a) 3 cm      b) 5 cm

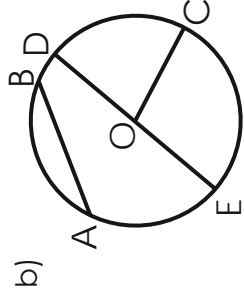
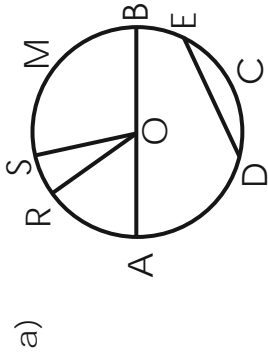
**Solution:** a)



b)



16) Name the chords, diameters, radii and centres of the circles given.



**Solution:** a) O = centre ..... b) O = centre .....  
AB = diameter ..... DE = diameter .....  
AB, DE = chord ..... DE, AB = chord .....  
OR, OS, OA and OB = radii ..... OC, OD, OE = radii .....  
.....  
.....  
.....  
.....



Short Answer Questions

17) Reena drew a circle with her frisbee that has diameter of 14 cm. What is its radius?

**Solution:** Diameter of the frisbee = 14 cm

Radius of the frisbee =  $d \div 2$

So, the radius of the frisbee =  $14 \div 2$  cm = 7 cm

18) The lid of a tank has a radius of 10 cm. What is its diameter?

**Solution:** The radius of the lid of a tank = 10 cm

Its diameter =  $r \times 2$

So, the diameter of the lid of a tank =  $10 \text{ cm} \times 2 = 20 \text{ cm}$

Long Answer Questions

19) Raj has a circular clock with a diameter of 12 cm. Shyam has another circular clock with a diameter of 8 cm. What is the radius of each of their clocks? Who has a smaller clock?

**Solution:** Diameter of Raj's clock = 12 cm

Radius of Raj's clock =  $d \div 2 = 12 \div 2$  cm = 6 cm

Diameter of Shyam's clock = 8 cm

Radius of Shyam's clock =  $d \div 2 = 8 \div 2$  cm = 4 cm

As the radius of Shyam's clock is less than that of Raj, Shyam's clock is smaller.

.....

20) The two water bottles had caps with radii 2 cm and 3 cm. What is the diameter of each of the water bottle caps?

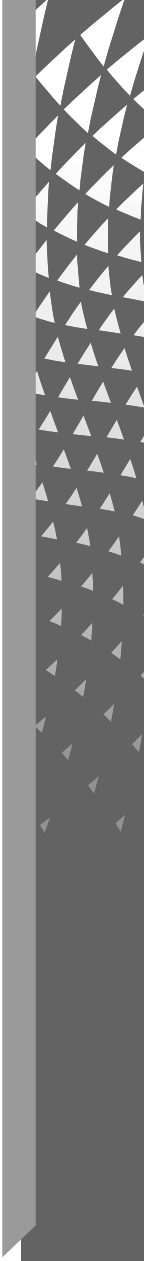
**Solution:** Radius of the first bottle cap = 2 cm

Diameter of the first bottle cap =  $r \times 2 = 2 \text{ cm} \times 2 = 4 \text{ cm}$

Radius of the second bottle cap = 3 cm

Diameter of the second bottle cap =  $r \times 2 = 3 \text{ cm} \times 2 = 6 \text{ cm}$

.....





**Short Answer Question**

21) The diameter of the mouth of a bottle is 3 cm. The radius of a pen is 1 cm. Would the pen fit inside the bottle?

**Solution:** Diameter of the mouth of a bottle = 3 cm.

Radius of pen = 1 cm.

Diameter of pen =  $2 \times 1 \text{ cm} = 2 \text{ cm}$ .

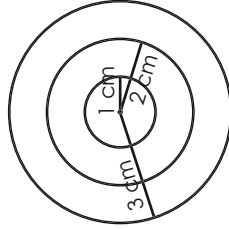
As the diameter of pen is less than that of the mouth of the bottle, the pen will fit inside the bottle.

.....  
.....  
.....

**Long Answer Question**

22) Can we draw three circles of different radius with the same centre? If yes, draw three concentric circles with radii 1 cm, 2 cm and 3 cm.

**Solution:** Yes, we can draw three circles with the same centre.  
They can be drawn as –



## Concept 1.2: Reflection and Symmetry



### Recall

#### Multiple Choice Questions
















- 1) \_\_\_\_\_ is a 2D figure with four equal sides. [ A ]  
(A) square (B) rectangle (C) cube (D) cuboid
- 2) \_\_\_\_\_ is a 2D figure with three sides. [ B ]  
(A) square (B) triangle (C) cone (D) cuboid
- 3) \_\_\_\_\_ is a 2D figure with four corners and two pairs of equal sides [ B ]  
(A) circle (B) rectangle (C) cube (D) cuboid



### Remembering and Understanding

#### Multiple Choice Questions

Page 39

- 4) The reflection of  along the dotted line is \_\_\_\_\_. [ B ]  
(A)  (B)  (C)  (D) 
- 5) The reflection of  along the dotted line is \_\_\_\_\_. [ A ]  
(A)  (B)  (C)  (D) 
- 6) The reflection of  along the dotted line is \_\_\_\_\_. [ D ]  
(A)  (B)  (C)  (D) 

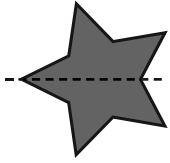
#### Fill in the Blanks

- 7) The line of symmetry divides the figure into \_\_\_\_\_ two \_\_\_\_\_ halves.
- 8) The dotted line in  is known as the line of \_\_\_\_\_ symmetry \_\_\_\_\_.

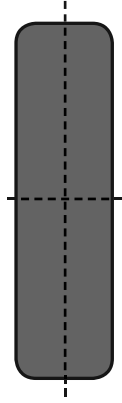
9) The **reflection** of an object is of the same size as the object.

### Very Short Answer Questions

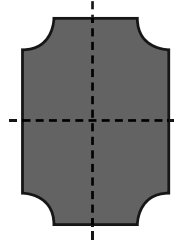
10) Draw a vertical line of symmetry through the given figure.



11) Draw the lines of symmetry through the given figure.

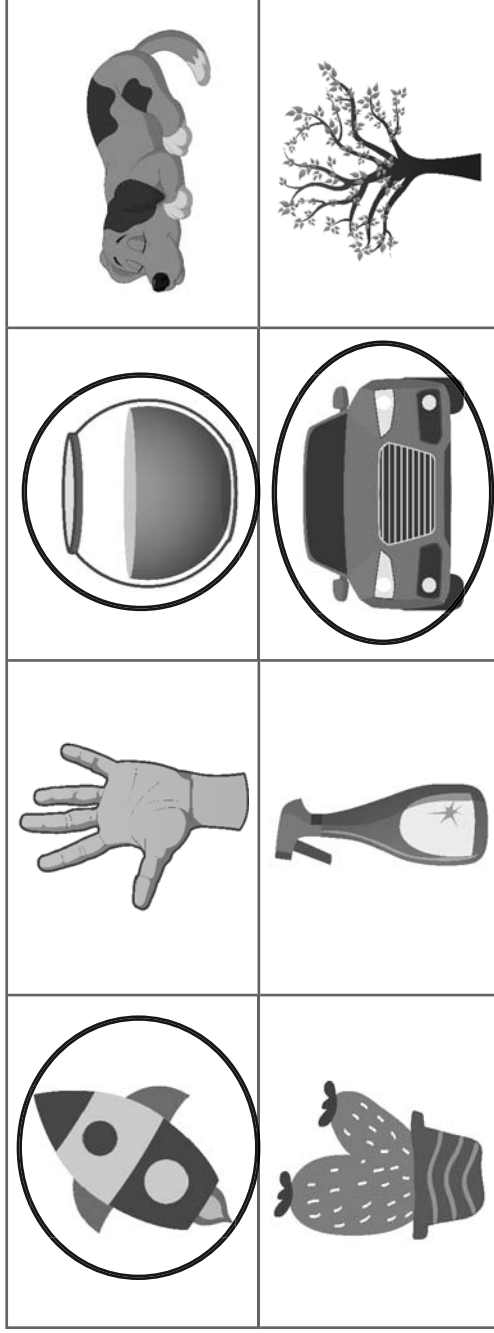


12) Draw the lines of symmetry through the given figure.

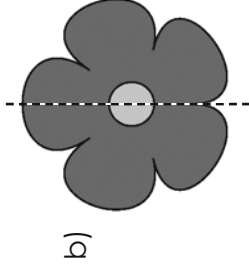
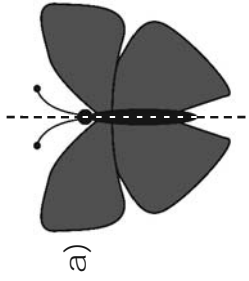


### Short Answer Questions

13) Circle the objects that can have a line of symmetry.



14) Complete the drawings by adding their reflections.

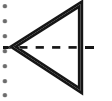
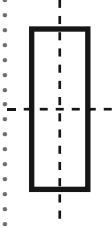


### Long Answer Questions

15) How should we draw a line of symmetry? Give two examples.

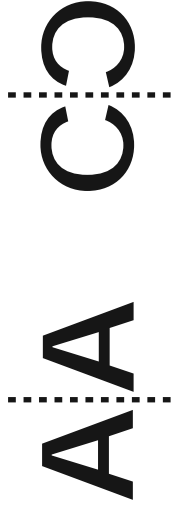
**Solution:** The line of symmetry divides a given figure into two halves. The line of symmetry of a figure must be drawn such that the two parts of the figure are mirror images of one another.

For example,



16) Where can we see reflections? Draw the reflections of any two letters of the English alphabet.

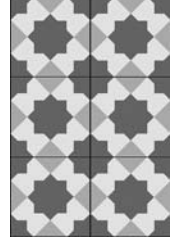
**Solution:** Learner's response; for example  
Reflections can be seen in mirrors, water, oil, shiny surfaces and so on.



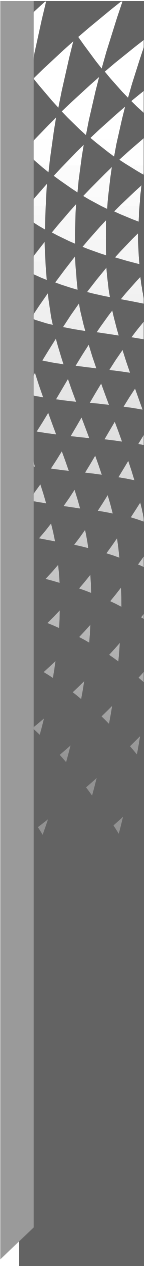
### Application

### Short Answer Questions

17) Is the given tiling pattern periodic or non-periodic? Explain why.

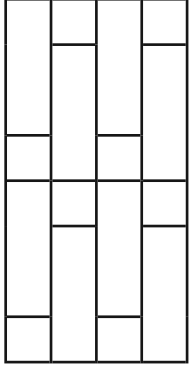


**Solution:** A tiling that has a repeating pattern is called a periodic tiling. As the pattern repeats a basic tile, the given tiling pattern is periodic.



18) Create a tiling pattern using squares and rectangles.

**Solution:** Learner's response;  
for example

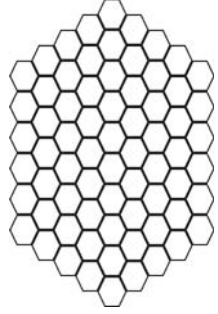


### Long Answer Questions

19) What are tessellations used for? Give two examples.

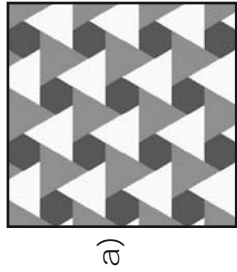
**Solution:** Tessellations are used to create decorative patterns on floors, pavements, roofs of historical monuments, quilting and so on.

For example,

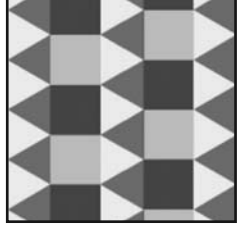


.....  
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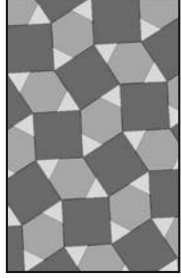
20) Find and draw the basic shapes in each of the following tessellations.



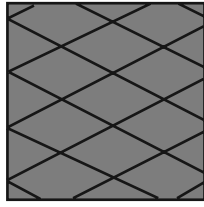
a)



b)



c)

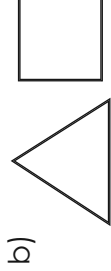


d)

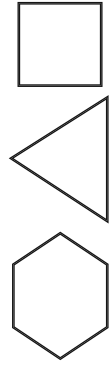
**Solution:** The basic shapes in the tessellations are –



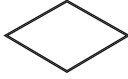
a)



b)



c)



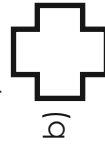
d)





**Short Answer Question**

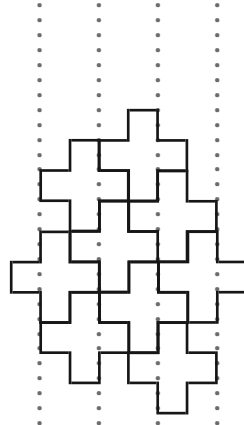
21) Form tessellations using the given shapes and colour them.



**Solution:** Learner's response: ... a)



for example



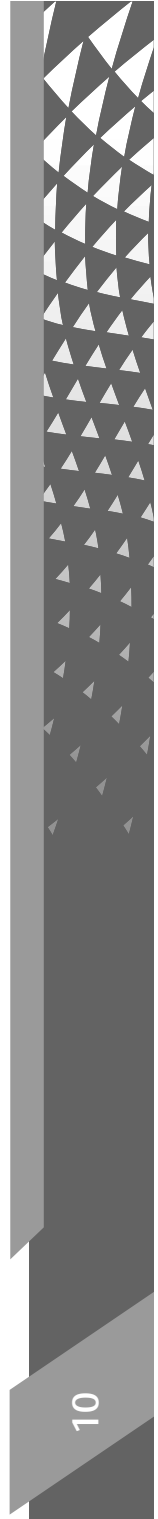
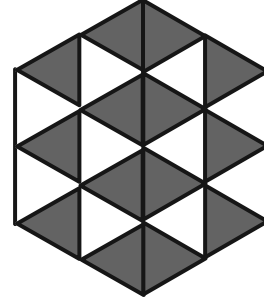
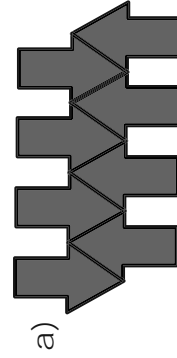
**Long Answer Question**

22) Draw and colour the following tessellations.

a) Use arrows and create a tessellation.

b) Use triangles and create a tessellation.

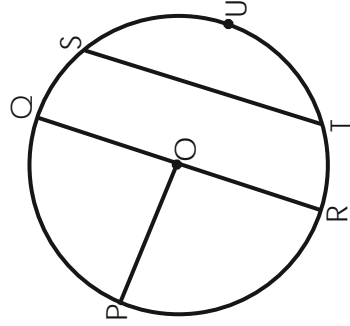
**Solution:** We can create tessellations as –






## Practice Questions

- 1) Name the centre, radii, diameter, chords and semicircles in the given circle.



- 2) Soham drew a circle of diameter 50 cm. What is its radius?
- 3) If the radius of a circle is 6 cm, what is its diameter?
- 4) Draw a tessellation using the shape .
- 5) Form a tessellation using any two shapes.
- 6) If the radius of a plate is 7 cm, what is its diameter?
- 7) Draw and name a circle of radius 2 cm.
- 8) If the diameter of a circle is 30 cm, what is its radius?
- 9) The letter 'W' and its mirror image look the same. Find three English letters that look the same as their mirror images.
- 10) How many lines of symmetry can we draw through a square?
- 11) Name a cuboidal object that can tessellate.
- 12) Can you draw a line of symmetry through the palm of your hand?
- 13) Draw the mirror image of 8.
- 14) The diameter of a cycle tyre is 62 cm, what is its radius?
- 15) Do concentric circles have different radii?

# Teacher Reference: Workbook

## Chapter 1: Shapes



### Practice Questions

- 1) centre = O, radii = OP or PO, OQ or QO, OR or RO, diameter = RQ or QR, chords = TS or ST, QR or RQ (since the diameter of a circle is its longest chord), semicircle = RUQ or QUR and RPQ or QPR
- 2) 25 cm
- 3) 12 cm
- 4) Learner's response; example:
- 5) Learner's response; example:
- 6) 14 cm
- 7)
- 8) 15 cm
- 9) A, H, I, M, O, T, U, V, X, Y (any three of these)
- 10) 4
- 11) Learner's response, brick
- 12) No
- 13) 8
- 14) 31 cm
- 15) Yes

## A – Curriculum to Learning Objectives: Patterns

Prior Knowledge	• <i>Basic shapes, numbers, symmetry</i>					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	2	Patterns	2.1	Patterns in Our Surroundings	2.1.a	• patterns in shapes
					2.1.b	• patterns in numbers
	3	Numbers	3.1	Count in Ones and Tens	3.1.b	• the sequence of numbers up to 99
2	2	Patterns	2.1	Repeating Patterns	2.1.a	• identifying basic shape(s) in a pattern
					2.1.b	• creating patterns using objects, shapes and numbers
3	2	Patterns	2.1	Patterns in Shapes and Numbers	2.1.a	• identifying and creating patterns in shapes and numbers
					2.1.b	• tiling of the given shape
4	2	Patterns	2.1	Patterns based on Symmetry	2.1.a	• patterns in lines and shapes
					2.1.b	• number patterns
					2.1.c	• line and axis of symmetry
					2.1.d	• growing and reducing patterns
5	2	Patterns	2.1	Patterns in Rotation	2.1.a	• rotation of shapes
					2.1.b	• arranging figures and shapes to form patterns
			2.2	Patterns in Numbers	2.2.a	• patterns in numbers

## B – Vision-to-Action Plan: 2.1 Patterns Based on Symmetry

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	13-15 – THK, RCL	2.1.a 2.1.b	<ul style="list-style-type: none"> <li>Identify natural and artificial patterns, number patterns, patterns in lines and shapes, finite and infinite patterns.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Grid Board</li> <li>Bean Strips</li> <li>coloured paper for each learner</li> </ul>	WB: Pg. 12 (Q. 1-3)	–	
2 DD/MM/YYYY	15-17 – REM/UND	2.1.c	<ul style="list-style-type: none"> <li>Define ‘line of symmetry’, ‘axis of symmetry’, ‘vertical symmetry’ and ‘horizontal symmetry’.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	–	WB: Pgs. 12, 13 (Q. 4-12)	WB: Pgs. 13, 14 (Q. 13-16)	
3 DD/MM/YYYY	18, 19 – APP	2.1.d	<ul style="list-style-type: none"> <li>Apply the concept of symmetry to complete the given pattern.</li> </ul>	<ul style="list-style-type: none"> <li>Activity Method</li> </ul>	<ul style="list-style-type: none"> <li>Grid Board</li> </ul>	WB: Pgs. 14, 15 (Q. 17, 18)	WB: Pg. 15 (Q. 19, 20)	
4 DD/MM/YYYY	19, 20 – HOTS, Drill Time	2.1.c	<ul style="list-style-type: none"> <li>Draw the lines of symmetry for the given words.</li> <li>Find lines of symmetry for the given digits.</li> </ul>	<ul style="list-style-type: none"> <li>Practising</li> </ul>	–	TB: Pg. 20 (Drill Time Q. 1, 2)	WB: Pg. 16 (Q. 21, 22)	

Annual Day:  
14/62

Day:  
1/4

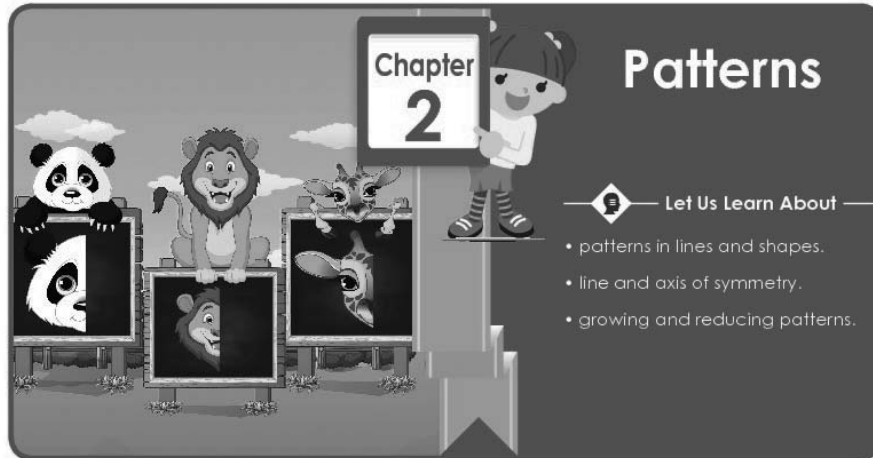
Actual Date:

Page(s)  
13,14

Important Words

- Today: pattern

Duration: 2 min



Chapter 2 Patterns

Let Us Learn About

- patterns in lines and shapes.
- line and axis of symmetry.
- growing and reducing patterns.

The slide features a cartoon girl holding a sign that says 'Chapter 2 Patterns'. To the left, there are three framed pictures: a panda, a lion, and a rabbit. The panda and rabbit pictures show a vertical line of symmetry, while the lion picture shows a horizontal line of symmetry.

### Concept 2.1: Patterns Based on Symmetry



#### Think

Jasleen observed the following pictures.



Can you divide these pictures into two equal parts by drawing a line through them?



#### Recall

An arrangement of figures or designs in a certain way is called a **pattern**. We see patterns everywhere. Patterns can be natural or man-made.

Transactional Tip(s)

Duration: 24 min



Direct Instruction:

- Explain TB: Pg. 13, 'Think'.
- Introduce the concept with examples such as ripples on the sand of the waves, clouds in the sky.
- Use:
  - Classklap Grid Board
  - Classklap Bean Strips
- Ask learners to solve WB: Pg. 12, Q. 1-3.

Class Pulse Check

Duration: 4 min



- 1) Where do you see patterns at your home?
- 2) Is it possible to make patterns by drawing shapes?

Annual Day:  
14/62

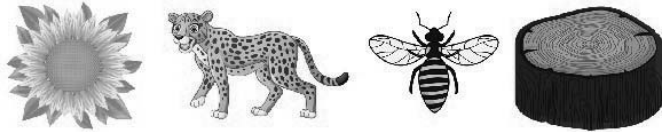
Day:  
1/4

Actual Date:

Page(s)  
14

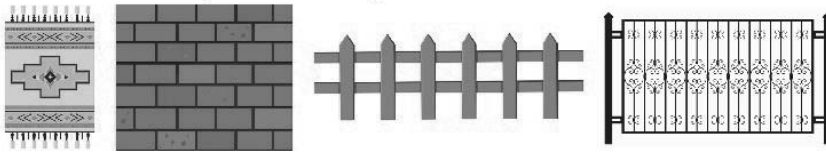
### Natural Patterns

We observe natural patterns on stones, leaves of plants, stripes or spots on animals and so on.



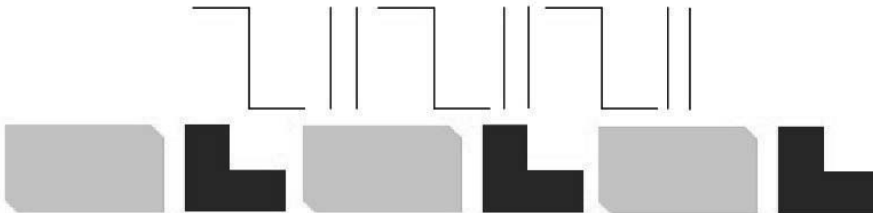
### Man-made patterns (Artificial patterns)

Artificial patterns are made by humans. We create these patterns using a general rule. We place all the item in the pattern according to that rule.



### Patterns in Lines and Shapes

Patterns in lines and shapes are created with repetitive basic lines or shapes.



We can find patterns in numbers, language, music and so on.

### Number patterns

A sequence of numbers following a specific rule is called a **number pattern**. We observe that multiplication tables have a pattern too.

- 1) Odd numbers: 1, 3, 5, 7, 9, 11, ..... (Beginning from 1 and increasing by 2)
- 2) Even numbers: 2, 4, 6, 8, 10, 12, ..... (Beginning from 2 and increasing by 2)

### Important Words

Duration: 1 min

- **Today:** natural patterns, man-made patterns, patterns in lines and shapes, number patterns, finite patterns and infinite patterns

### Transactional Tip(s)

Duration: 19 min



### Direct Instruction:

- Show or draw patterns.
- Explain:
  - natural patterns with examples.
  - man-made patterns.
  - how patterns with lines and shapes can be formed.
  - number patterns with various examples.
- Differentiate between infinite and finite patterns.
- Use pictures in TB: Pg. 14.

### Class Pulse Check

Duration: 2 min



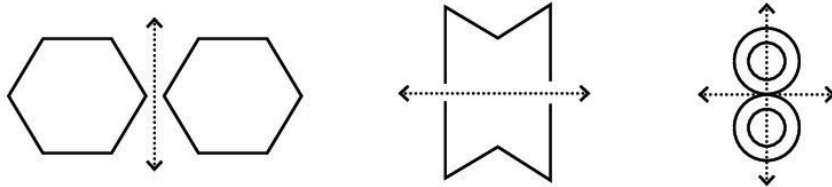
- 1) Give examples of natural patterns.
- 2) Give examples of man-made patterns.

Once we know the rule, we can continue a pattern any number of times or endlessly. Patterns that end after a few terms are called **finite patterns** and those that do not end are called **infinite patterns**.

Patterns can be linear, circular or symmetrical. Linear patterns can be vertical or horizontal.

We know that when an object is placed in front of a mirror, we see its **reflection**. The reflection looks the same as the object.

We see reflections in mirrors, water or shiny surfaces. Observe the figures given.



In these figures, the part on one side of the dotted line looks the same as that on the other side. Thus, the dotted line is like a mirror and is called the **mirror line**. Each part is a reflection of the other across the mirror line. So, this line is also called the **line of reflection**.

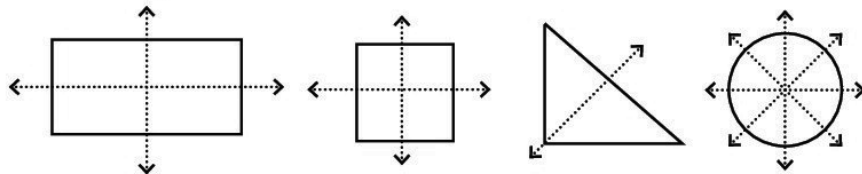
 **Remembering and Understanding**

In a reflection, the object and the image have the same shape and size.

An object that can be divided into two or more equal parts is said to be **symmetrical**.

The line which divides an object into two equal parts is called the **line of symmetry**. This line is also known as the **axis of symmetry**.

Consider these figures:



In each of these figures, the dotted lines are the axes of symmetry.

We can draw the line of symmetry through the given figure. Let us consider an example.

**Important Words**

**Duration: 1 min**

- **Last class:** pattern, natural patterns, man-made patterns, patterns in lines and shapes, number patterns, finite patterns and infinite patterns
- **Today:** reflection, mirror line, line of reflection

**Transactional Tip(s)**

**Duration: 7 min**



**Direct Instruction:**

- Elaborate the concept of reflection.
- Use pictures in TB: Pg. 15.
- Elaborate the concept of line of reflection.
- Use pictures in 'Remembering and Understanding'.
- Differentiate between symmetrical and asymmetrical shapes.
- Elaborate the concept of line of symmetry.

**Class Pulse Check**

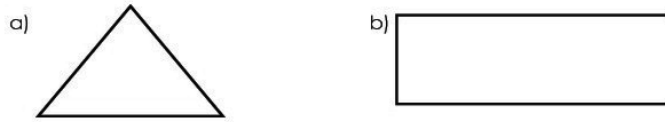
**Duration: 2 min**



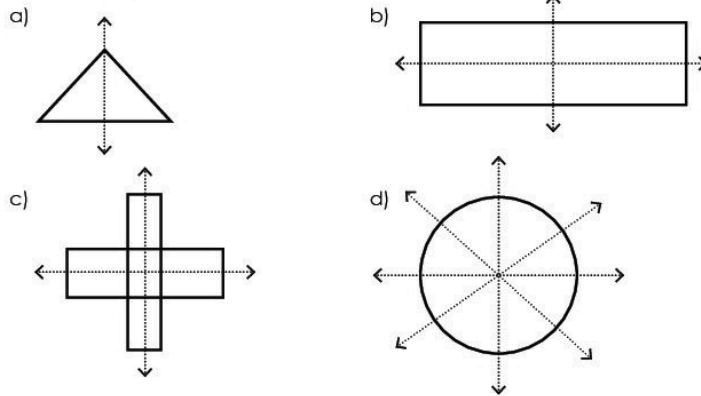
- 1) How many lines of symmetry does a circle have?



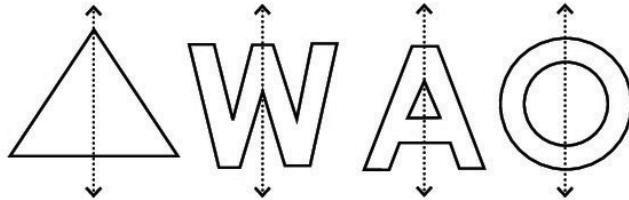
**Example 1:** Draw the lines of symmetry for these figures.



**Solution:**



**Vertical symmetry:** In vertical symmetry, an object or shape is divided into equal left and right halves. The line of symmetry in such cases is known as the **vertical line of symmetry**.



**Important Words**

**Duration: 1 min**

- **Today:** vertical symmetry, vertical line of symmetry

**Transactional Tip(s)**

**Duration: 7 min**



**Direct Instruction:**

- Ask learners to draw figures and lines of symmetry.
- Ask learners to solve TB: Pg. 16, Example 1.a

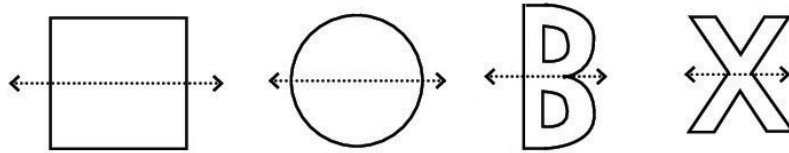
**Class Pulse Check**

**Duration: 2 min**



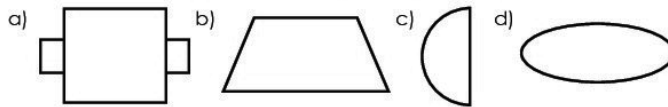
- 1) Draw lines of symmetry for objects and ask learners to classify horizontal and vertical lines from them.

**Horizontal symmetry:** In horizontal symmetry, an object or shape is divided into equal top and bottom halves. The line of symmetry in such cases is called the **horizontal line of symmetry**.

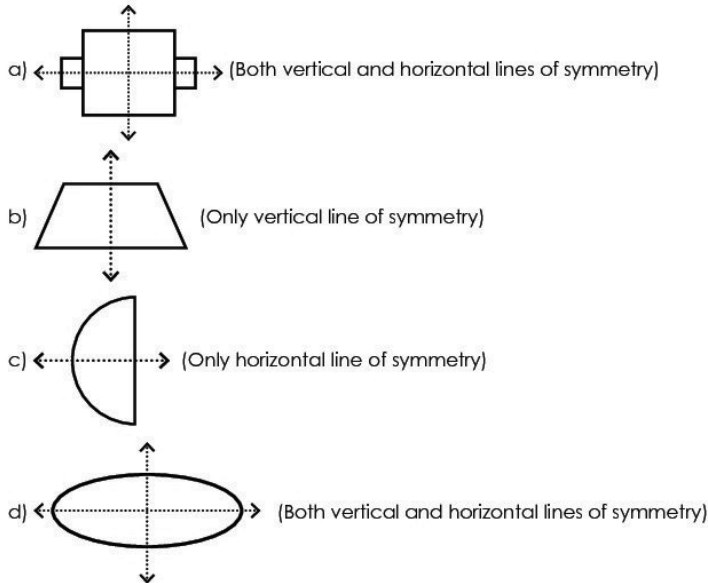


Objects can have vertical or horizontal or both as the lines of symmetry.

**Example 2:** Draw and mention the line/lines of symmetry for these figures.



**Solution:**



**Important Words**

**Duration: 1 min**

- **Today:** horizontal symmetry, horizontal line of symmetry

**Transactional Tip(s)**

**Duration: 8 min**



**Direct Instruction:**

- Explain vertical symmetry and vertical line of symmetry.
- Explain horizontal symmetry and horizontal line of symmetry.
- Use TB: Pg. 17, Example 2.
- Ask learners to discuss their understanding of the line of symmetry.
- Each group will give the next group a shape, to find its line of symmetry.
- Repeat the activity twice.
- Ask learners to collect and bring a few symmetrical objects for the next class.

**Class Pulse Check**

**Duration: 1 min**



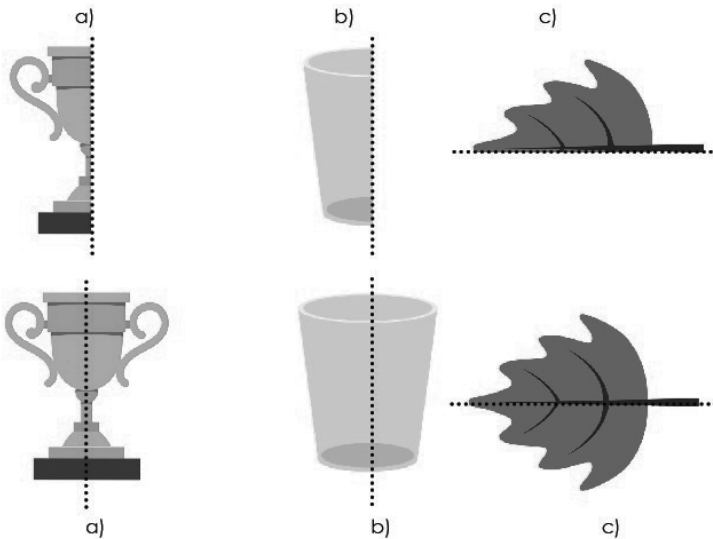
- 1) Is your shirt symmetrical?



### Application

We can complete a symmetrical figure or shape when half of it is given. Let us now see how to draw the remaining part of a symmetrical shape.

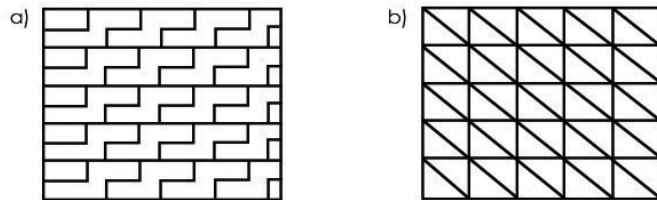
**Example 3:** Complete the other half of these figures. Consider the dotted line as the axis of symmetry.



**Solution:**

Try this!

Colour the given patterns using colours of your choice.



### Important Words

Duration: 1 min

- **Last class:** reflection, mirror line, line of reflection, vertical symmetry, vertical line of symmetry, horizontal symmetry, horizontal line of symmetry
- **Today:** pattern

### Transactional Tip(s)

Duration: 27 min



### Activity Method:

- Ask learners to:
  - show the objects they collected,
  - discuss how they are symmetrical,
  - draw their outlines and lines of symmetry.
- Use TB: Pg. 18 'Application', Example 3.
- Ask learners to complete TB: Pg. 18, 'Try this'.
- Use TB: Pg. 19, Example 4 .
- Use 'Classlap Grid Board'.

### Class Pulse Check

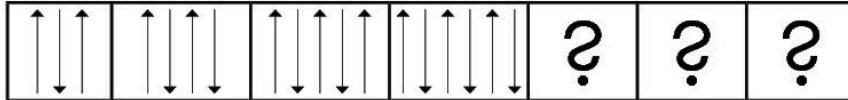
Duration: 2 min



- 1) Is your notebook symmetrical?
- 2) Why do we need a line of symmetry to complete the given pattern?

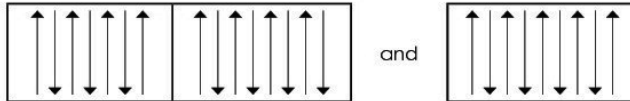
Patterns have many uses in our daily lives. We use patterns of shapes and designs to decorate our homes. Patterns in numbers can be increasing, decreasing or both. Let us see a few examples.

**Example 4:** Draw the next three figures of the given pattern.



**Solution:** Observe that the number of arrows in each step increases by 1. So, the next figures will have 7, 8 and 9 arrows with alternate ones pointing up and down.

So, the next three figures in the given pattern are:



**Higher Order Thinking Skills (H.O.T.S.)**

Let us see some more examples on symmetry.

**Example 5:** Find the digits from 0 to 9 that have:

- a) a vertical line of symmetry
- b) a horizontal line of symmetry
- c) both the lines of symmetry

**Solution:** We first write the digits 0 to 9 and draw the possible lines of symmetry.



- a) Digits that have a vertical line of symmetry: 0 and 8
- b) Digits that have a horizontal line of symmetry: 0
- c) Digits that have both the lines of symmetry: 0

All the other digits have no lines of symmetry.

**Important Words**

- Last class: pattern
- Today: –

**Transactional Tip(s)**

**Duration: 9 min**



**Practising:**

- Explain TB: Pg. 19, 20, Examples 5, 6.

**Class Pulse Check**

**Duration: 1 min**



- 1) Show any object in your surroundings which is asymmetrical.

**Example 6:** Draw lines of symmetry for these words.

WOW TOOT BOOK DICE BIDE

**Solution:**

WOW TOOT BOOK  
DICE BIDE



**Drill Time**

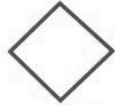
**Concept 2.1: Patterns Based on Symmetry**

1) Draw the lines of symmetry for the following figures.

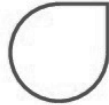
a)



b)



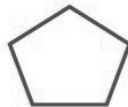
c)



d)



e)

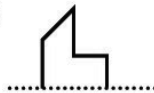


2) Complete the shape on the other side of the line of symmetry.

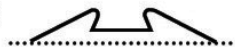
a)



b)



c)



**Transactional Tip(s)**

**Duration: 20 min**



**Practising:**

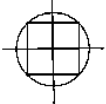
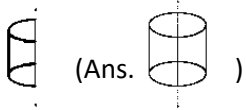
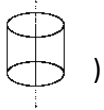
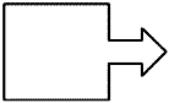
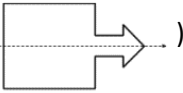
- Solve problems in TB: Pg. 20, 'Drill Time'.










**Class Pulse Check**



1) -

## ✍️ C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	Draw a shape having both vertical and horizontal lines of symmetry using a circle and a square. (Ans.  )	Period 1 - patterns in lines and shapes	
2	Complete the pattern: 5, 16, 27, 38, 49, _____, _____, _____ (Ans. 60, 71, 82)	Period 1 - number patterns	
3	Complete the other half of these figure. Consider the dotted line as the axis of symmetry.  (Ans.  )	Period 2 - line and axis of symmetry	
4	Draw the line of symmetry.  (Ans.  )	Period 3 - line and axis of symmetry	
5	Write a word having horizontal line of symmetry. (Ans. COOK, BOOK, HOOK)	Period 4 - line and axis of symmetry	
6	How many lines of symmetry can you draw for a square? (Ans. 4)	Period 2 - line and axis of symmetry	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>		<b>Names</b>	
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>			
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		<b>Exam Revision Strategy</b> Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		<b>App Report</b> Number _____	<b>Signature</b> _____

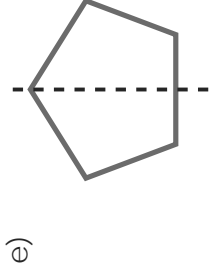
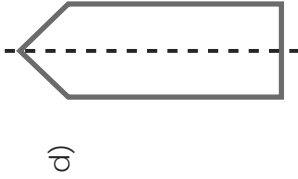
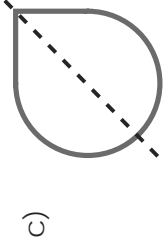
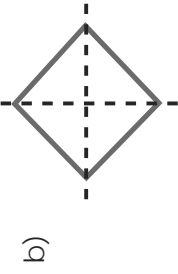
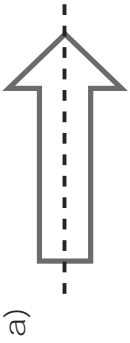
# Teacher Reference: Textbook

## Chapter 2: Patterns

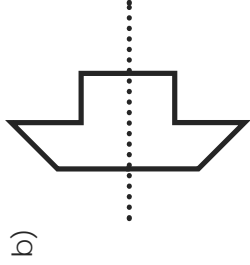
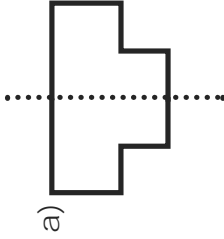
### Concept 2.1: Patterns Based on Symmetry

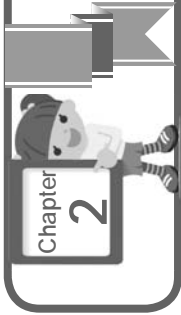
#### Drill Time

1) Draw the lines of symmetry for the following figures.



2) Complete the shape on the other side of the line of symmetry.





# Patterns

## Concept 2.1: Patterns Based on Symmetry



### Recall

#### Multiple Choice Questions

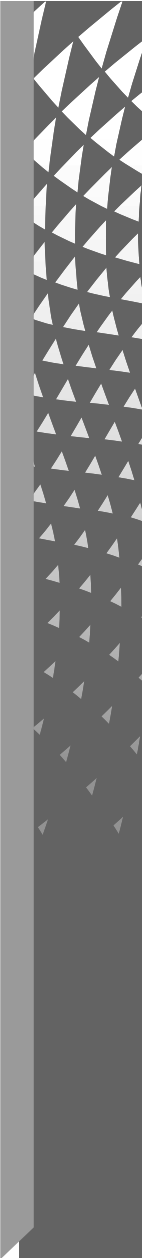
- 1) Patterns created by humans are called \_\_\_\_\_. [ **A** ]  
(A) artificial patterns (B) natural patterns  
(C) number patterns (D) shape patterns
- 2) Find the missing number in the given pattern: 3, 9, 15, \_\_\_\_\_, 27 [ **B** ]  
(A) 25 (B) 21 (C) 16 (D) 20
- 3) A zebra has \_\_\_\_\_ patterns. [ **B** ]  
(A) artificial (B) natural  
(C) number (D) shape



### Remembering and Understanding



#### Multiple Choice Questions

- 4) Patterns can be linear, circular or \_\_\_\_\_. [ **C** ]  
(A) asymmetrical (B) triangular (C) symmetrical (D) rectangular
- 5) The patterns that continue endlessly are called \_\_\_\_\_ patterns. [ **A** ]  
(A) infinite (B) finite (C) vertical (D) horizontal
- 6) \_\_\_\_\_ can have vertical or horizontal lines of symmetry. [ **D** ]  
(A) Natural objects (B) Numbers  
(C) Artificial objects (D) All of these





## Fill in the Blanks

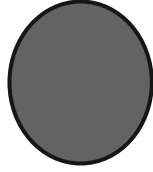
- 7) The figure  has a vertical line of symmetry.
- 8) The figure  has a horizontal line of symmetry.
- 9) In vertical symmetry, an object or shape is divided into equal left and right halves.

## Very Short Answer Questions

- 10) What are such objects called if each half of them has the same shape and size as the other?

**Solution:** Symmetrical objects

- 11) How many axes of symmetry does the given object have?



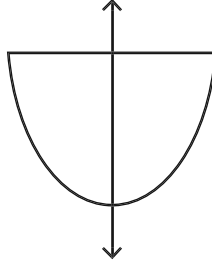
**Solution:** Two (oval)

- 12) Does a line of symmetry divide any figure into exact halves?

**Solution:** Yes

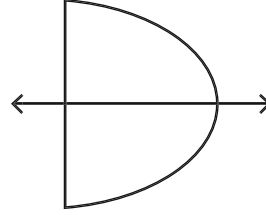
## Short Answer Questions

- 13) Draw an object with a horizontal line of symmetry.



**Solution:** Learner's response

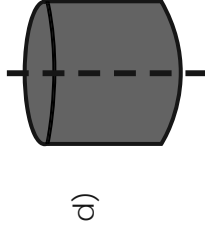
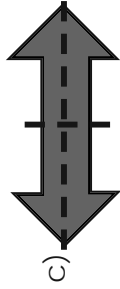
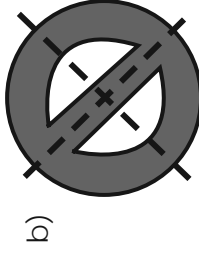
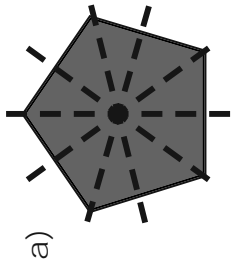
- 14) Draw an object with a vertical line of symmetry.



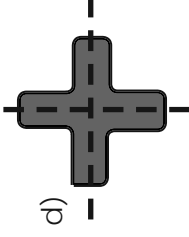
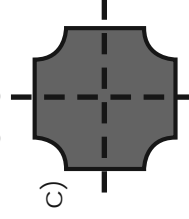
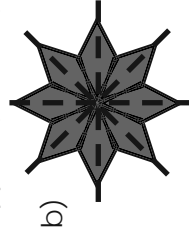
**Solution:** Learner's response

## Long Answer Questions

15) Draw line/lines of symmetry through the given shapes.



16) Draw and mention line(s) of symmetry for the following figures.



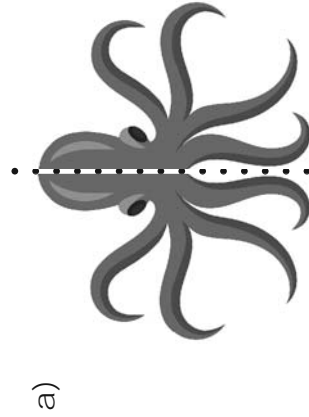
**Solution:** a) Vertical line of symmetry .....  
 b) Vertical and horizontal line of symmetry .....  
 c) Vertical and horizontal line of symmetry .....  
 d) Vertical and horizontal line of symmetry .....



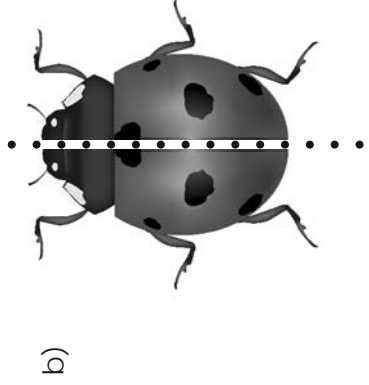
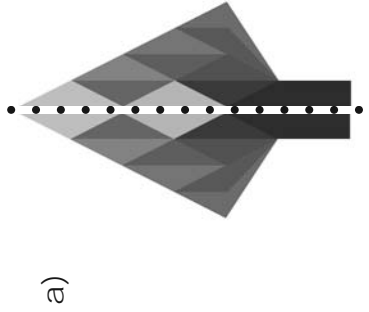
## Application

### Short Answer Questions

17) Complete the following figures about the dotted line as the axis of symmetry.

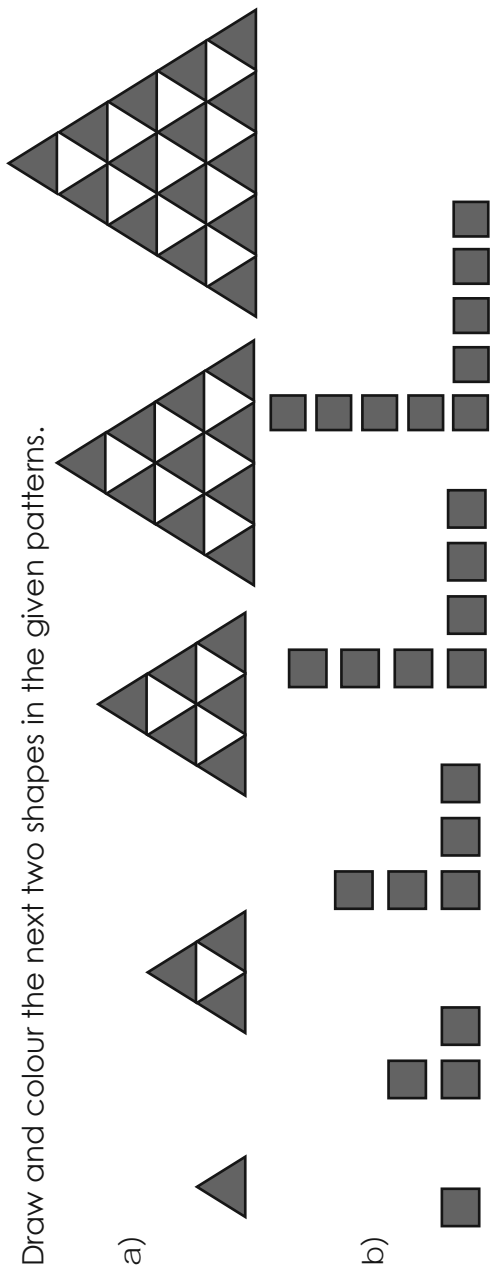


18) Complete the following figures about the dotted line as the axis of symmetry.

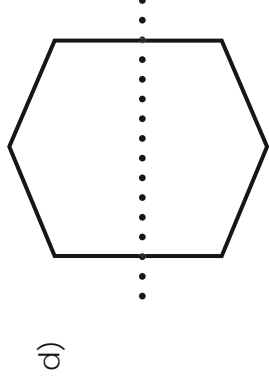
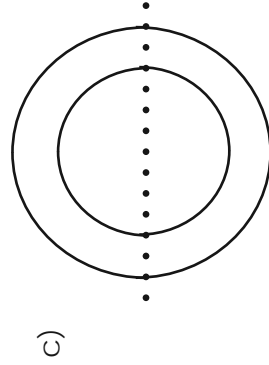
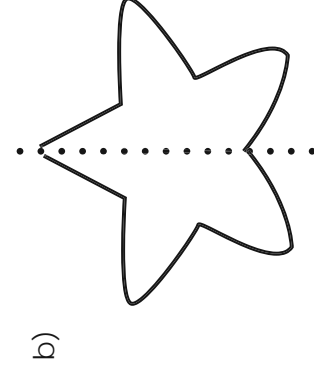
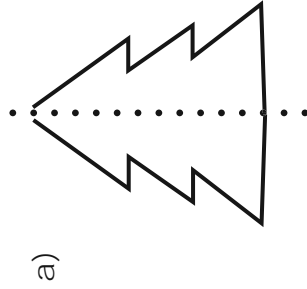


### Long Answer Questions

19) Draw and colour the next two shapes in the given patterns.



20) Draw the other half of the given figures.

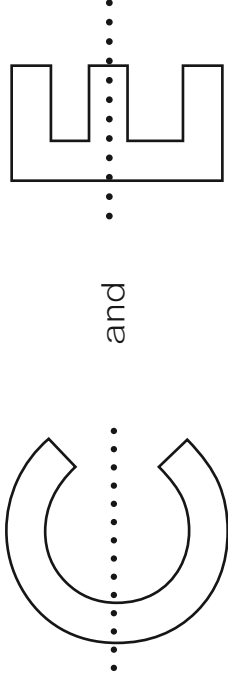




### Short Answer Question

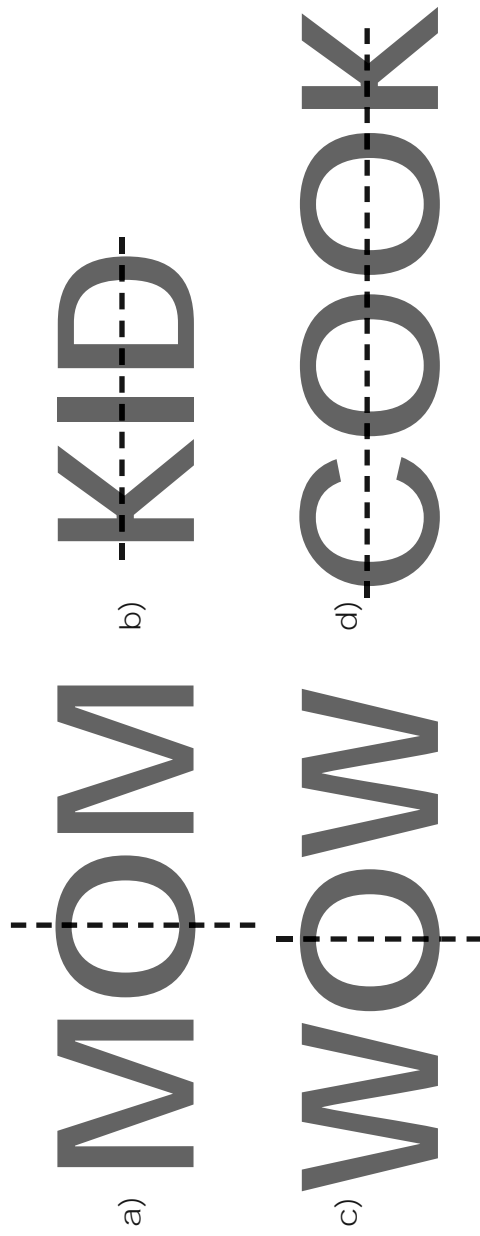
21) Draw two letters of the English alphabet that have a horizontal line of symmetry.

**Solution:** Learner's response



### Long Answer Question

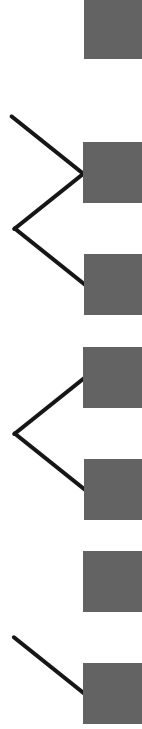
22) Draw lines of symmetry for these words.





## Practice Questions

- 1) Which line of symmetry (horizontal or vertical) will you draw through the word DECK?
- 2) How many lines of symmetry can we draw through the letter G?
- 3) If a wall clock is in the shape of a circle, how many lines of symmetry can it have?
- 4) Write a number which can have both horizontal and vertical lines of symmetry.
- 5) Can the digit '2' have a horizontal line of symmetry?
- 6) Draw the next two figures to complete the given pattern.



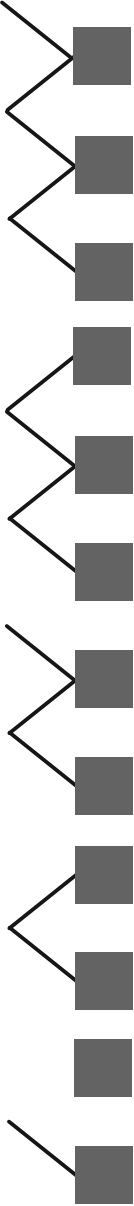



- 7) Create a pattern using two different types of lines.
- 8) Draw and colour a pattern of your choice.
- 9) Can we draw a vertical line of symmetry through the digit '3'?
- 10) Write an English word that has a horizontal line of symmetry.

# Teacher Reference: Workbook

## Chapter 2: Patterns



### Practice Questions

- 1) horizontal
- 2) None
- 3) Infinite
- 4) 0
- 5) No
- 6) 
- 7) Learner's response; for example 
- 8) Learner's response; for example 
- 9) No
- 10) 

## A – Curriculum to Learning Objectives: Numbers

A – Curriculum to Learning Objectives: Numbers						
Prior Knowledge	• Numbers, place values					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	3	Numbers	3.1	Count in Ones and Tens	3.1.a	• the concept of zero
					3.1.c	• place value and face value of numbers
					3.1.d	• writing number names
			3.2	Compare 2-digit Numbers	3.2.a	• comparing, ordering and forming numbers
2	3	Numbers	3.1	Count by Hundreds	3.1.a	• reading and writing numerals and number names up to 999
					3.1.c	• place values, face values and expanded forms of numbers
			3.2	Ordinal Numbers	3.2.a	• ordinal and cardinal numbers
			3.3	Compare 3-digit Numbers	3.3.a	• comparing two numbers
					3.3.c	• forming the greatest and the smallest numbers
3	3	Numbers	3.1	Count by Thousands	3.1.a	• writing 4-digit numbers with place value chart
					3.1.b	• writing the standard and the expanded forms of the number
			3.2	Compare 4-digit Numbers	3.2.a	• comparing and ordering numbers
					3.2.b	• identifying and forming the greatest and the smallest number
4	3	Numbers	3.1	Count by Ten Thousands	3.1.a	• the smallest and the largest 4-digit and 5-digit numbers
					3.1.b	• reading and writing 5-digit numbers.
					3.1.c	• finding the place value and the face value of the numbers.
5	3	Large Numbers	3.1	Indian and International Systems of Numeration	3.1.a	• reading and writing 6-digit, 7-digit and 8-digit numbers
					3.1.b	• Indian and international number systems
					3.1.c	• comparing and ordering numbers

## B – Vision-to-Action Plan: 3.1 Count by Ten Thousands

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	21, 22, 23 – THK, RCL, REM/UND	3.1.a	<ul style="list-style-type: none"> <li>Recall the smallest and the largest 2-digit, 3-digit and 4-digit numbers.</li> <li>Read and write 5-digit numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Activity Method</li> </ul>	<ul style="list-style-type: none"> <li>Bean Strip</li> <li>Place Value Flash Cards</li> <li>Place Value Board</li> </ul>	–	WB: Pg. 18 (Q.1-3)	
2 DD/MM/YYYY	23, 24, 25 – REM/UND	3.1.a	<ul style="list-style-type: none"> <li>Identify the place value and face value of numbers.</li> <li>Express numbers in the expanded form.</li> </ul>	<ul style="list-style-type: none"> <li>Activity Method</li> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Flash Cards</li> <li>Number Stamp</li> <li>Place Value Boards</li> </ul>	TB: Pgs. 24, 25 (Examples 1, 2)	WB: Pg. 18-20 (Q. 4-16)	
3 DD/MM/YYYY	33, 34 – Drill Time	3.1.a	<ul style="list-style-type: none"> <li>Solve sums based on the knowledge of 5-digit.</li> </ul>	<ul style="list-style-type: none"> <li>Practising</li> </ul>	–	TB: Pgs. 33, 34 (Drill Time Q. 1-4, 6a, b, c)	TB: Pg. 33 and 34 (Drill Time Q. 1-4, 6d, e)	
4 DD/MM/YYYY	25, 26, 34 – APP, HOTS, Drill Time	3.1.a	<ul style="list-style-type: none"> <li>Solve sums based on 5-digit numbers from real-life examples.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Direct Instruction</li> </ul>	–	TB: Pgs. 25, 26 (Examples 3-7) TB: Pg. 34 (Drill Time Q5)	WB: Pgs. 20, 22 (Q.17-22)	

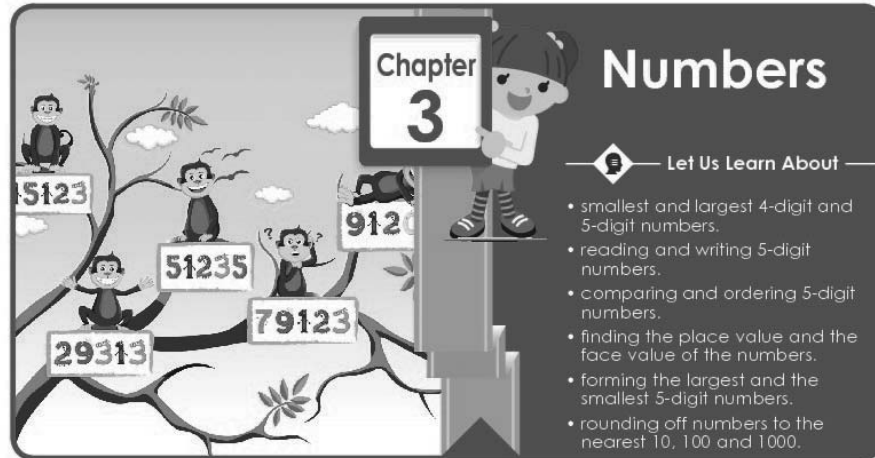


Annual Day:  
18/62

Day:  
1/4

Actual Date: \_\_\_\_\_

Page(s)  
21,22



**Chapter 3 Numbers**

Let Us Learn About

- smallest and largest 4-digit and 5-digit numbers.
- reading and writing 5-digit numbers.
- comparing and ordering 5-digit numbers.
- finding the place value and the face value of the numbers.
- forming the largest and the smallest 5-digit numbers.
- rounding off numbers to the nearest 10, 100 and 1000.

The illustration shows a girl holding a sign that says 'Chapter 3 Numbers'. To her left, a tree has several monkeys sitting on its branches, each holding a sign with a number: 5123, 51235, 9120, 29313, and 79123.

### Concept 3.1: Count by Ten Thousands

#### Think

Jasleen's father bought a TV, and the bill read as ₹ 55,515. Jasleen reads it as five thousand five hundred and fifty-one and one more five. Her father told her that she was wrong and asked her to learn the correct way of reading 5-digit numbers. Can you read such big numbers?



#### Recall

We know that 10 ones make a ten, 10 tens make a hundred and 10 hundreds make a thousand.

Counting by **10s**: 10, 20, 30, 40, 50, 60, 70, 80, 90

Counting by **100s**: 100, 200, 300, 400, 500, 600, 700, 800, 900

Counting by **1000s**: 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000

#### Important Words

Duration: 1 min

- **Today:** number name, smallest and the largest 2-digit, 3-digit and 4-digit numbers

#### Transactional Tip(s)

Duration: 18 min



#### Direct Instruction:

- Read 'Think' section.
- Use Classklap Bean Strip to explain 'Recall' section.
- Explain:
  - how to write 2-digit through 5-digit numbers,
  - the smallest and the largest numbers using the table in TB: Pg. 22,
  - how adding 1 to the largest 4-digit number gives the smallest 5-digit number.
- Use Classklap Place Value Flash Cards and Place Value Board to introduce ten thousands place.
- Explain how to write 5-digit numbers in the Place Value chart.
- Explain how to read 5-digit numbers.

#### Class Pulse Check

Duration: 1 min



- 1) Is 45 the largest 2-digit number?
- 2) Is 100 the largest 3-digit number?

Annual Day:  
18/62

Day:  
1/4

Actual Date:

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Let us read the number names for the following numbers:

80 – Eighty

800 – Eight hundred

8000 – Eight thousand

888 – Eight hundred and eighty-eight

Let us recall the smallest and the largest 2-digit, 3-digit and 4-digit numbers and name them.

Number of Digits	Smallest	Largest
2	10 (Ten)	99 (Ninety-nine)
3	100 (Hundred)	999 (Nine hundred and ninety-nine)
4	1000 (Thousand)	9999 (Nine thousand nine hundred and ninety-nine)

There are numbers greater than 9999. Let us learn about them.



### Remembering and Understanding

We know that after the greatest 3-digit number comes the smallest 4-digit number:

$$999 + 1 = 1000.$$

Similarly, the smallest 5-digit number comes just after (successor of) the largest 4-digit number.

	Th	H	T	O
	1	1	1	
	9	9	9	9
+				1
	1	0	0	0

The smallest 5-digit number is 10000 and the largest 5-digit number is 99999.

We get a new place in the place value chart. It is called the **ten thousands** place. In short, we write it as **T Th**.

	T Th	Th	H	T	O
	1	1	1		
	9	9	9	9	
+					1
	1	0	0	0	0

### Important Words

Duration: 1 min

- **Today:** smallest and the largest 5-digit numbers

### Transactional Tip(s)

Duration: 7 min



### Activity Method:

- Write 3-digit and 4-digit numbers on paper strips and fold them.
- Ask:
  - each learner to choose one strip and read his/her number,
  - learners to say the number of digits in her/his number,
  - learners to identify who got largest and smallest numbers at the end of the activity.

### Class Pulse Check

Duration: 2 min



- 1) Read the following numbers.  
a) 58975 b) 12345 c) 88888 d) 98765
- 2) Which number do we add to the largest 4-digit number to get the smallest 5-digit number?

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Now, let us understand the place value chart for 5-digit numbers.

In the place value chart, as we move left from the ones place, the place value becomes 10 times more than the current place value.

Let us place the number 25436 in the place value chart.

Place	Ten thousands T Th	Thousands Th	Hundreds H	Tens T	Ones O
Value	2	5	4	3	6

2 ten thousands = 20,000; 5 thousands = 5,000; 4 hundreds = 400;

3 tens = 30; 6 ones = 6

Thus,  $25436 = 20000 + 5000 + 400 + 30 + 6$ .

We read it as **twenty-five thousand four hundred and thirty-six**.

Let us now name some 5-digit numbers.

S. No.	Ten thousands	Thousands	Hundreds	Tens	Ones
a)	3	6	3	4	6
	Thirty-six thousand three hundred and forty-six				
b)	8	1	4	2	3
	Eighty-one thousand four hundred and twenty-three				
c)	6	4	7	2	1
	Sixty-four thousand seven hundred and twenty-one				
d)	4	1	3	1	1
	Forty-one thousand three hundred and eleven				

#### Place value and face value

Let us write the place value of '4' in each of the following numbers:

Numbers	Place Value of '4'
36346	4 is in the tens place. So, its place value is forty.
81423	4 is in the hundreds place. So, its place value is four hundred.
64721	4 is in the thousands place. So, its place value is four thousand.
41311	4 is in the ten thousands place. So, its place value is forty thousand.

We can see that the value of 4 changes according to its place in a number.

**Place value:** Every digit in a number occupies a place in the place value chart. Each digit gets its value from the place it occupies. This value is called its **place value**.

#### Important Words

Duration: 1 min

- **Last class:** number name, smallest and the largest 2-digit, 3-digit and 4-digit numbers, smallest and the largest 5-digit numbers
- **Today:** Place value, face value

#### Transactional Tip(s)

Duration: 13 min



#### Activity Method:

- Draw the place value chart on the blackboard and explain the place value and face value with examples.
- Call any five learners and give an A-4 sized paper or a piece of cardboard to each one.
- Write a 1-digit number on each paper.
- Ask them to stand side by side showing their papers to the class.
- Learners from the class will read the numbers and will identify the place value and face value of each digit.
- Shuffle the five learners and repeat the activity.
- Compare the learner's name with face value as his/her name doesn't change, but place is changed.

#### Class Pulse Check

Duration: 1 min



- 1) State the place value and face value of 9 in 94720.

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**Face value:** The **face value** of a number is the number itself. It does not depend on its position in the place value chart.

The face value of 4 in each of the above numbers is 4.

### Writing numbers using periods

We can also show a 5-digit number in a place value chart by dividing it into two parts called **periods**. The two periods are:

- the ones period which has three places - H, T and O
- the thousands period which has two places - T Th and Th

Let us write 65274 and 92658 in the place value chart.

To show the periods, separate the digit using commas.

So, we separate the ones period by putting a comma before 2 and after 5.

Thus, we can write 65274 as 65,274

Similarly, we can write 92658 as 92,658.

Place the commas at the appropriate places and write the number names of the following numbers:

- 82558 – 82,558; Eighty-two thousand, five hundred and fifty-eight
- 66756 – 66,756; Sixty-six thousand, seven hundred and fifty-six

### Expanded form

Once we understand the concept of place values, we can write the expanded forms of numbers.

**A number is said to be written in its expanded form when it is expressed as a sum of the place values of its digits.**

**Note:** The place of the digit 0 is ignored.

**Example 1:** Expand the number 53842.

**Solution:** First, we find the place value of each digit.

Hence, the expanded form of 53842 is

$$5 \times 10000 + 3 \times 1000 + 8 \times 100 + 4 \times 10 + 2 \times 1$$

$$= 50000 + 3000 + 800 + 40 + 2$$

Thousands		Ones		
T Th	Th	H	T	O
6	5	2	7	4
9	2	6	5	8

T Th	Th	H	T	O
5	3	8	4	2

### Important Words

**Duration: 1 min**

- **Today:** Place value, face value, periods, expanded form

### Transactional Tip(s)

**Duration: 14 min**

#### Direct Instruction:

- Use Classklap Place Value Flash Cards, Classklap Number Stamp and Classklap Place Value Board to write the numbers using periods.
- Use TB: Pgs. 24, 25, Examples 1, 2 to explain expanded form.

### Class Pulse Check



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**Face value:** The **face value** of a number is the number itself. It does not depend on its position in the place value chart.

The face value of 4 in each of the above numbers is 4.

### Writing numbers using periods

We can also show a 5-digit number in a place value chart by dividing it into two parts called **periods**. The two periods are:

- the ones period which has three places - H, T and O
- the thousands period which has two places - T Th and Th

Let us write 65274 and 92658 in the place value chart.

To show the periods, separate the digit using commas.

So, we separate the ones period by putting a comma before 2 and after 5.

Thus, we can write 65274 as 65,274

Similarly, we can write 92658 as 92,658.

Place the commas at the appropriate places and write the number names of the following numbers:

- 82558 – 82,558; Eighty-two thousand, five hundred and fifty-eight
- 66756 – 66,756; Sixty-six thousand, seven hundred and fifty-six

Thousands		Ones		
T Th	Th	H	T	O
6	5	2	7	4
9	2	6	5	8

### Expanded form

Once we understand the concept of place values, we can write the expanded forms of numbers.

**A number is said to be written in its expanded form when it is expressed as a sum of the place values of its digits.**

**Note:** The place of the digit 0 is ignored.

**Example 1:** Expand the number 53842.

**Solution:** First, we find the place value of each digit.

Hence, the expanded form of 53842 is

$$\begin{aligned} & 5 \times 10000 + 3 \times 1000 + 8 \times 100 + 4 \times 10 + 2 \times 1 \\ & = 50000 + 3000 + 800 + 40 + 2 \end{aligned}$$

T Th	Th	H	T	O
5	3	8	4	2

Important Words

–

Duration: 1 min

Transactional Tip(s)

Practising:

- Ask learners to solve TB: Pgs. 33, 34, 'Drill Time', Q. 1-4, 6a, b, c.

Duration: 27 min



Class Pulse Check

- 1) Expand 58695.
- 2) Write using periods: 65986

Duration: 2 min



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**Example 2:** Write 60257 in its expanded form and write its number name.

**Solution:**  $60257 = 6 \times 10000 + 2 \times 100 + 5 \times 10 + 7 \times 1$   
 $= 60000 + 200 + 50 + 7$   
 $=$  Sixty thousand two hundred and fifty-seven



### Application

Let us see a few real-life examples where we can use the knowledge of 5-digit numbers.

**Example 3:** You have 10 notes of ₹ 2000, 8 notes of ₹ 100 and 15 notes of ₹ 10 in your piggy bank. How much money do you have in all?

**Solution:** 10 notes of ₹ 2000 =  $10 \times ₹ 2000 = ₹ 20,000$

8 notes of ₹ 100 =  $8 \times ₹ 100 = ₹ 800$

15 notes of ₹ 10 =  $15 \times ₹ 10 = ₹ 150$

So, ₹ 20,000 + ₹ 800 + ₹ 150 = ₹ 20,950

Therefore, I have ₹ 20,950 in all.

**Example 4:** The names of some places and their populations are given below. Use this information to answer the questions that follow.

Sunam: 88,043                      Panaji: 40,017                      Bodhwad: 91,256

Moregaon: 87,012                      Kalyani: 99,950                      Velhe: 54,497

Jamnagar: 76,201                      Vashi: 92,173                      Morwada: 85,890

a) What is the population of Velhe? Write it in words.

b) What is the population of Vashi? Write it in words.

c) Which place, Sunam or Moregaon, has more population?

**Solution:** a) The population of Velhe is 54,497. In words, it is fifty-four thousand four hundred and ninety-seven.

b) The population of Vashi is 92,173. In words, it is ninety-two thousand one hundred and seventy-three.

c) Sunam has more population than Moregaon.

We can also form numbers using the given digits. Let us see an example.

### Important Words

- **Last class:** Place value, face value, periods, expanded form
- **Today:** –

### Transactional Tip(s)

Duration: 20 min



### Direct Instruction:

- Refer TB: Pgs. 25, 26, Application, Examples 3-5 to apply the knowledge of 5-digit numbers,
  - form 5-digit numbers,
  - frame word problems.
- Ask learners to solve TB: Pg. 34, 'Drill Time', Q. 5.

### Class Pulse Check



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**Example 5:** Form a number with 8 in the ten thousands place, 6 in the thousands place and 5 in the hundreds place. The number should have 1 in the tens place and 4 in the ones place.

**Solution:** Let us write the given numbers in the place value chart according to their places.

Ten thousands	Thousands	Hundreds	Tens	Ones
8	6	5	1	4

So, the number is 86,514.



### Higher Order Thinking Skills (H.O.T.S.)

Let us see a few more examples involving 5-digit numbers.

**Example 6:** Find the difference between the face value and place value of the digits in bold, for the following numbers:

a) 5**0**572                  b) 84**3**95

**Solution:** a) 5**0**572: Face value = 5, Place value = 500, Difference = 500 – 5 = 495

b) 84**3**95: Face value = 3, Place value = 300, Difference = 300 – 3 = 297

**Example 7:** Write the number from the clues given below:

- a) The only digit in 67891 with the same place value and face value.
- b) A few 5-digit numbers which have the same digit in all the five places.

**Solution:** a) 1

b) 99,999; 11,111; 66,666; 44,444 and so on.

### Concept 3.2: Compare and Order 5-digit Numbers



### Think

Jasleen's father said that his smartphone costs ₹ 15,456 and the washing machine costs ₹ 15,567. How will Jasleen find which one costs more?



### Important Words

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### Transactional Tip(s)

Duration: 9 min



### Direct Instruction:

- Refer TB: Pg. 26, Examples 6, 7 to:
  - apply the knowledge of place value and face value,
  - Write 5-digit numbers using given clues,
  - frame word problems.

### Class Pulse Check










Duration: 1 min



- 1) Find the difference between the face value and place value of 6 in 65247.

## C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	What are the largest smallest 4 and 5-digit numbers? (Ans. 9999, 1000, 99999, 10000)	Period 1 - smallest and the largest 4-digit and 5-digit numbers	
2	Find the number one hundred more than the largest 4-digit number. (Ans. 10099)	Period 1 - smallest and the largest 4-digit and 5-digit numbers	
3	Find the sum of face value and place values of 8 in 87898. (Ans. 80832)	Period 2 - finding the place value and face value of the numbers	
4	Write 85698 and 9321 in place value chart. Also, write their number names. (Ans. Eighty-five thousand six hundred ninety-eight, nine thousand three hundred twenty - one)	Period 2 - reading and writing 5-digit numbers	
5	Expand the numbers 87965; 1234; 66666; 10000 (Ans. $80000+7000+900+60+5$ ; $1000+200+30+4$ ; $60000 + 6000 + 600 + 60 + 6$ ; $10000 + 0 + 0 + 0 + 0$ )	Period 2 - reading and writing 5-digit numbers	
6	Harish has 63215 stamps. Express the number of stamps with Harish in words. (Ans. Sixty-three thousand two hundred and fifteen)	Period 4 - reading and writing 5-digit numbers	

Post-lesson Reflection	Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>	<b>Names</b>	
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<b>Exam Revision Strategy</b>	<b>Practise</b> <input type="checkbox"/>
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	Reteach <input type="checkbox"/> Revise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>	<b>App Report</b>	<b>Signature</b> _____
	Number _____	



## A – Curriculum to Learning Objectives: Numbers

Prior Knowledge	• Comparing and ordering small numbers, place value charts, expanding numbers					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	3	Numbers	3.1	Count in Ones and Tens	3.1.c	• place value and face value of numbers
					3.1.d	• writing number names
			3.2	Compare 2-digit Numbers	3.2.c	• comparing, ordering and forming numbers
2	3	Numbers	3.1	Count by Hundreds	3.1.a	• reading and writing numerals and number names up to 999
					3.1.c	• place values, face values and expanded forms of numbers
			3.2	Ordinal Numbers	3.2.a	• ordinal and cardinal numbers
			3.3	Compare 3-digit Numbers	3.3.a	• comparing two numbers
3.3.c	• forming the greatest and the smallest numbers					
3	3	Numbers	3.1	Count by Thousands	3.1.a	• writing 4-digit numbers with place value chart
					3.1.b	• writing the standard and the expanded forms of the number
			3.2	Compare 4-digit Numbers	3.2.a	• comparing and ordering numbers
					3.2.b	• identifying and forming the greatest and the smallest number
4	3	Numbers	3.2	Compare and Order 5-digit Numbers	3.2.a	• reading and writing 5-digit numbers
					3.2.b	• comparing and ordering 5-digit numbers
					3.2.c	• finding the place value and the face value of the numbers
					3.2.d	• forming the largest and the smallest 5-digit numbers
5	3	Large Numbers	3.1	Indian and International Systems of Numeration	3.1.a	• reading and writing 6-digit, 7-digit and 8-digit numbers
					3.1.b	• Indian and international number systems
					3.1.c	• comparing and ordering numbers

## B – Vision-to-Action Plan: 3.2 Compare and Order 5-digit Numbers

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	26, 27 – THK, RCL	3.2.b	<ul style="list-style-type: none"> <li>Recall comparison of 4-digit numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Questioning</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Flash Cards</li> <li>Place Value Board</li> </ul>	–	WB: Pg. 22 (Q.1-3)	
2 DD/MM/YYYY	26-28, 34 – THK REM/UND, Drill Time	3.2.b	<ul style="list-style-type: none"> <li>Compare 5-digit numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Flash Cards</li> <li>Place Value Board</li> </ul>	TB: Pgs. 26-28 (Think, Examples 8-9) TB: Pg. 34 (Drill Time Q. 7 a, b) WB: Pgs. 22, 23 (Q. 4-12)	TB: Pg. 34 (Drill Time, Q. 7c-e) WB: Pgs. 23, 24 (Q.13-16)	
3 DD/MM/YYYY	29, 34, 35 – APP, Drill Time	3.2.c	<ul style="list-style-type: none"> <li>Arrange numbers using the place value chart.</li> <li>Form the smallest and the greatest numbers from the given set of digits.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Flash Cards</li> <li>Place Value Board</li> </ul>	TB: Pg. 29 (Example 11, 12 ) TB: Pgs. 34 and 35 (Drill Time Q8, 9a-c )	TB: Pgs. 34, 35 (Drill Time Q. 8, 9d, e) WB: Pgs. 24, 25 (Q. 17-20)	

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
4 DD/MM/YYYY	30 – HOTS	3.2.d	<ul style="list-style-type: none"> <li>Form the smallest and the greatest numbers from the given set of digits using clues.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Activity Method</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Flash Cards</li> <li>Place Value Board</li> </ul>	TB: Pg. 30 (Examples 13, 14 )	WB: Pgs. 23, 24 (Q. 21, 22)	

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**Example 5:** Form a number with 8 in the ten thousands place, 6 in the thousands place and 5 in the hundreds place. The number should have 1 in the tens place and 4 in the ones place.

**Solution:** Let us write the given numbers in the place value chart according to their places.

Ten thousands	Thousands	Hundreds	Tens	Ones
8	6	5	1	4

So, the number is 86,514.



### Higher Order Thinking Skills (H.O.T.S.)

Let us see a few more examples involving 5-digit numbers.

**Example 6:** Find the difference between the face value and place value of the digits in bold, for the following numbers:

a) 5**0**572                  b) 84**3**95

**Solution:** a) 5**0**572: Face value = 5, Place value = 500, Difference = 500 - 5 = 495

b) 84**3**95: Face value = 3, Place value = 300, Difference = 300 - 3 = 297

**Example 7:** Write the number from the clues given below:

- a) The only digit in 67891 with the same place value and face value.
- b) A few 5-digit numbers which have the same digit in all the five places.

**Solution:** a) 1

b) 99,999; 11,111; 66,666; 44,444 and so on.

### Concept 3.2: Compare and Order 5-digit Numbers



### Think

Jasleen's father said that his smartphone costs ₹ 15,456 and the washing machine costs ₹ 15,567. How will Jasleen find which one costs more?



### Important Words

-

### Transactional Tip(s)

Duration: 2 min



### Direct Instruction:

- Read 'Think' section and explain the idea.

### Class Pulse Check



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### Recall

Given any two numbers, we can compare them to find out the greater or the smaller of the two.

The knowledge of place value of numbers helps us to compare them.

Let us revise these points.

- 1) The number with fewer digits is always the smaller one.  
Consider the numbers 6789 and 678. 678 is smaller than 6789 as it has fewer digits.
- 2) To compare two numbers with the same number of digits, we start comparing the digits from the largest place.

To compare 4566 and 4673, we compare the digits in the largest place. In these numbers, the largest place is the thousands place. But the digit in this place is the same in both the numbers, that is 4.

So, compare the digits in the hundreds place.

5 hundred is smaller than 6 hundred.

Hence,  $4566 < 4673$ .



### Remembering and Understanding

While comparing two numbers, we should consider that,

- 1) lesser number of digits means it is the smaller number.
- 2) start comparing the numbers from the highest place value.

Let us understand the comparison of 5-digit numbers by solving a few examples.

**Example 8:** Compare 16,626 and 24,846.

**Solution:** To compare two 5-digit numbers, follow these steps.

**Step 1:** Arrange the given numbers in the place value chart as shown here.

TTh	Th	H	T	O
1	6	6	2	6
2	4	8	4	6

### Important Words

Duration: 1 min

- **Today:** Compare, Greater than, smaller than

### Transactional Tip(s)

Duration: 25 min



#### Direct Instruction:

- Recall the use of  $>$ ,  $<$  and  $=$  symbols.
- Use Classklap Place Value Flash Cards and Classklap Place Value Board to explain the procedure of comparing 4-digit numbers.
- Revise the two points in TB: Pg. 27.

#### Questioning:

- Give more examples.

### Class Pulse Check

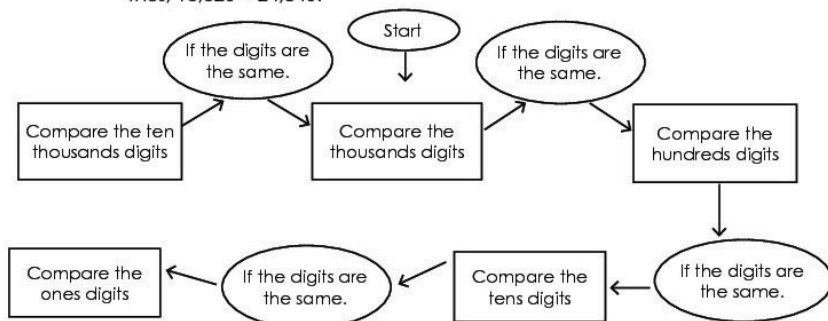
Duration: 2 min



- 1) Do we need to know the face values of digits to compare?
- 2) How do place values of numbers help us to compare the numbers?

**Step 2:** Compare the digits in the ten thousands place. 1 ten thousand is less than 2 ten thousands.

Thus,  $16,626 < 24,846$ .



**Example 9:** Find the greater of the numbers 57163 and 52196 by comparing them.

**Solution:** As the digits in the ten thousands place of the given numbers are the same, compare the digits in the thousands place.

Here, 7 thousands > 2 thousands. Thus,  $57163 > 52196$ .

**Example 10:** Find the smaller of the numbers 81742 and 81859 by comparing them.

**Solution:** The digits in the ten thousands place and thousands place of the given numbers are the same. So, compare the digits in their hundreds place.

Here, 7 hundreds < 8 hundreds. Thus,  $81742 < 81859$ .



### Application

We can apply the place value concept to:

- 1) compare and arrange numbers in the ascending and descending orders.
- 2) form the greatest and the smallest numbers from a given set of digits.

### Ascending and descending orders

We know that to arrange numbers in the ascending and descending orders, we need to compare them.

### Important Words

Duration: 1 min

- **Last class:** Compare, Greater than, smaller than
- **Today:** Compare, Greater than, smaller than, highest place value

### Transactional Tip(s)

Duration: 27 min



### Direct Instruction:

- Use the two points given in 'Remembering and Understanding' to explain the comparison of two 5-digit numbers.
- Use TB: Pgs. 27, 28, Example 8 to explain the steps involved in comparing two 5-digit numbers.
- Use Classklap Place Value Flash Cards and Classklap Place Value Board.
- Recall 'Think' section and ask learners to solve it.
- Ask learners to:
  - solve TB: Pg. 28, Examples 9, 10,
  - solve TB: Pg. 34, 'Drill Time', Q. 7a, b,
  - solve WB: Pgs. 18, 19, Q. 4-12.

### Class Pulse Check

Duration: 2 min



- 1) From which place must we begin comparing two 5-digit numbers?
- 2) Insert the correct symbol
  - a) 56832    56842                      b) 56213    56123

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### Ascending order

Numbers arranged from the smallest to the greatest are said to be in **increasing order** or **ascending order**. For example, 4, 10, 500 and 1478 are arranged in ascending order.

### Descending order

Numbers arranged from the greatest to the smallest are said to be in **decreasing order** or **descending order**. For example, 1478, 500, 10 and 4 are arranged in descending order.

**Example 11:** Arrange the following numbers in ascending and descending orders.

32156, 22940, 85218, 87216

**Solution:** Write the numbers in a place value chart as shown:

In the ten thousands place,  $2 < 3 < 8$ .

So,  $22940 < 32156 < 85218 < 87216$

In the thousands place,  $2 < 5 < 7$ .

Comparing thousands place of 85218 and 87216,  $5 < 7$

So, the ascending order is 22940, 32156, 85218, 87216.

Descending order is the reverse of ascending order.

So, descending order is 87216, 85218, 32156, 22940.

T	Th	Th	H	T	O
3	2	1	5	6	
2	2	9	4	0	
8	5	2	1	8	
8	7	2	1	6	

### Forming numbers

We can form the smallest or the largest number from a given set of digits, without repeating any of them. We apply the concept of ascending and descending orders for the same.

- To form the largest number, we write the digits in the descending order, without a comma between them.
- To form the smallest number, we write the digits in the ascending order without a comma between them. We can not begin a number with 0.

**Example 12:** Form the smallest and the largest numbers using each of the digits 6, 5, 4, 1 and 7 just once.

**Solution:** To form the largest number, arrange the given digits in the descending order.

7, 6, 5, 4, 1

The required largest number is 76541.

To form the smallest number, arrange the given digits in the ascending order.

1, 4, 5, 6, 7

The required smallest number is 14567.

### Important Words

Duration: 1 min

- **Last class:** Compare, Greater than, smaller than, highest place value
- **Today:** ascending and descending orders, forming number

### Transactional Tip(s)

Duration: 27 min



#### Direct Instruction:

- Use TB: Pg. 29, Example 11 to explain why comparison is necessary to arrange the given numbers in ascending or descending orders.
- Use TB: Pg. 29, Example 12 to explain how to form the smallest and the greatest numbers.
- Use Classklap Place Value Flash Cards and Classklap Place Value Board.
- Ask learners to solve TB: Pgs. 34, 35, 'Drill Time', Q 8, 9a, b, c.

### Class Pulse Check

Duration: 2 min



- 1) Form the smallest 5-digit number using the following digits only once: 6, 1, 3, 4, 5
- 2) Can a 5-digit number have '0' in the ten thousands place?

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### Higher Order Thinking Skills (H.O.T.S.)

Let us now see some more examples that involve forming numbers from the given digits.

**Example 13:** I am a 5-digit number. If my digits are reversed, I become a 4-digit number. What is the digit in my ones place?

**Solution:** The digit in the ones place of the number should be 0. This is because, a number cannot begin with a zero, and so we get a 4-digit number.

**Example 14:** Find the difference between the greatest and the smallest 5-digit numbers formed using the digits 0, 7, 0, 8 and 9.

**Solution:** To form 5-digit numbers only 7, 8 or 9 can be placed in the ten thousands place.

The largest 5-digit number that can be formed = 98700

The smallest 5-digit number = 70089

Their difference =  $98700 - 70089$   
= 28611

### Concept 3.3: Round off Numbers



#### Think

There is a birthday party at Jasleen's house. 48 children were invited. Her mother ordered 50 bars of chocolate. Why did Jasleen's mother order 50 bars of chocolates?



#### Recall

Let us revise comparing 1-digit, 2-digit and 3-digit numbers.

Fill in the blanks using  $>$  or  $<$ .

a)  $4 \underline{\quad} 9$     b)  $42 \underline{\quad} 52$     c)  $195 \underline{\quad} 105$     d)  $23 \underline{\quad} 12$     e)  $100 \underline{\quad} 200$

### Important Words

Duration: 1 min

- **Last class:** ascending and descending orders, forming number
- **Today:** forming number

### Transactional Tip(s)

Duration: 27 min



#### Activity Method:

- Divide the class into small groups and ask learners to take ten paper strips.
- Ask learners to write digits from 0 to 9 (one digit on one strip) and fold them.
- Each learner will choose any five strips and form the smallest and the greatest numbers.
- Repeat the activity till each learner in the group get a chance.

#### Direct Instruction:

- Use TB: Pg. 30, Example 13, 14 to explain the method to form numbers from the given digits.
- Use Classklap Place Value Flash Cards and Classklap Place Value Board.

### Class Pulse Check

Duration: 2 min












- 1) Find the difference between the smallest and the greatest numbers among 51228, 51245, 51205 and 52101.



## C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	Find the greater of the numbers 85469 and 85649 by comparing them. (Ans. 85649)	Period 2 - comparing and ordering 5-digit numbers	
2	Find the number in 4th place when you write 76523, 76982, 76563, 76932, 76564, 76535. (Ans. 76563)	Period 3 - comparing and ordering 5-digit numbers	
3	Add the face value of 7 in 87987 to the place value of 9 in 58693. (Ans. 97)	Period 3 - finding the place value and the face value of the numbers	
4	Which is greater: sum of the place values of 4 in 24347 or the sum of the place values of 7 in 24177? (Ans. sum of the place values of 4 in 24347 )	Period 2, 3, 4 - finding the place value and the face value of the numbers	
5	Form the greatest number using the digits in ones places of the numbers 45689, 56832, 25478, 98651, 47867. (Ans. 98721)	Periods 2, 3, 4 - forming the largest and the smallest 5-digit numbers	
6	Form a the smallest number using the face values of 6,3,2,9, 5 in 694523. (Ans. 23569)	Periods 2, 3, 4 - forming the largest and the smallest 5-digit numbers	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Names	
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Exam Revision Strategy	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Reteach <input type="checkbox"/>	Revise <input type="checkbox"/>
		Practise <input type="checkbox"/>	
		App Report Number _____	Signature _____

## A – Curriculum to Learning Objectives: Numbers

A – Curriculum to Learning Objectives: Numbers								
Prior Knowledge	• Half, numbers, comparison of numbers							
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives		
1	3	Numbers	3.1	Count in Ones and Tens	3.1.a	• the concept of zero		
					3.1.b	• the sequence of numbers up to 99		
					3.1.c	• place value and face value of numbers		
					3.1.d	• writing number names		
			3.2	Compare 2-digit Numbers	3.2.a	• comparing, ordering and forming numbers		
2	3	Numbers	3.1	Count by Hundreds	3.1.a	• reading and writing numerals and number names up to 999		
					3.1.b	• place values, face values and expanded forms of numbers		
					3.1.c	• ordinal and cardinal numbers		
					3.2	Compare 3-digit Numbers	3.2.a	• comparing two numbers
			3.3	Ordinal Numbers	3.3.c	• forming the greatest and the smallest 3-digit numbers		
3	3	Numbers	3.1	Count by Thousands	3.1.a	• writing 4-digit numbers with place value chart		
					3.1.b	• writing the standard and the expanded forms of the number		
					3.2	Compare 4-digit Numbers	3.2.a	• comparing and ordering numbers
					3.2.b	• identifying and forming the greatest and the smallest number		
4	3	Numbers	3.1	Count by Ten Thousands	3.1.a	• the smallest and the largest 4-digit and 5-digit numbers		
			3.2	Compare and Order 5-digit Numbers	3.2.b	• comparing and ordering 5-digit numbers		
			3.3	Round off Numbers	3.3.a	• rounding off numbers to the nearest 10, 100 and 1000		
5	3	Large Numbers	3.1	Indian and International Systems of Numeration	3.1.c	• comparing and ordering numbers		

## B – Vision-to-Action Plan: 3.3 Round off Numbers

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	30-32,35 THK, RCL, REM/UND, Drill Time	3.3.a	<ul style="list-style-type: none"> <li>Recollect comparing 1-digit, 2-digit and 3-digit numbers.</li> <li>Rounding off numbers to the nearest 10s, 100s and 1000s.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Flash Cards</li> <li>Place Value Board</li> </ul>	TB: Pgs. 31, 32, (Examples 15-17 TB: Pg. 35 (Drill Time Q. 10)	WB: Pgs. 26, 27, 28 (Q.1-16)	
2 DD/MM/YYYY	32, 35 – APP, Drill Time	3.3.a	<ul style="list-style-type: none"> <li>Solve word problems based on rounding off a number.</li> <li>Analyse rounding off of numbers to the nearest tens, hundreds and thousands.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Flash Cards</li> <li>Place Value Board</li> </ul>	TB: Pg. 32, (Examples 18, 20) TB: Pg. 35 (Drill Time Q. 11) WB: Pgs. 28-29 (Q. 17-18 )	WB: Pgs. 28-30 (Q. 19, 20)	
3 DD/MM/YYYY	33 – HOTS	3.3.a	<ul style="list-style-type: none"> <li>Solve sums based on rounding off a number.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Summarising</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Flash Cards</li> <li>Place Value Board</li> </ul>	TB: Pg. 33, (Examples 21, 22) WB: Pg. 30 (Q. 21 )	WB: Pg. 30 (Q 22)	

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### Higher Order Thinking Skills (H.O.T.S.)

Let us now see some more examples that involve forming numbers from the given digits.

**Example 13:** I am a 5-digit number. If my digits are reversed, I become a 4-digit number. What is the digit in my ones place?

**Solution:** The digit in the ones place of the number should be 0. This is because, a number cannot begin with a zero, and so we get a 4-digit number.

**Example 14:** Find the difference between the greatest and the smallest 5-digit numbers formed using the digits 0, 7, 0, 8 and 9.

**Solution:** To form 5-digit numbers only 7, 8 or 9 can be placed in the ten thousands place.

The largest 5-digit number that can be formed = 98700

The smallest 5-digit number = 70089

Their difference =  $98700 - 70089$   
= 28611

### Concept 3.3: Round off Numbers



#### Think

There is a birthday party at Jasleen's house. 48 children were invited. Her mother ordered 50 bars of chocolate. Why did Jasleen's mother order 50 bars of chocolates?



#### Recall

Let us revise comparing 1-digit, 2-digit and 3-digit numbers.

Fill in the blanks using > or < .

a)  $4 \underline{\quad} 9$     b)  $42 \underline{\quad} 52$     c)  $195 \underline{\quad} 105$     d)  $23 \underline{\quad} 12$     e)  $100 \underline{\quad} 200$

### Important Words

-

### Transactional Tip(s)

Duration: 5 min



#### Direct Instruction:

- Read 'Think' section.
- Ask learners to solve TB: Pg. 30 'Recall', a-e.
- Use Classklap Place Value Flash Cards and Classklap Place Value Board to compare numbers.

### Class Pulse Check

1) -



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### Remembering and Understanding

Many times, we do not need to know the exact number. Just to get an idea of the required number, we round off a given number ending it with a zero. For example, if we have ₹ 993, we say that we have about ₹ 1000. This rounding off may be to the nearest tens, hundreds, thousands, ten thousands and so on.

#### Rounding off a number to the nearest 10

- If the digit in the ones place is 0, 1, 2, 3 or 4 (less than 5), we replace the digit in the ones place with 0.
- If the digit in the ones place is 5, 6, 7, 8 or 9 (more than or equal to 5), we replace the digit in the ones place with 0. We then add 1 to the digit in the tens place.



**Example 15:** Round off 16768 to the nearest 10.

**Solution:** In 16768, the digit in the ones place is 8, which is greater than 5. So, we round off 16768 to 16770.

#### Rounding off a number to the nearest 100

- If the digit in the tens place is 0, 1, 2, 3 or 4, we replace the digits in the tens and the ones places with zeros (0).
- If the digit in the tens place is 5 or more, we replace the digits in the ones and the tens places with 0. We then increase the digit in the hundreds place by 1.

**Example 16:** Round off the following numbers to the nearest 100.

- a) 1745                  b) 21750

**Solution:** a) In 1745, the digit in the tens place is 4 which is less than 5; so, it is rounded off to 1700.

b) In 21750, the digit in the tens place is 5. So, it is rounded off to 21800.

### Important Words

Duration: 1 min

- **Today:** round off

### Transactional Tip(s)

Duration: 22 min



#### Direct Instruction:

- Use:
  - TB: Pg. 31, Example 15 to explain the steps to be followed to round off numbers to the nearest 10.
  - TB: Pg. 31, Example 16 to explain the steps to be followed to round off numbers to the nearest 100.
  - TB: Pg. 32, Example 17 to explain the steps to be followed to round off numbers to the nearest 1000.
  - Use Classklap Place Value Flash Cards and Classklap Place Value Board to explain place value when rounding off numbers.
  - Ask learners to solve TB: Pg. 35, 'Drill Time', Q. 10.

### Class Pulse Check

Duration: 2 min



- 1) Round off 45 to the nearest tens.
- 2) Round off 625 to the nearest hundreds.

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### Rounding off a number to the nearest 1000

- If the digit in the hundreds place is 0, 1, 2, 3 or 4; we replace the digits in the hundreds, tens and ones places with zeros.
- If the digit in the hundreds place is 5, 6, 7, 8 or 9; we replace the digits in the hundreds, tens and ones places with zeros. We then increase the digit in the thousands place by 1.

**Example 17:** Round off the following numbers to the nearest 1000.

- a) 24190                  b) 54729

**Solution:** The digits in the hundreds place are:

- a)  $1 < 5$ . Therefore, 24190 is rounded off to 24000.  
b)  $7 > 5$ . Therefore, 54729 is rounded off to 55000.



### Application

Let us look at a few real-life examples where we use the knowledge of rounding off numbers.

**Example 18:** 27 people were expected to attend a meeting. How many chairs rounded to the nearest 10 should be rented?

**Solution:** In 27, the digit in the ones place is more than 5. So, 27 is rounded off to 30.  
Hence, 30 chairs should be rented.

**Example 19:** There are 858 athletes running in a marathon. Each one of them has to be given a bottle of water. How many bottles of water rounded to the nearest 100 should be brought?

**Solution:** In 858, the digit in the tens place is 5. So, 858 is rounded off to 900.  
Hence, 900 bottles of water should be brought.

**Example 20:** 7965 students of a school are to be given 1 flag each to hold. How many flags rounded to the nearest 1000 should be brought?

**Solution:** In 7965, the digit in the hundreds place is greater than 5. So, 7965 is rounded off to 8000.  
Hence, 8000 flags should be brought.

### Important Words

- **Last class:** round off
- **Today:** –

### Transactional Tip(s)

Duration: 27 min



### Direct Instruction:

- Refer to TB: Pg. 32, Examples 18-20 to explain the use of rounding off numbers.
- Use Classklap Place Value Flash Cards and Classklap Place Value Board to show rounding to a specific place.
- Ask learners to solve TB: Pg. 35, 'Drill Time', Q. 11 ; WB: Pgs. 28, 29, Q. 17, 18.

### Class Pulse Check

Duration: 2 min



- 1) Round off 890 to the nearest 1000.
- 2) Round off 555 to the nearest 1000.

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### Higher Order Thinking Skills (H.O.T.S.)

Let us solve a few more problems that involve rounding off numbers.

**Example 21:** Round off 67589 to the nearest tens, hundreds, thousands and ten thousands.

**Solution:** 67589 rounded to the nearest 10 is 67590.

67589 rounded to the nearest 100 is 67600.

67589 rounded to the nearest 1000 is 68000.

67589 rounded to the nearest 10000 is 70000.

**Example 22:** Consider the digits 5, 2, 9 and 6. Form the smallest and the largest 4-digit numbers using the given digits only once. Round off both the numbers to the nearest 1000.

**Solution:** The smallest number that can be formed using the given digits only once is 2569.

The largest number that can be formed using the given digits only once is 9652.

2569 rounded off to the nearest 1000 is 3000.

9652 rounded off to the nearest 1000 is 10000.



### Drill Time

#### Concept 3.1: Count by Ten Thousands

1) Write the numbers in the place value chart.

a) 87130      b) 49130      c) 84019      d) 59104      e) 18938

2) Write the place value and face value of the following numbers.

a) 4 in the 41351      b) 8 in 49189      c) 6 in 76193      d) 3 in 12413      e) 0 in 40139

3) Write the following numbers using periods.

a) 85925      b) 52048      c) 10450      d) 98204      e) 75920

4) Form numbers using the following:

a) 8 in the ten thousands place, 4 in the thousands place, 1 in the hundreds place, 0 in the tens place and 7 in the ones place

### Important Words

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### Transactional Tip(s)

Duration: 29 min



#### Direct Instruction:

- Refer to TB: Pg. 33, Examples 21, 22 to explain the use of rounding off numbers.
- Use Classklap Place Value Flash Cards and Classklap Place Value Board to help show rounding to a specific place.
- Ask learners to solve WB: Pg. 30, Q. 21.

#### Summarising:

- Have a discussion in the classroom about:
  - rounding off numbers to the nearest tens, hundreds, thousands and ten thousands,
  - the difference among them,
  - the practical applications of rounding off a number.

### Class Pulse Check

Duration: 1 min



- 1) Can we round off a number to the nearest 1000 if it has only 3 digits?

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- b) 4 in the ten thousands place, 1 in the thousands place, 0 in the hundreds place, 3 in the tens place and 8 in the ones place
- c) 7 in the ten thousands place, 9 in the thousands place, 6 in the hundreds place, 5 in the tens place and 3 in the ones place
- d) 6 in the ten thousands place, 4 in the thousands place, 5 in the hundreds place, 6 in the tens place and 2 in the ones place
- e) 1 in the ten thousands place, 5 in the thousands place, 7 in the hundreds place, 9 in the tens place and 6 in the ones place

**5) Word problem**

Savings of Rohan and some of his friends are given below.

Use this information to answer the questions that follow.

Rohan: ₹ 98,023	Pooja: ₹ 79,950	Soham: ₹ 29,865
Mona: ₹ 17,012	Kalyani: ₹ 40,000	Varun: ₹ 84,497
Farah: ₹ 52,201	Varsha: ₹ 32,453	Meera: ₹ 65,090

- a) What is the saving of Mona? Write it in words.
- b) Who has the highest and lowest savings? Write it in words.
- c) Between Rohan and Varun, who has more savings?

**6) Write the numbers in their expanded forms.**

- a) 41049                      b) 58104                      c) 95640
- d) 65930                      e) 10482

**Concept 3.2: Compare and Order 5-digit Numbers**

**7) Compare the numbers.**

- a) 85704, 45910              b) 5814, 41049              c) 75031, 51840
- d) 15813, 62104              e) 39520, 39520

**8) Form the largest and the smallest numbers.**

- a) 5, 2, 6, 1, 0              b) 9, 6, 1, 5, 3              c) 7, 4, 1, 8, 5
- d) 1, 5, 2, 3, 8              e) 6, 9, 1, 5, 0

**Important Words**

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**Transactional Tip(s)**



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**Class Pulse Check**



1) -



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9) Arrange the numbers in the ascending and descending orders.

- a) 51058, 58104, 58105 and 58041
- b) 98765, 87659, 76598 and 65987
- c) 77654, 77653, 77651 and 77652
- d) 65807, 26806, 96905 and 14068
- e) 58104, 67104, 71048 and 40328

Concept 3.3: Round off Numbers

10) Round off the numbers to the nearest tens, hundreds, thousands and ten thousands.

- a) 75917      b) 57141      c) 87610      d) 36104      e) 17501

11) Word problem

Rajat went to an electronic shop with his father. They have ₹ 45000 with them. The cost of a television is ₹ 54000. Do they have enough money to buy the television? If not, how much more money is needed to buy the television?

Important Words

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Transactional Tip(s)



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Class Pulse Check



1) -

## C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	Round off the numbers 1889, 1936, 1857, 1949 to the nearest 100. (Ans. 1900, 1900, 1900, 1900)	Period 1 - rounding off numbers to the nearest 10, 100 and 1000	
2	Write any two possible numbers which can be rounded off to the nearest thousand to get 18000. (Ans. 17989; 180159)	Period 1 - rounding off numbers to the nearest 10, 100 and 1000	
3	Aditya wants invite 564 friends and relatives for a function. Estimate the minimum number of invitation cards that he should order. (Ans. 600)	Period 2 - rounding off numbers to the nearest 10, 100 and 1000	
4	find the greatest number formed using the digits 7, 5 and 9 and round it off to the nearest hundred. (Ans. 1000)	Period 2 - rounding off numbers to the nearest 10, 100 and 1000	
5	Round off the number 23555 to the nearest 10, 100 and 1000. (Ans. 23560; 23600; 24000)	Period 3 - rounding off numbers to the nearest 10, 100 and 1000	
6	Rounding off a number to the nearest 100, If the digit in the tens place is 5 or more, we replace the digits in the ones and the tens places with 0. We then increase the digit in the hundreds place by 10. Is it true? (Ans. no)	Period 3 - rounding off numbers to the nearest 10, 100 and 1000	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>			
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		App Report    Number _____	Signature _____

# Teacher Reference: Textbook

## Chapter 3: Numbers

### Concept 3.1: Count by Ten Thousands

#### Drill Time

- 1) Write the numbers in the place value chart.

Number	T	Th	Th	H	T	O
a) 87130	8		7	1	3	0
b) 49130	4		9	1	3	0
c) 84019	8		4	0	1	9
d) 59104	5		9	1	0	4
e) 18938	1		8	9	3	8

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- 2) Write the place value and face value of the following numbers.

Number	Place value	Face value
a) 4 in the 41351	40000	4
b) 8 in 49189	80	8
c) 6 in 76193	6000	6
d) 3 in 12413	3	3
e) 0 in 40139	0	0

- 3) Write the following numbers using periods.

- a)  $85925 = 85,925$       b)  $52048 = 52,048$       c)  $10450 = 10,450$   
d)  $98204 = 98,204$       e)  $75920 = 75,920$

- 4) Form numbers using the following:

- a) 8 in the ten thousands place, 4 in the thousands place, 1 in the hundreds place, 0 in the tens place and 7 in the ones place = **84107**  
b) 4 in the ten thousands place, 1 in the thousands place, 0 in the hundreds place, 3 in the tens place and 8 in the ones place = **41038**  
c) 7 in the ten thousands place, 9 in the thousands place, 6 in the hundreds place, 5 in the tens place and 3 in the ones place = **79653**

# Teacher Reference: Textbook

- d) 6 in the ten thousands place, 4 in the thousands place, 5 in the hundreds place, 6 in the tens place and 2 in the ones place = **64562**
- e) 1 in the ten thousands place, 5 in the thousands place, 7 in the hundreds place, 9 in the tens place and 6 in the ones place = **15796**

## 5) Word problem

Savings of Rohan and some of his friends are given below.

Use this information to answer the questions that follow.

Rohan: ₹ 98,023	Pooja: ₹ 79,950	Soham: ₹ 29,865
Mona: ₹ 17,012	Kalyani: ₹ 40,000	Varun: ₹ 84,497
Farah: ₹ 52,201	Varsha: ₹ 32,453	Meera: ₹ 65,090

- a) What is the saving of Mona? Write it in words.
- b) Who has the highest and lowest savings? Write it in words.
- c) Between Rohan and Varun, who has more savings?

**Solution:** a) ₹ 17,012 – seventeen thousand and twelve rupees

- b) Rohan has the highest saving with ninety-eight thousand and twenty-three rupees. Mona has the lowest saving with seventeen thousand and twelve rupees.
- c) Rohan

6) Write the numbers in their expanded forms.

- a)  $41049 = 40000 + 1000 + 0 + 40 + 9$       b)  $58104 = 50000 + 8000 + 100 + 0 + 4$
- c)  $95640 = 90000 + 5000 + 600 + 40 + 0$       d)  $65930 = 60000 + 5000 + 900 + 30 + 0$
- e)  $10482 = 10000 + 0 + 400 + 80 + 2$

# Teacher Reference: Textbook

## Chapter 3: Numbers

### Concept 3.2: Compare and Order 5-digit Numbers

- 7) Compare the numbers.
- a)  $85704 > \underline{\hspace{1cm}} 45910$       b)  $5814 < \underline{\hspace{1cm}} 41049$       c)  $75031 > \underline{\hspace{1cm}} 51840$
- d)  $15813 < \underline{\hspace{1cm}} 62104$       e)  $39520 = \underline{\hspace{1cm}} 39520$
- 8) Form the largest and the smallest numbers.

	Number	Largest Number	Smallest Number
a)	5, 2, 6, 1, 0	65210	10256
b)	9, 6, 1, 5, 3	96531	13569
c)	7, 4, 1, 8, 5	87541	14578
d)	1, 5, 2, 3, 8	85321	12358
e)	6, 9, 1, 5, 0	96510	10569

- 9) Arrange the numbers in the ascending and descending orders.

	Numbers	Ascending Order	Descending Order
a)	51058, 58104, 58105 and 58041	51058, 58041, 58105, 58104	58104, 58105, 58041, 51058
b)	98765, 87659, 76598 and 65987	65987, 76598, 87659, 98765	98765, 87659, 76598, 65987
c)	77654, 77653, 77651 and 77652	77651, 77652, 77653, 77654	77654, 77653, 77652, 77651
d)	65807, 26806, 96905 and 14068	14068, 26806, 65807, 96905	96905, 65807, 26806, 14068
e)	58104, 67104, 71048 and 40328	40328, 58104, 67104, 71048	71048, 67104, 58104, 40328

# Teacher Reference: Textbook

## Chapter 3: Numbers

### Concept 3.3: Round off Numbers

#### Drill Time

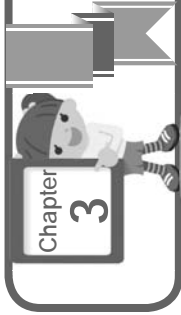
- 10) Round off the numbers to the nearest tens, hundreds, thousands and ten thousands.

	Number	Nearest 10	Nearest 100	Nearest 1000	Nearest 10000
a)	75917	75920	75900	76000	80000
b)	57141	57140	57100	57000	60000
c)	87610	87610	87600	88000	90000
d)	36104	36100	36100	36000	40000
e)	17501	17500	17500	18000	20000

- 11) Word problem

Rajat went to an electronic shop with his father. They have ₹ 45000 with them. The cost of a television is ₹ 54000. Do they have enough money to buy the television? If not, how much more money is needed to buy the television?

**Solution:** No, they do not have enough money to buy the television. They need ₹ 9000 more to buy the television.



# Numbers

## Concept 3.1: Count by Ten Thousands



### Recall

#### Multiple Choice Questions

- 1) The number name of 4000 is \_\_\_\_\_. [ **A** ]  
(A) four thousand (B) four hundred (C) forty (D) four
- 2) The smallest 4-digit number is \_\_\_\_\_. [ **B** ]  
(A) 10000 (B) 1000 (C) 100000 (D) 99999
- 3) The number name of 2450 is \_\_\_\_\_. [ **C** ]  
(A) two hundred and fifty (B) two thousand four hundred  
(C) two thousand four hundred and fifty (D) two thousand and fifty

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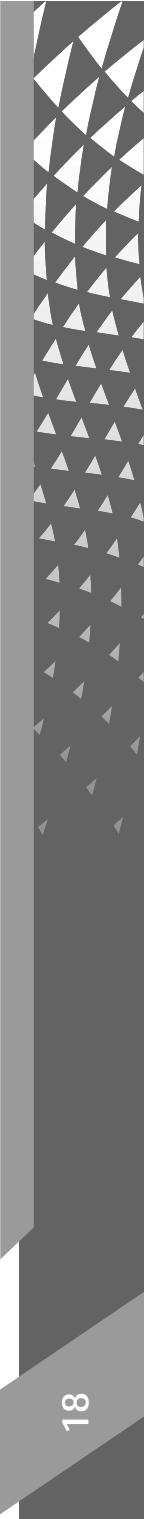
### Remembering and Understanding

#### Multiple Choice Questions

- 4) The place value of 3 in 36456 is \_\_\_\_\_. [ **B** ]  
(A) 3000 (B) 30000 (C) 300 (D) 30
- 5) The face value of 4 in the number 65470 is \_\_\_\_\_. [ **C** ]  
(A) 400 (B) 40 (C) 4 (D) 4000
- 6) The smallest 5-digit number comes just after the largest \_\_\_\_\_ number. [ **D** ]  
(A) 3-digit (B) 2-digit (C) 5-digit (D) 4-digit

#### Fill in the Blanks

- 7) The number name of 72145 is \_\_\_\_\_ **seventy-two thousand one hundred and forty-five** \_\_\_\_\_.



- 8) The number for nineteen thousand two hundred and thirty-eight is 19238
- 9) Eighty-two thousand one hundred and sixty is the number name of 82160.

### Very Short Answer Questions

- 10) What is the number name of 31829?

**Solution:** Thirty-one thousand eight hundred and twenty-nine.

- 11) What is the face value of the thousands place in 71053?

**Solution:** 1

- 12) Which is the largest 5-digit number?

**Solution:** 99999

### Short Answer Questions

- 13) Add  $10000 + 5$  and write the number name of the sum.

**Solution:**  $10000 + 5 = 10005$

The number name of 10005 is ten thousand and five.

- 14) Expand the number 42819.

	T	Th	H	T	O
<b>Solution:</b>	4	2	8	1	9

Hence, the expanded form of 42819 is

$$4 \times 10000 + 2 \times 1000 + 8 \times 100 + 1 \times 10 + 9 \times 1 = 40000 + 2000 + 800 + 10 + 9$$

### Long Answer Questions

- 15) Find the place value and face value of 1 in the numbers given below.

- a) 14235      b) 32124      c) 94152      d) 75912

	Number	Place value of 1	Face value of 1
<b>Solution:</b>	a) 14235	10000	1
	b) 32124	100	1
	c) 94152	100	1
	d) 75912	10	1



16) Write the expanded forms and number names of the numbers given below.

a) 56789

b) 93467

**Solution:** a) 56789

$$= 5 \times 10000 + 6 \times 1000 + 7 \times 100 + 8 \times 10 + 9 \times 1$$

$$= 50000 + 6000 + 700 + 80 + 9$$

Number name: Fifty-six thousand seven hundred and eighty-nine

b) 93467

$$= 9 \times 10000 + 3 \times 1000 + 4 \times 100 + 6 \times 10 + 7 \times 1$$

$$= 90000 + 3000 + 400 + 60 + 7$$

Number name: Ninety-three thousand four hundred and sixty-seven



### Application

#### Short Answer Questions

17) The number of flowers in Shop A and Shop B is given below.

a) Shop A: 52163

b) Shop B: 74199

Separate the periods in the numbers and write their number names.

**Solution:** a) Shop A: 52,163: Fifty-two thousand one hundred and sixty-three

b) Shop B: 74,199: Seventy-four thousand one hundred and ninety-nine

18) Form a number which has:

a) 3 in the tens place, 5 in the ones place, 1 in the hundreds place, 8 in the thousands place and 8 in the ten thousands place.

b) 7 in the thousand place, 4 in the tens place, 6 in the ones place, 5 in the hundreds place and 9 in the ten thousands place.

**Solution:** a) 88135

b) 97546

## Long Answer Questions

- 19) Write the given numbers with the digits in the correct places of the place value chart.  
 a) 56412      b) 24910      c) 38761      d) 11458

**Solution:**

	T	Th	H	T	O
a)	5	6	4	1	2
b)	2	4	9	1	0
c)	3	8	7	6	1
d)	1	1	4	5	8

- 20) Calculate the total amount of money if you have:

- a) 20 notes of ₹ 100, 3 notes of ₹ 2000 and 5 notes of ₹ 10.  
 b) 5 notes of ₹ 100, 1 note of ₹ 2000, 1 note of ₹ 50 and 3 notes of ₹ 10.

**Solution:** a) 20 notes of ₹ 100 =  $20 \times ₹ 100 = ₹ 2000$

3 notes of ₹ 2000 =  $3 \times ₹ 2000 = ₹ 6000$  and 5 notes of ₹ 10 =  $5 \times ₹ 10 = ₹ 50$

So, ₹ 2000 + ₹ 6000 + ₹ 50 = ₹ 8050

b) 5 notes of ₹ 100 =  $5 \times ₹ 100 = ₹ 500$ ; 1 note of ₹ 2000 =  $1 \times ₹ 2000 = ₹ 2000$ ;

1 note of ₹ 50 =  $1 \times ₹ 50 = ₹ 50$  and 3 notes of ₹ 10 =  $3 \times ₹ 10 = ₹ 30$

So, ₹ 500 + ₹ 2000 + ₹ 50 + ₹ 30 = ₹ 2580



## Higher Order Thinking Skills (H.O.T.S.)

### Short Answer Question

- 21) Write the face values and the place values of the two digits underlined in the number 54726. Find the difference and the sum of the place values.

**Solution:** Face value of 5 = 5; Face value of 7 = 7.

Place value of 5 = 50,000; Place value of 7 = 700

Sum of the place values = 50,000 + 700 = 50700

Difference of the place values = 50,000 - 700 = 49300



6) Compare and choose the correct symbol in 68392 \_\_\_ 44276 [ B ]

(A) < (B) > (C) = (D) None of these

### Fill in the Blanks

Compare the given numbers using <, > or =.

7) 33640 > 23992

8) 18475 < 45025

9) 20106 = 20106

### Very Short Answer Questions

10) Find the smaller number by comparing 63902 and 46329.

**Solution:** 46329

11) Which of the following is the smallest?

70266, 76260, 70662, 72600

**Solution:** 70266

12) Find the greater number by comparing 82065 and 96250.

**Solution:** 96250

### Short Answer Questions

13) Compare and find the smaller number.

a) 81746 and 81859      b) 27652 and 27642

**Solution:** a) As 7 hundreds < 8 hundreds, 81746 is the smaller number.

b) As 4 tens < 5 tens, 27642 is the smaller number.

14) Compare and find the greater number.

a) 98817 and 98578      b) 14687 and 14577

**Solution:** a) As 8 hundreds > 5 hundreds, 98817 is the greater number.

b) As 6 hundreds > 5 hundreds, 14687 is the greater number.

### Long Answer Questions

15) Compare the numbers in the given pairs. Find the greater and the smaller number.

a) 69013 and 63872      b) 42184 and 46248

c) 59899 and 71037      d) 40768 and 46428

**Solution:** a) As 9 thousands > 3 thousands, 69013 is the greater number and 63872 is the smaller number.

- smaller number. ....
- b) As 2 thousands < 6 thousands, 42184 is the smaller number and 46248 is the greater number. ....
- c) As 59 thousands < 71 thousands, 59899 is the smaller number and 71037 is the greater number. ....
- d) As 0 thousand < 6 thousand, 40768 is the smaller number and 46428 is the greater number. ....

16) Compare the numbers in the given pairs. Find the smaller and the greater number.

- a) 83450 and 83122                      b) 65423 and 65837  
 c) 34172 and 34127                      d) 76235 and 72987

- Solution:** a) As 4 hundreds > 1 hundreds, 83450 is the greater number and 83122 is the smaller number. ....  
 b) As 4 hundreds < 8 hundreds, 65423 is the smaller number and 65837 is the greater number. ....  
 c) As 7 tens > 2 tens, 34172 is the greater number and 34127 is the smaller number. ....  
 d) As 6 thousands > 2 thousands, 76235 is the greater number and 72987 is the smaller number. ....



### Application

#### Short Answer Questions

- 17) Arrange the given numbers in the descending order.  
 a) 34570, 36840, 37092, 32291                      b) 68956, 69540, 60979, 62479  
**Solution:** a) 37092, 36840, 34570, 32291  
                   b) 69540, 68956, 62479, 60979
- 18) Arrange the given numbers in the ascending order.  
 a) 22641, 23840, 17090, 18229                      b) 87356, 87284, 89122, 55130  
**Solution:** a) 17090, 18229, 22641, 23840  
                   b) 55130, 87284, 87356, 89122

## Long Answer Questions

19) Form the greatest and the smallest 5-digit numbers by using the given digits and find their difference.

a) 6, 1, 8, 3, 0

b) 8, 0, 1, 2, 9

**Solution:** a) The greatest 5-digit number that can be formed = 86310

The smallest 5-digit number that can be formed = 10368

Difference =  $86310 - 10368 = 75942$

b) The greatest 5-digit number that can be formed = 98210

The smallest 5-digit number that can be formed = 10289

Difference =  $98210 - 10289 = 87921$

20) Arrange the given numbers in descending order.

a) 33690, 42710, 42170, 32690

b) 87325, 88651, 83951, 90351

c) 62415, 63142, 62413, 63152

d) 53241, 52641, 52914, 53421

**Solution:** a) 42710, 42170, 33690, 32690

b) 90351, 88651, 87325, 83951

c) 63152, 63142, 62415, 62413

d) 53421, 53241, 52914, 52641



## Higher Order Thinking Skills (H.O.T.S.)

### Short Answer Question

21) I am a 5-digit number. My hundreds digit is two times my tens digit and my tens digit is three times my ones digit. My ten thousands digit is thrice my tens digit. If my thousands digit is 2 more than my hundreds digit and my ones digit is 1, who am I?

**Solution:** The required 5-digit number = 98631



- 5) 190 rounded off to the nearest 100 is \_\_\_\_\_ [ A ]  
 (A) 200 (B) 191 (C) 250 (D) 150
- 6) In rounding off, if the digit in the ones place is less than 5, then it is replaced with \_\_\_\_\_ [ C ]  
 (A) 2 (B) 1 (C) 0 (D) 5

**Fill in the Blanks**

- 7) 16769 rounded off to the nearest 10 is 16770.
- 8) 21741 rounded off to the nearest 100 is 21700.
- 9) 92478 rounded off to the nearest 1000 is 92000.

**Very Short Answer Questions**

- 10) What is 1234 rounded off to the nearest 10?

**Solution:** 1230

- 11) Round off 21742 to the nearest 100.

**Solution:** 21700

- 12) Round off 24190 to the nearest 1000.

**Solution:** 24000

**Short Answer Questions**

- 13) Round off 989 to the nearest: a) 1000 b) 10

**Solution:** a) As 9 (in the hundreds place) > 5, we round off 989 to the nearest 1000 as 1000. ....

b) As 9 (in the ones place) > 5, we round off 989 to the nearest 10 as 990. ....

- 14) Round off 459 to the nearest: a) 100 b) 10

**Solution:** a) As 5 (in the tens place) = 5, we round off 459 to the nearest 100 as 500. ....

b) As 9 (in the units place) > 5, we round off 459 to the nearest 10 as 460. ....



## Long Answer Questions

15) Round off the following numbers to the nearest 10.

- a) 612    b) 567    c) 427    d) 673

**Solution:** a) The ones digit is 2 which is less than 5. Thus, 612 rounded off to the nearest 10 is 610.

b) The ones digit is 7 which is greater than 5. Thus, 567 rounded off to the nearest 10

is 570.

c) The ones digit is 7 which is greater than 5. Thus, 427 rounded off to the nearest 10

is 430.

d) The ones digit is 3 which is smaller than 5. Thus, 673 rounded off to the nearest 10

is 670.

16) Round off the following numbers to the nearest 100.

- a) 714    b) 376    c) 111    d) 555

**Solution:** a) The tens digit is 1 which is less than 5. Thus, 714 rounded off to the nearest 100

is 700.

b) The tens digit is 7 which is more than 5. Thus, 376 rounded off to the nearest 100

is 400.

c) The tens digit is 1 which is less than 5. Thus, 111 rounded off to the nearest 100

is 100.

d) The tens digit is 5 which is equal to 5. Thus, 555 rounded off to the nearest 100

is 600.



## Application

### Short Answer Questions

17) There are 25 students in Class 4 and 28 students in Class 5 of a school. How many chairs, rounded to the nearest 10, should be arranged in both the classrooms?

**Solution:** In 25, the digit in the ones place is 5. So, 25 is rounded off to 30.  
 In 28, the digit in the ones place is 8. So 28 is rounded off to 30 chairs. Hence, around 30 chairs in Class 4 and 30 chairs in Class 5 should be arranged.

18) There are 899 pages in one book and 477 in another book. How many stamps, rounded to the nearest 100, must be bought if a stamp is to be pasted on each page of both the books?

**Solution:** In 899, the digit in the tens place is more than 5. So, 899 is rounded off to 900.  
 In 477, the digit in the tens place is more than 5. So, 477 is rounded off to 500.  
 Hence around 900 stamps for one book and 500 stamps for other book must be bought.

**Long Answer Questions**

19) Students from four schools are to be given an apple each. The number of students in the four schools are given below.

- School A: 5836      School B: 1496
- School C: 4784      School D: 1513

How many apples, rounded to the nearest 1000, should be bought for each school?  
**Solution:** Rounding off the number of students in the four schools, 5836, 1496, 4784 and 1513, to the nearest 1000, we get, 6000, 1000, 5000, and 2000. Hence, 6000, 1000, 5000, and 2000 apples should be bought for the four schools respectively.

20) There are 765, 845, 776 and 817 people watching the football match from four different blocks of the stadium respectively. Round off the numbers to the nearest 100 to find the approximate number of chairs occupied.

**Solution:** Rounding off the number of people watching the football match, 765, 845, 776 and 817 to the nearest 100 we get, 800, 800, 800 and 800.  
 The required sum is  $800 + 800 + 800 + 800 = 3200$ . Hence, around 3200 chairs were

occupied.....  
.....  
.....  
.....  
.....



### Higher Order Thinking Skills (H.O.T.S.)

#### Short Answer Question

21) Round off 23745 to the nearest tens, hundreds, thousands and ten thousands.

**Solution:** 23745 rounded to the nearest tens is 23750.....  
23745 rounded to the nearest hundreds is 23700.....  
23745 rounded to the nearest thousands is 24000.....  
23745 rounded to the nearest ten thousands is 20000.....

#### Long Answer Question

22) Consider the digits 5, 3, 9 and 7. Form the smallest and the largest 4-digit numbers using the given digits only once. Round off both the numbers to the nearest 1000.

**Solution:** The smallest number that can be formed using the given digits only once is 3579.....  
The largest number that can be formed using the given digits only once is 9753.....  
3579 rounded to the nearest 1000 is 4000.....  
9753 rounded to the nearest 1000 is 10000.....  
.....  
.....  
.....  
.....  
.....  
.....



## Practice Questions

- 1) Round off the number 19882 to the nearest ten, hundred and thousand.
- 2) Write the place value and face value of the underlined digit in 58194.
- 3) Compare: a) 32819 and 32820    b) 47682 and 48294
- 4) What is the expanded form of the number 98492?
- 5) Compare to find the greater number: thirty-three thousand four hundred and ninety and thirty-three thousand four hundred and eighty-one.
- 6) What is the expanded form of fifty-nine thousand and five?
- 7) Form a number with 4 in the thousands place, 2 in the ten thousands place, 0 in the tens and hundreds places and 3 in the ones place.
- 8) What is the difference between the face and the place value of 8 in the number twenty-nine thousand one hundred and eighty-nine?
- 9) Form a 5-digit number in which the digit 4 has the face value of 4 and the place value as 4000.
- 10) Form a number with 9 in the thousands place, 3 in the units place, 2 in the tens place, 5 in the ten thousands place and 1 in the hundreds place.
- 11) What is the number name if the expanded form of the number is  $6 \times 10000 + 4 \times 1000 + 6 \times 100 + 1 \times 10 + 8 \times 1$ ?
- 12) 98273 people registered to attend the seminar on yoga. Rounded to the nearest ten thousand, what is the maximum number of seats that should be set up?
- 13) Round off the number 38712 to the nearest ten, hundred and thousand.
- 14) Compare 9829 and 09289 and find which is smaller.
- 15) How many periods are there in the number 48221?
- 16) Arrange the following numbers in ascending and descending orders.  
fifty-six thousand two hundred and eighty-one, fifty-six thousand two hundred and twenty-one, fifty-six thousand eight hundred and ninety-two and fifty-six thousand three hundred and seventy-three

- 17) Form the largest and the smallest 5-digit numbers with the digits 2, 5, 1, 0, 4.
- 18) There are two 5-digit numbers. The first number has 5 in the ten thousands place while the other has 4. However, the face value of the digit in the first number has 1 in the units place while 2 more than 1 in the second number (at the same place). Which number is greater?
- 19) What is the number name of: a) 31940      b) 47681      c) 11111
- 20) Find the smaller number between 49201 and 49200.

## Chapter 3: Numbers



### Practice Questions

- 1) nearest 10 = 19880, nearest hundred = 19900, nearest thousand = 20000
- 2) Face value = 9, place value = 90
- 3) a)  $32819 < 32820$       b)  $47682 < 48294$
- 4)  $9 \times 10000 + 8 \times 1000 + 4 \times 100 + 9 \times 10 + 2 \times 1$
- 5) thirty-three thousand four hundred and ninety
- 6)  $5 \times 10000 + 9 \times 1000 + 0 + 0 + 5 \times 1$
- 7) 24003
- 8) 72
- 9) Learner's response, for example: 54090
- 10) 59123
- 11) sixty-four thousand six hundred and eighteen
- 12) 100000
- 13) nearest ten = 38710, nearest hundred = 38700, nearest thousand = 39000
- 14) 09289
- 15) two
- 16) Ascending order = fifty-six thousand two hundred and twenty-one, fifty-six thousand two hundred and eighty-one, fifty-six thousand three hundred and seventy-three, fifty-six thousand eight hundred and ninety-two  
Descending order = fifty-six thousand eight hundred and ninety-two, fifty-six thousand three hundred and seventy-three, fifty-six thousand two hundred and eighty-one, fifty-six thousand two hundred and twenty-one
- 17) Largest number = 54210, smallest number = 10245
- 18) the first number
- 19) a) thirty-one thousand nine hundred and forty  
b) forty-seven thousand six hundred and eighty one  
c) eleven thousand one hundred and eleven
- 20) 49200

## A – Curriculum to Learning Objectives: Addition and Subtraction

A – Curriculum to Learning Objectives: Addition and Subtraction						
Prior Knowledge	• Addition and subtraction up to 4-digit numbers, grouping, place value charts					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	3	Numbers	3.1	Count in Ones and Tens.	3.1.a	• the concept of zero
					3.1.b	• the sequence of numbers up to 99
					3.1.c	• place value and face value of numbers
	4	Addition	4.1	Add 1-digit numbers and 2-digit numbers.	4.1.a	• adding numbers up to 99 without regrouping
4.1.b					• different methods of adding numbers	
	4	Addition	4.1	Add 2-digit numbers and 3-digit numbers.	4.1.a	• adding 2-digit and 3-digit numbers
					4.1.b	• properties of addition
2	5	Subtraction	5.1	Subtract 2-digit and 3-digit numbers.	5.1.a	• subtracting 2-digit and 3-digit numbers
					5.1.b	• properties of subtraction
	4	Addition	4.1	Add 2-digit numbers and 3-digit numbers.	4.1.a	• adding 2-digit and 3-digit numbers
					4.1.b	• properties of addition
	5	Subtraction	5.2	Subtract two 1-digit numbers mentally.	5.2.a	• mental maths techniques for subtraction
3	4	Addition	4.1	Estimate the Sum of Two Numbers	4.1.a	• rounding off numbers to the nearest tens
					4.1.b	• estimate the sum of 2-digit and 3-digit numbers
					4.2.a	• adding 3-digit and 4-digit numbers with and without regrouping
	5	Subtraction	5.1	Estimate the Difference between Two Numbers	5.1.a	• rounding off numbers.
					5.1.b	• estimating the difference between numbers.
					5.2.a	• Subtracting 4-digit numbers with and without regrouping.
					5.3.a	• Subtract 2-digit Numbers Mentally with and without regrouping
4	Addition and Subtraction	4.1	Add and Subtract 5-digit Numbers	4.1.a	• adding and subtracting 5-digit numbers	
				4.1.b	• applying addition and subtraction operations in real-life situations	
5	4	Addition and Subtraction	4.1	Add and Subtract Large Numbers	4.1.a	• adding and subtracting large numbers
					4.1.b	• column addition and subtraction of numbers
					4.1.c	• adding and subtracting large numbers in real life

## B – Vision-to-Action Plan: 4.1 Add and Subtract 5-digit Numbers

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	36, 37 – THK, RCL	4.1.a	<ul style="list-style-type: none"> <li>Recall addition and subtraction of 4-digit numbers with and without regrouping.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Cards</li> </ul>	TB: Pg. 37 (Examples a-f)	WB: Pg. 33 (Q. 1-3)	
2 DD/MM/YYYY	37, 38, 41 – REM/UND, Drill Time	4.1.a	<ul style="list-style-type: none"> <li>Add 5-digit numbers with regrouping.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Practising</li> </ul>	<ul style="list-style-type: none"> <li>Place Value Cards</li> </ul>	TB: Pgs. 37, 38, (Example 1, Solve these) TB: Pg. 41, (Drill time, 4.1, Q.1a, c)	WB: Pgs. 33- 34 (Q. 4, 5, 7, 9, 12, 13, 15) TB: Pg. 41, (Drill time, 4.1, Q. 1b, d, e)	
3 DD/MM/YYYY	38, 39, 41 – REM/UND, THK, Drill Time	4.1.a	<ul style="list-style-type: none"> <li>Subtract 5-digit numbers with regrouping.</li> </ul>	<ul style="list-style-type: none"> <li>Guided Learning</li> <li>Practising</li> </ul>	–	TB: Pgs. 38, 39 (Example 2, Solve these) TB: Pg. 36 (I Think) TB: Pg. 41, (Drill time, 4.1, Q. 2a, c)	WB: Pgs. 33- 34 (Q. 6, 8, 10, 11, 14, 16) (Drill time, 4.1, Q.2b, d, e)	
4 DD/MM/YYYY	40, 41 – APP, Drill Time	4.1.b	<ul style="list-style-type: none"> <li>Solve word problems based on addition and subtraction of 5-digit numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Practising</li> </ul>	–	TB: Pg. 40, (Example 3-5) TB: Pg. 41 (Drill Time Q.3)	WB: Pgs. 35, 36 (Q. 17-20)	



Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
5 DD/MM/YYYY	40, 41 – HOTS	4.1.b	<ul style="list-style-type: none"> <li>Solve sums based on addition and subtraction of 5-digit numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Practising</li> </ul>	–	TB: Pgs. 40, 41 (Examples 6, 7) WB: Pgs. 36, 37 (Q. 21, 22)		

Annual Day:  
29/62

Day:  
1/5

Actual Date:

Page(s)  
36

**Chapter 4** Addition and Subtraction

Let Us Learn About

- adding and subtracting 5-digit numbers.
- applying addition and subtraction operations in real-life situations.

51234  
+ 13871

78962  
- 17431

#### Concept 4.1: Add and Subtract 5-digit Numbers



#### Think

In Jasleen's town, there were 27023 adults and 1567 children.

1400 adults and 1200 children went out of the town on 23rd March 2015. What was the total population of the town on 23rd March? What was the population on the 22nd, if all of them were present in the town that day?

Can you also solve it?



#### Recall

We know the addition and subtraction of 4-digit numbers. Let us recall the steps followed.

**Step 1:** Arrange the numbers one below the other according to their places. For subtraction, ensure that the smaller number is placed below the larger number.

**Step 2:** Start adding or subtracting from the ones place.

#### Important Words

Duration: 1 min

- **Today:** addition, subtraction, smaller number, larger number

#### Transactional Tip(s)

Duration: 27 min



#### Direct Instruction:

- Explain TB: Pg. 36, 'Think' section.
- Share the situations where we use addition and subtraction.
- Use the steps given TB: Pgs. 36, 37, 'Recall' to explain addition and subtraction of two 4-digit numbers.
- Using 'Classklap Place Value Cards', elaborate addition of 4-digit numbers with regrouping.
- Ask learners to solve the examples in TB: Pg. 37, 'Recall'.

#### Class Pulse Check

Duration: 2 min



- 1) What is addition?
- 2) What is subtraction?

Annual Day:  
30/62

Day:  
2/5

Actual Date:

Page(s)  
37,38

**Step 3:** At every stage, see if regrouping is required and then add or subtract.

**Step 4:** Write the answer.

Solve the following to revise the concept.

a) 

Th	H	T	O
4	2	1	6
+	1	2	5

 b) 

Th	H	T	O
1	3	3	5
+	1	2	3

 c) 

Th	H	T	O
5	9	8	5
+	2	4	5

d) 

Th	H	T	O
7	4	5	2
-	1	3	2

 e) 

Th	H	T	O
4	3	2	2
-	1	4	7

 f) 

Th	H	T	O
6	2	0	0
-	4	5	0



### Remembering and Understanding

Addition or subtraction of large numbers is similar to the addition or subtraction of 4-digit numbers. We always begin addition and subtraction from the ones place.

Let us see an example of addition involving 5-digit numbers.

**Example 1:** Add: 48415 + 20098

**Solution:** Arrange the numbers one below the other.

Steps	Solved	Solve these																																																		
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### Important Words

Duration: 1 min

- **Last class:** addition, subtraction, smaller number, larger number
- **Today:** 5-digit number

### Transactional Tip(s)

Duration: 11 min



#### Direct Instruction:

- Revise 'Think' section.
- Explain TB: Pgs. 37, 38, Example 1.
- Remind learners that adding 5-digit numbers uses the same technique they already know.
- Using 'Classklap Place Value Cards', elaborate addition of 5-digit numbers with regrouping.

### Class Pulse Check



1) -

Annual Day:  
30/62

Day:  
2/5

Actual Date:

Page(s)  
38

Important Words

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Steps	Solved	Solve these																																																												
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We will now learn subtraction of 5-digit numbers.

**Example 2:** Subtract:  $56718 - 16754$

**Solution:** Arrange the numbers in columns.

Transactional Tip(s)

Duration: 16 min



Practising:

- Learners to:
  - complete TB: Pgs. 37, 38, 'Solve these'.
  - solve TB: Pg. 41, 'Drill Time', 4.1, Q. 1a, c.

Class Pulse Check

Duration: 2 min



- What is the difference between adding two 4-digit numbers and two 5-digit numbers?
- What is the sum of 11111 and 99999?

Annual Day:  
31/62

Day:  
3/5

Actual Date: \_\_\_\_\_

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Steps	Solved	Solve these																																													
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**Important Words**

- Last class: 5-digit number
- Today: –

**Transactional Tip(s)**

Duration: 28 min



**Guided Learning:**

- Remind learners that subtracting 5-digit numbers uses the same technique they already know.
- Explain TB: Pgs. 38, 39, Example 2.

**Practising:**

- Learners to solve:
  - TB: Pg. 39, 'Solve these' in the TB itself.
  - TB: Pg. 36, 'Think'.
  - TB: Pg. 41, 'Drill Time', 4.1, Q. 2 a, c.

**Class Pulse Check**

Duration: 2 min



- 1) In  $45789 - 12562$ , which number will be at the tens place of the answer?
- 2) What will you do to find the difference of two numbers?

- Today: word problem



Application

Addition and subtraction of 5-digit numbers are useful in our daily life. Here are a few examples.

**Example 3:** Raju had ₹ 90005 with him. He bought clothes for ₹ 35289. How much money was left with him?

**Solution:** Amount Raju had = ₹ 90005

Amount Raju spent on buying clothes = ₹ 35289

Amount left with him = ₹ 90005 – ₹ 35289

Therefore, the amount left with Raju is ₹ 54716.

T	Th	Th	H	T	O
8	9	9	9	15	
3	5	2	8	9	
5	4	7	1	6	

**Example 4:** Preeti drove her car for 26349 km in six weeks and 38614 km in the next eight weeks. How many kilometres in all did she drive in 14 weeks?

**Solution:** Distance Preeti drove in the first six weeks = 26349 km

Distance she drove in the next eight weeks = 38614 km

The total distance Preeti drove

= 26349 km + 38614 km

Therefore, Preeti drove a total distance of 64963 km in 14 weeks.

T	Th	Th	H	T	O
2	6	3	4	9	
3	8	6	1	4	
6	4	9	6	3	

**Example 5:** 66140 people were living in Village A, out of which 55260 people moved to Village B. How many people are left in Village A?

**Solution:** Number of people living in Village A = 66140

Number of people who moved to Village B = 55260

Total number of people left in Village A

= 66140 – 55260

Therefore, 10880 people are left in Village A.

T	Th	Th	H	T	O
6	6	1	4	0	
5	5	2	6	0	
1	0	8	8	0	



Higher Order Thinking Skills (H.O.T.S.)

Let us solve a few more examples of addition and subtraction of 5-digit numbers.

**Example 6:** What is the difference between the greatest and the smallest 5-digit number?

Transactional Tip(s)

Duration: 27 min



Practising:

- Explain TB: Pg. 40, Example 3.
- Remind learners of the steps used to solve word problems.
- Ask learners to solve:
  - TB: Pg. 40, Examples 4, 5,
  - Check the solution with the TB answer,
  - TB: Pg. 41, 'Drill Time', Q. 3 (a), (b).

Class Pulse Check

Duration: 2 min



- 1) Which are the common words used in word problems of addition and subtraction?
- 2) Which operation will you use to find the sum of quantities?

Annual Day:  
33/62

Day:  
5/5

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**Solution:** The greatest 5-digit number = 99999  
The smallest 5-digit number = 10000  
Their difference =  $99999 - 10000 = 89999$

**Example 7:** What number must be added to 84890 to get the largest 5-digit number?

**Solution:** The largest 5-digit number is 99999.  
The number to be added to 84890 to get 99999 is  
 $99999 - 84890 = 15109$   
Therefore, the number to be added is 15109.



### Drill Time

#### Concept 4.1: Add and Subtract 5-digit Numbers

##### 1) Add the following:

- a)  $56249 + 12121$       b)  $42584 + 23568$       c)  $87216 + 11114$   
d)  $65312 + 25842$       e)  $35216 + 42355$

##### 2) Subtract the following:

- a)  $59423 - 12546$       b)  $86531 - 65372$       c)  $95361 - 46472$   
d)  $11213 - 11206$       e)  $34536 - 15623$

##### 3) Word problems

- a) Tanu went to purchase a TV set from an electronics shop. The price of the TV was ₹ 25689. She paid to the shopkeeper ₹ 50000. How much money will she receive back?  
b) Harisharan collected 12568 beads for a design. Iru collected 25638 beads for the same design. How many beads did they collect in all?

#### Important Words

- Last class: word problem
- Today: –

#### Transactional Tip(s)

Duration: 28 min



#### Practising:

- Explain TB: Pgs. 40, 41, Examples 6, 7.
- Ask learners to solve word problems WB: Pgs. 36, 37, 'H.O.T.S', Q. 21, 22.

#### Class Pulse Check










Duration: 2 min



- 1) Which mathematical symbols do we use in addition and subtraction?
- 2) What happens when we add a number to itself?

## C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	Add 59852 + 11239. (Ans. 71091)	Period 2 - add and subtract 5-digit numbers	
2	Subtract 89668 from 78639. (Ans. 168307)	Period 3 - add and subtract 5-digit numbers	
3	Solve: 6589 + 65832 – 72420 (Ans. 1)	Period 2, 3 - add and subtract 5-digit numbers	
4	Maya bought a cycle for ₹ 3456. She gave some amount to the shopkeeper. If the shopkeeper gave ₹ 544 back to Maya, how much money did she give to the shopkeeper? (Ans. ₹ 4000)	Period 4 - applying addition and subtraction operations in real-life situations	
5	Vijay has ₹ 78965 and he has ₹ 6855 more than Ajay. Find the amount with Ajay? (Ans. ₹ 72110)	Period 4 - applying addition and subtraction operations in real-life situations	
6	5625 voters cast their votes in a village. If the total voters in the village is 11235, find the number voters who did not cast their votes. (Ans. 5610)	Period 4 - applying addition and subtraction operations in real-life situations	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>			
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		App Report    Number _____	Signature _____



# Teacher Reference: Textbook

## Chapter 4: Addition and Subtraction

### Concept 4.1: Add and Subtract 5-digit Numbers

#### Drill Time

- 1) Add the following:  
a)  $56249 + 12121 = \mathbf{68370}$       b)  $42584 + 23568 = \mathbf{66152}$       c)  $87216 + 11114 = \mathbf{98330}$   
d)  $65312 + 25842 = \mathbf{91154}$       e)  $35216 + 42355 = \mathbf{77571}$
- 2) Subtract the following:  
a)  $59423 - 12546 = \mathbf{46877}$       b)  $86531 - 65372 = \mathbf{21159}$       c)  $95361 - 46472 = \mathbf{48889}$   
d)  $11213 - 11206 = \mathbf{7}$       e)  $34536 - 15623 = \mathbf{18913}$

#### 3) Word problems

- a) Tanu went to purchase a TV set from an electronics shop. The price of the TV was ₹ 25689. She paid to the shopkeeper ₹ 50000. How much money will she receive back?
- b) Harisharan collected 12568 beads for a design. Iru collected 25638 beads for the same design. How many beads did they collect in all?

**Solution:** a) ₹ 24311

b) 38206 beads



# Addition and Subtraction

## Concept 4.1: Add and Subtract 5-digit Numbers



### Recall

#### Multiple Choice Questions

- 1) When we add 4000 to 2000, we get \_\_\_\_\_. [ **A** ]  
(A) 6000      (B) 1000      (C) 2000      (D) 8000
- 2) When we subtract 1000 from 8000, we get \_\_\_\_\_. [ **B** ]  
(A) 6000      (B) 7000      (C) 3000      (D) 9000
- 3) When we add 1111 to 7777, we get \_\_\_\_\_. [ **B** ]  
(A) 6666      (B) 8888      (C) 1111      (D) 7777



### Remembering and Understanding

#### Multiple Choice Questions

- 4) From which digit do we begin adding or subtracting? [ **C** ]  
(A) tens      (B) hundreds      (C) ones      (D) thousands
- 5) When we add 40000 to 50000, we get \_\_\_\_\_. [ **A** ]  
(A) 90000      (B) 80000      (C) 10000      (D) 70000
- 6) When we subtract 60000 from 80000, we get \_\_\_\_\_. [ **D** ]  
(A) 60000      (B) 80000      (C) 70000      (D) 20000

#### Fill in the Blanks

- 7) When we add 30000 to 13133, we get **43133**.
- 8) When we subtract 60000 from 99999, we get **39999**.

9) When we add 55000 to 11000, we get 66000.

### Very Short Answer Questions

10) Are 5-digit numbers added and subtracted just like 4-digit numbers?

**Solution:** Yes

11) The digit in which place should we regroup if subtraction in the hundreds place is not possible?

**Solution:** Thousands place

12) While adding, if the sum is more than 9 in the ones place, to which place do we carry forward the regrouped sum?

**Solution:** Tens place

### Short Answer Questions

13) Add: 37890 and 42357

**Solution:**

T	Th	H	T	O
3	7	8	9	0
+	4	2	3	5
8	0	2	4	7

14) Subtract: 26781 from 55555

**Solution:**

T	Th	H	T	O
5	5	5	5	5
-	2	6	7	8
2	8	7	7	4

### Long Answer Questions

15) Add: a) 25698 and 52689

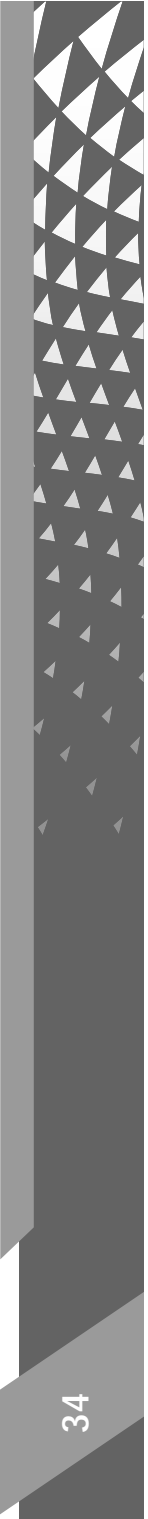
**Solution: a)**

T	Th	H	T	O
2	5	6	9	8
+	5	2	6	8
7	8	3	8	7

b) 41084 and 31154

**Solution: b)**

T	Th	H	T	O
4	1	0	8	4
+	3	1	1	5
7	2	2	3	8



16) Subtract: a) 22654 from 46983

**Solution:** .....

T	Th	H	T	O
4	6	9	8	3
-	2	2	6	5
2	4	3	2	9

.....

b) 51204 from 82006

T	Th	H	T	O
8	2	0	0	6
-	5	1	2	0
3	0	8	0	2

.....



### Application

#### Short Answer Questions

17) Raju was counting books in his school library. He counted 19656 books on Day 1. The next day he counted 10000 books. How many books does the school library have?

**Solution:** Number of books counted by Raju on Day 1 = 19656  
 Number of books he counted on Day 2 = 10000  
 Total number of books = 19656 + 10000  
 Therefore, there are 29656 books in the library.

T	Th	H	T	O
1	9	6	5	6
1	0	0	0	0
2	9	6	5	6

18) Suresh had 33359 flowers in his garden out of which he gave 11128 flowers for the stage decoration. How many flowers are left in Suresh's garden?

**Solution:** Number of flowers in Suresh's garden = 33359  
 Number of flowers Suresh gave for decoration of stage = 11128  
 Number of flowers left in Suresh's garden  
 = 33359 - 11128

T	Th	H	T	O
3	3	3	5	9
-	1	1	1	2
2	2	2	3	1

Therefore, there are 22231 flowers left in Suresh's garden.

#### Long Answer Questions

19) Last year, a factory produced 23568 tubelights. This year, it produced 25846 tubelights. How many tubelights did the factory produce in both the years?

**Solution:** Number of tubelights produced last year = 23568  
 Number of tubelights produced this year = 25846

Total number of tubelights =  $23568 + 25846$   
 Therefore, the factory produced 49114 tubelights  
 in both the years.

T	Th	H	T	O
	1	1	1	
2	3	5	6	8
2	5	8	4	6
4	9	4	1	4

20) The odometer (instrument showing the distance travelled by a wheeled vehicle) of a two-wheeler showed 35689 km in November 2016. In February 2016, it showed 16354 km. What was the distance covered from February to November?

**Solution:** The reading on the odometer in November 2016

= 35689 km

The reading on the odometer in February 2016

= 16354 km

The distance covered from February to November =

T	Th	H	T	O
2	15			
<del>3</del>	<del>5</del>	6	8	9
-	1	6	3	5
1	9	3	3	5

35689 km – 16354 km

Therefore, the distance covered from February 2016 to November 2016 is 19335 km.



### Higher Order Thinking Skills (H.O.T.S.)

#### Short Answer Question

21) What should we subtract from 56898 to get 16898?

**Solution:** To find the number to be subtracted from 56898, we subtract 16898 from it.

So,  $56898 - 16898 = 40000$ .

Therefore, we need to subtract 40000 from 56898 to get 16898.

T	Th	H	T	O
5	6	8	9	8
-	1	6	8	9
4	0	0	0	0

## Long Answer Question

22) Add 19856 to 20001. Subtract the sum from the largest 5-digit number.

**Solution:**  $19856 + 20001 = 39857$

The sum is 39857.

The largest 5-digit number is 99999.

$99999 - 39857 = 60142$

Therefore, the result is 60142.

T	Th	H	T	O
1	9	8	5	6
2	0	0	0	1
3	9	8	5	7

T	Th	H	T	O
9	9	9	9	9
3	9	8	5	7
6	0	1	4	2



## Practice Questions

- 1) Add: a) 4628 and 1149      b) 7812 and 1142      c) 6784 and 2311
- 2) What should be added to 2849 to get the sum as 4198?
- 3) Solve: a)  $77829 + 11020$       b)  $11235 + 10000$       c)  $87965 + 10101$
- 4) Add: a) 4001 and 2390      b) 1001 and 2321      c) 4555 and 2444
- 5) What should be subtracted from 8193 to get the difference as 1902?
- 6) In an election held in a town, 75982 people out of 85729 cast their votes. How many people did not vote?
- 7) What is the difference between 57219 and 27481?
- 8) What should be subtracted from 47890 to get the difference as 29103?
- 9) Solve: a)  $98789 - 78371$       b)  $19873 - 13521$       c)  $76542 - 14320$
- 10) Add: a) 77875 and 12894      b) 34768 and 34768      c) 19872 and 65421
- 11) Subtract: a) 1301 from 9981      b) 4723 from 9834      c) 3869 from 9999
- 12) What is the difference between 99858 and 18472?
- 13) Solve: a)  $60102 - 18239$       b)  $14321 - 10321$       c)  $90000 - 79999$

- 14) What should be subtracted from 48620 to get 19204?
- 15) Add: a) 30090 and 10003      b) 41173 and 11131      c) 73321 and 14432
- 16) Solve: a) 24918 – 19301      b) 49621 – 11111      c) 87341 – 22221
- 17) What is the sum of 45899 and 19092?
- 18) Solve: a) 25830 + 14589      b) 34921 + 24681      c) 47231 + 47231
- 19) What should be added to 29501 to get 58918?
- 20) Solve: a) 45442 + 10231      b) 87221 + 10111      c) 54621 + 22236
- 21) Reeta purchased a vehicle for ₹ 58390 and Salim purchased a vehicle for ₹ 58184. For how much more price did Reeta purchase the vehicle?
- 22) What is the sum of 18495 and 47291?
- 23) For a football match, 28402 people supported Group A and 28471 people supported Group B. How many total number of people supported both the teams?
- 24) Aaroh withdrew ₹ 33492 from his bank account and Mugdha withdrew ₹ 22193 from her bank account. What is the total amount of money that was withdrawn?
- 25) In a factory, 72940 neon lights were manufactured this year. Last year, the number of lights manufactured were 29481 less than that manufactured this year. How many neon lights were manufactured last year?





## A – Curriculum to Learning Objectives: Multiplication

Prior Knowledge	• <i>Multiplication tables, repeated addition, multiplication up to 2-digit numbers</i>					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	3	Numbers	3.1	Count in Ones and Tens.	3.1.a	• the concept of zero
					3.1.b	• the sequence of numbers up to 99
					3.1.c	• place value and face value of numbers
2	4	Addition	4.1	Add 2-digit Numbers and 3-digit numbers.	4.1.a	• adding 2-digit and 3-digit numbers • properties of addition
3	6	Multiplication	6.1	Multiply 2-digit numbers.	6.1.a	• multiplying 2-digit numbers by 1-digit
			6.2	Multiply 3-digit numbers by 1-digit and 2-digit numbers.	6.2.a	• multiplying 3-digit numbers by 1-digit and 2-digit numbers with and without regrouping.
			6.3	Double 2-digit and 3-digit numbers mentally.	6.3.a	• doubling the numbers mentally
4	5	Multiplication	5.1	Multiply 3-digit and 4-digit numbers.	5.1.a	• multiplying 3-digit and 4-digit numbers
					5.1.b	• properties of multiplication
			5.2	Multiply using lattice algorithm.	5.2.a	• multiplying using standard and lattice algorithms
5	5	Multiplication	5.1	Multiply large numbers.	5.1.a	• properties of multiplication
					5.1.b	• multiplying 4-digit and 5-digit by 2-digit and 3-digit numbers
					5.1.c	• finding the missing numbers in the given product
					5.1.d	• observing patterns in multiplication of numbers

## B – Vision-to-Action Plan: 5.1 Multiply 3-digit and 4-digit Numbers

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	42, 43, 56 – THK, RCL, Drill Time	5.1.a	<ul style="list-style-type: none"> <li>Recall multiplication of 2-digit numbers by 1-digit numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Practising</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pg. 43 (Recall)	WB: Pg. 39 (Q. 1-3)	
2 DD/MM/YYYY	43, 44, 45, 56 – REM/UND, Drill Time	5.1.a	<ul style="list-style-type: none"> <li>Demonstrate the steps involved in the multiplication of a 3-digit number by a 3-digit number and a 4-digit number by a 1-digit number.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pgs. 43, 44, 45, 56 (Example 1, 2) (Solve these) (Drill Time Q. 1, 2)	WB: Pgs. 39- 41 (Q. 4-16)	
3 DD/MM/YYYY	45, 46, 56 – REM/UND, Drill Time	5.1.b	<ul style="list-style-type: none"> <li>State the properties of multiplication.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Peer Learning</li> </ul>	–	TB: Pg.45 (Properties)		
4 DD/MM/YYYY	46, 56 – APP, Drill Time	5.1.a	<ul style="list-style-type: none"> <li>Solve sums based on the multiplication of 3-digit and 4-digit numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Peer Learning</li> </ul>	–	TB: Pg. 46 (Example 3, 4) TB: Pg. 56, (Drill Time Q. 3)	WB: Pg. 41-43 (Q. 17-20)	
5 DD/MM/YYYY	46, 47, 56 – HOTS, Drill Time	5.1.a	<ul style="list-style-type: none"> <li>Frame word problems based on multiplication of the largest and the smallest 4-digit numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Interactive Discussion</li> </ul>	–	TB: Pg. 47 (Example 5, 6)	WB: Pg. 43, 44 (Q. 21, 22)	

Annual Day:  
34/62

Day:  
1/5

Actual Date:

Page(s)  
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Chapter 5 Multiplication

Let Us Learn About

- multiplying 3-digit and 4-digit numbers.
- properties of multiplication.
- multiplying using standard and lattice algorithms.
- multiplying mentally.

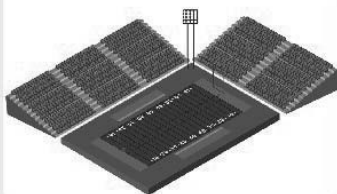
The graphic shows a cartoon girl holding a sign for Chapter 5. In the background, there are illustrations of a dinosaur, a penguin, and a kangaroo. Two multiplication problems are shown:  $1732 \times 2$  and  $342 \times 192$ .

### Concept 5.1: Multiply 3-digit and 4-digit Numbers



#### Think

Jasleen went to the stadium to watch a rugby match with her parents. She observed that the seats are arranged in many rows and columns. All the seats were occupied. She wanted to guess the total number of people who watched the match that day. How will she be able to do that?



#### Recall

We have learnt to multiply 2-digit and 3-digit numbers by 1-digit and 2-digit numbers.

#### Important Words

Duration: 1 min

- Today: 1, 2, 3-digit numbers, multiplication

#### Transactional Tip(s)

Duration: 27 min



#### Direct Instruction:

- Give examples from day-to-day life and introduce the topic with 'Think' section.

#### Practising:

- Instruct learners to solve TB: Pg. 43.
- Use 'Classlap Multiplication Table'.
- Divide the class into small groups and ask learners to write any five sums involving multiplication of 3-digit numbers by 1-digit numbers.
- Solve it in groups and check the answers.

#### Class Pulse Check

Duration: 2 min



1) Answer quickly:

- a)  $40 \times 2$    b)  $40 \times 4$    c)  $40 \times 8$    d)  $40 \times 16$

Annual Day:  
35/62

Day:  
2/5

Actual Date:

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43,44

Important Words

Duration: 1 min

- Last class: 1, 2, 3-digit numbers, multiplication
- Today: –

Let us solve the following to revise the concept of multiplication.

T O	H T O	H T O	H T O
3 9	2 5 6	5 8 9	8 7 5
x 2	x 3	x 4	x 5



### Remembering and Understanding

Standard algorithm is the method of multiplication in which the product is regrouped as ones and tens. Let us now learn to multiply 3-digit numbers by 3-digit numbers and 4-digit numbers by 1-digit numbers using standard algorithm.

#### Multiply a 3-digit number by a 3-digit number

Multiplying a 3-digit number by a 3-digit number is similar to multiplying a 3-digit number by a 2-digit number. Let us see an example.

**Example 1:** Multiply:  $159 \times 342$

**Solution:** To multiply the given numbers, follow these steps.

Steps	Solved	Solve these																																														
<p><b>Step 1:</b> Multiply the multiplicand by the ones of the multiplier, that is, <math>159 \times 2</math>.</p> <p>Regroup if necessary.</p>	<table border="1"> <tr> <td>Th</td> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td>1</td> <td>5</td> <td>9</td> </tr> <tr> <td>x</td> <td>3</td> <td>4</td> <td>2</td> </tr> <tr> <td></td> <td>3</td> <td>1</td> <td>8</td> </tr> </table>	Th	H	T	O		1	5	9	x	3	4	2		3	1	8	<table border="1"> <tr> <td>T</td> <td>Th</td> <td>Th</td> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>5</td> <td>2</td> <td>6</td> </tr> <tr> <td></td> <td>x</td> <td>2</td> <td>3</td> <td>5</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	T	Th	Th	H	T	O										5	2	6		x	2	3	5							
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<p><b>Step 2:</b> Put a 0 below the ones place of the product obtained in the above step. Multiply the multiplicand by the tens of the multiplier, that is, <math>159 \times 4</math>.</p> <p>Regroup if necessary.</p>	<table border="1"> <tr> <td>Th</td> <td>H</td> <td>T</td> <td>O</td> </tr> <tr> <td></td> <td>2</td> <td>3</td> <td></td> </tr> <tr> <td></td> <td>1</td> <td>5</td> <td>9</td> </tr> <tr> <td>x</td> <td>3</td> <td>4</td> <td>2</td> </tr> <tr> <td></td> <td>3</td> <td>1</td> <td>8</td> </tr> <tr> <td></td> <td>6</td> <td>3</td> <td>6</td> </tr> <tr> <td></td> <td></td> <td></td> <td>0</td> </tr> </table>	Th	H	T	O		2	3			1	5	9	x	3	4	2		3	1	8		6	3	6				0																			
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Transactional Tip(s)

Duration: 16 min



Direct Instruction:

- Explain TB: Pg. 43, Example 1.
- Use 'Classkrap Multiplication Table'.
- Slowly talk through the steps.
- Ask learners to solve:
  - TB: Pgs. 43, 44, 'Solve these'
  - TB: Pg. 56, 'Drill Time', Q. 1.

Class Pulse Check

1) -



Annual Day:  
35/62

Day:  
2/5

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Important Words

–

Steps	Solved	Solve these																																																																																																																														
<p><b>Step 3:</b> Put two 0s below the ones and the tens places of the product obtained in the previous step. Multiply the multiplicand by the hundreds of the multiplier, that is, <math>159 \times 3</math>. Regroup if necessary.</p>	<table border="1"> <thead> <tr> <th>T</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>1</td><td>2</td><td></td></tr> <tr><td></td><td></td><td>2</td><td>3</td><td></td></tr> <tr><td></td><td></td><td>1</td><td>1</td><td></td></tr> <tr><td></td><td></td><td>1</td><td>5</td><td>9</td></tr> <tr><td></td><td></td><td>x</td><td>3</td><td>4</td><td>2</td></tr> <tr><td></td><td></td><td></td><td>3</td><td>1</td><td>8</td></tr> <tr><td></td><td></td><td></td><td>6</td><td>3</td><td>6</td><td>0</td></tr> <tr><td></td><td></td><td></td><td>4</td><td>7</td><td>7</td><td>0</td><td>0</td></tr> </tbody> </table>	T	Th	H	T	O			1	2				2	3				1	1				1	5	9			x	3	4	2				3	1	8				6	3	6	0				4	7	7	0	0	<table border="1"> <thead> <tr> <th>T</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>4</td><td>2</td><td>5</td></tr> <tr><td></td><td></td><td>x</td><td>1</td><td>1</td><td>9</td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	T	Th	H	T	O													4	2	5			x	1	1	9																																																
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<p><b>Step 4:</b> Add the products from steps 1, 2 and 3. This sum gives the required product.</p>	<table border="1"> <thead> <tr> <th>T</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr><td></td><td></td><td>1</td><td>2</td><td></td></tr> <tr><td></td><td></td><td>2</td><td>3</td><td></td></tr> <tr><td></td><td></td><td>1</td><td>1</td><td></td></tr> <tr><td></td><td></td><td>1</td><td>5</td><td>9</td></tr> <tr><td></td><td></td><td>x</td><td>3</td><td>4</td><td>2</td></tr> <tr><td></td><td></td><td></td><td>3</td><td>1</td><td>8</td></tr> <tr><td></td><td></td><td></td><td>6</td><td>3</td><td>6</td><td>0</td></tr> <tr><td></td><td></td><td></td><td>4</td><td>7</td><td>7</td><td>0</td><td>0</td></tr> <tr><td></td><td></td><td></td><td>1</td><td>1</td><td>3</td><td>1</td><td>8</td></tr> <tr><td></td><td></td><td></td><td>+</td><td>6</td><td>3</td><td>6</td><td>0</td></tr> <tr><td></td><td></td><td></td><td>+</td><td>4</td><td>7</td><td>7</td><td>0</td><td>0</td></tr> <tr><td></td><td></td><td></td><td>5</td><td>4</td><td>3</td><td>7</td><td>8</td></tr> </tbody> </table>	T	Th	H	T	O			1	2				2	3				1	1				1	5	9			x	3	4	2				3	1	8				6	3	6	0				4	7	7	0	0				1	1	3	1	8				+	6	3	6	0				+	4	7	7	0	0				5	4	3	7	8	<table border="1"> <thead> <tr> <th>T</th> <th>Th</th> <th>H</th> <th>T</th> <th>O</th> </tr> </thead> <tbody> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td>3</td><td>0</td><td>1</td></tr> <tr><td></td><td></td><td>x</td><td>7</td><td>6</td><td>9</td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	T	Th	H	T	O													3	0	1			x	7	6	9															
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**Multiply a 4-digit number by a 1-digit number**

Multiplying a 4-digit number by a 1-digit number is similar to multiplying a 3-digit number by a 1-digit number. Let us see an example.

**Example 2:** Multiply:  $3628 \times 7$

**Solution:**

T	Th	H	T	O
	4	1	5	
	3	6	2	8
			x	7
2	5	3	9	6

Duration: 11 min



**Transactional Tip(s)**

**Direct Instruction:**

- Explain TB: Pg. 44, Example 2.
- Remind learners that multiplying 3-digit numbers by 1-digit number uses the same technique they already know.
- Slowly talk through the steps.
- Ask learners to solve:
  - TB: Pg. 45 'Solve these',
  - TB: Pg. 56, 'Drill Time' Q. 2.

**Class Pulse Check**

Duration: 2 min



- 1) Do we need addition to solve the multiplication of a 3-digit number by a 3-digit number?
- 2) What is the first step when multiplying a 4-digit number by a 1-digit number?

Solve these															
Th H T O				Th H T O				Th H T O							
2	5	6	8	5	6	8	9	1	2	5	9				
		x	8			x	2			x	4				

### Properties of Multiplication

**Identity Property:** For any number 'a',  $a \times 1 = 1 \times a = a$ .

1 is called the multiplicative identity.

For example,  $461 \times 1 = 1 \times 461 = 461$ .

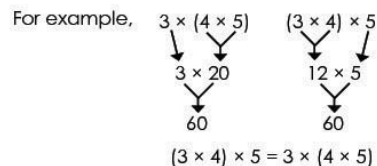
**Zero Property:** For any number 'a',  $a \times 0 = 0 \times a = 0$ .

For example,  $568 \times 0 = 0 \times 568 = 0$ .

**Commutative Property:** If 'a' and 'b' are any two numbers, then  $a \times b = b \times a$ .

For example,  $12 \times 3 = 36 = 3 \times 12$ .

**Associative Property:** If 'a', 'b' and 'c' are any three numbers, then  $a \times (b \times c) = (a \times b) \times c$ .



### Distributive Property:

1) If 'a', 'b' and 'c' are any three numbers, then:

$$a \times (b + c) = (a \times b) + (a \times c).$$

For example,  $2 \times (3 + 5) = (2 \times 3) + (2 \times 5)$ .

$$2 \times 8 = 6 + 10$$

$$16 = 16$$

Multiplication distributes over addition.

### Important Words

Duration: 1 min

- **Today:** Properties, Identity, Zero, Commutative, Associative, Distributive Properties

### Transactional Tip(s)

Duration: 27 min



### Peer Learning - Pair/Group:

- Divide the class in to groups of pairs.
- Ask learners to take any sets of numbers and verify the properties of multiplication.

### Direct Instruction:

- Explain the properties of multiplication given in TB: Pgs. 45, 46.

### Class Pulse Check

Duration: 2 min



- 1) Give an example of commutative property.
- 2) How many numbers do you require to check the associative property?

2) If 'a', 'b' and 'c' are any three numbers then:  $a \times (b - c) = (a \times b) - (a \times c)$ .

For example,  $2 \times (8 - 5) = (2 \times 8) - (2 \times 5)$ .

$$2 \times 3 = 16 - 10$$

$$6 = 6$$

Multiplication distributes over subtraction.



### Application

Let us see a few real-life examples involving multiplication of 4-digit numbers.

**Example 3:** Neena had 450 pencils in a box. There were 212 such boxes. How many pencils did Neena have in all?

**Solution:** Number of pencils in a box = 450  
Number of such boxes = 212  
Total number of pencils =  $450 \times 212$   
Therefore, Neena had 95400 pencils.

T	Th	Th	H	T	O
			①		
			①		
		4	5	0	
		×	2	1	2
		①	9	0	0
+		4	5	0	0
+	9	0	0	0	0
	9	5	4	0	0

**Example 4:** 3542 students went to school from each town. There were 4 such towns. How many students went to school?

**Solution:** Number of students who went to school from each town = 3542  
Number of towns = 4  
Total number of students who went to school  
=  $3542 \times 4$   
Therefore, 14168 students went to school.

T	Th	Th	H	T	O
		②	①		
		3	5	4	2
				×	4
1	4	1	6	8	



### Higher Order Thinking Skills (H.O.T.S.)

We know that the smallest 4-digit number is 1000 and the largest 4-digit number is 9999. Let us multiply the largest 4-digit number by the smallest and the largest 1-digit numbers.

### Important Words

- **Last class:** Properties, Identity, Zero, Commutative, Associative, Distributive Properties
- **Today:** –

### Transactional Tip(s)

Duration: 28 min



### Peer Learning - Pair/Group:

- Divide the class into small groups and ask them to read TB: Pg. 46, Example 3.
- Ask learners to discuss the steps needed to solve a word problem with multiplication.
- Explain the solution of TB: Pg. 46, Example 3.
- Ask learners to solve:
  - TB: Pg. 46, Example 4,
  - TB: Pg. 56, 'Drill Time' Q. 3.

### Class Pulse Check

Duration: 2 min



- 1) Which are the common words used while forming word problems based on multiplication?
- 2) Form a word problem using  $1234 \times 5$ .

**Example 5:** Multiply the largest 4-digit number by the smallest 1-digit number.

**Solution:** The largest 4-digit number = 9999  
The smallest 1-digit number = 1

We know that the product obtained when any number is multiplied by 1 is the number itself.

Therefore,  $9999 \times 1 = 9999$ .

Th	H	T	O
9	9	9	9
		x	1
9	9	9	9

**Example 6:** Multiply the largest 4-digit number by the largest 1-digit number.

**Solution:** The largest 4-digit number = 9999  
The largest 1-digit number = 9

Therefore,  $9999 \times 9 = 89991$ .

T	Th	Th	H	T	O
	8	8	8		
	9	9	9	9	
			x	9	
8	9	9	9	9	1

### Concept 5.2: Multiply Using Lattice Algorithm



#### Think

Jasleen knows how to multiply a 3-digit number by a 2-digit number. But she makes some mistakes. She wants a simple method for multiplication. Do you know any such method?



#### Recall

We know multiplication using standard algorithm.

Let us recall the standard algorithm of multiplication by solving the following sum.

H	T	O	Th	H	T	O	Th	H	T	O
	2	2		5	4	2		1	4	2
x		6	x			4	x			8

#### Important Words

Duration: 1 min

- **Today:** largest, smallest numbers

#### Transactional Tip(s)

Duration: 27 min



#### Direct Instruction:

- Explain TB: Pg. 47, Example 5.
- Instruct learners to solve TB: Pg. 47, Example 6.

#### Interactive Discussion:

- Instruct learners to frame questions similar to examples 5 and 6.
- Ask them to solve and discuss among the groups.
- Share the experiences with other groups.

#### Class Pulse Check

Duration: 2 min



- 1) Multiply 9999 by 0.
- 2) Multiply 9999 by 1.



## ✍️ C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	To solve $869 \times 768$ , Maya used 9 times table in her first step. Is she correct? If not write the correct step. (Ans. No)	Period 2 - multiply 3-digit and 4-digit numbers	
2	There are 8364 chairs in a shop. If each chair costs ₹ 843, what is the total cost of all the chairs? (Ans. ₹ 7050852)	Period 4 - multiply 3-digit and 4-digit numbers	
3	Frame a suitable word problem for the multiplication fact $822 \times 1235 = 1015170$ . (Ans. Learner's response. E.g., Find the cost of 822 phones, if each phone costs ₹ 1235)	Period 5 - multiply 3-digit and 4-digit numbers	
4	What is the Identity Property for multiplication? (Ans. Identity Property: For any number 'a', $a \times 1 = 1 \times a = a$ . 1 is called the multiplicative identity.)	Period 3 - properties of multiplication	
5	Check the distributive property with 10, 9 and 2 (Ans. $10(9 + 2) = 10 \times 9 + 10 \times 2$ ; $10 \times 11 = 90 + 20$ ; $110 = 110$ )	Period - properties of multiplication	
6	Multiplication distributes over subtraction. Prove this statement with your own numbers. (Ans. Learner's response)	Period 3 - properties of multiplication	

Post-lesson Reflection	Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>		
Enthusiastic participation 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>		
Concept clarity in the classroom 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>	Exam Revision Strategy	
Concept clarity through the workbook 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>	Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
	App Report      Number _____	Signature _____

## A – Curriculum to Learning Objectives: Multiplication

A – Curriculum to Learning Objectives: Multiplication						
Prior Knowledge	• <i>Multiplication tables, place value chart</i>					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	3	Numbers	3.1	Count in Ones and Tens	3.1.a	• the concept of zero
					3.1.b	• the sequence of numbers up to 99
					3.1.c	• place value and face value of numbers
2	4	Addition	4.1	Add 2-digit numbers and 3-digit numbers.	4.1.a	• adding 2-digit and 3-digit numbers
						• properties of addition
3	4	Addition	4.1	Estimate the sum of two numbers.	4.1.a	• adding numbers with and without regrouping
						6
	6.2	Multiply 3-digit numbers by 1-digit and 2-digit numbers.	6.2.a	• multiplying 3-digit numbers by 1-digit and 2-digit numbers with and without regrouping		
	6.3	Double 2-digit and 3-digit numbers mentally.	6.3.a	• doubling the numbers mentally		
4	5	Multiplication	5.1	Multiply 3-digit and 4-digit numbers	5.1.a	• multiplying 3-digit and 4-digit numbers
					5.1.b	• properties of multiplication
			5.2	Multiply using Lattice Algorithm	5.2.a	• multiplying using standard and lattice algorithms
5	5	Multiplication	5.1	Multiply Large Numbers.	5.1.a	• properties of multiplication
					5.1.b	• multiplying 4-digit and 5-digit by 2-digit and 3-digit numbers
					5.1.c	• finding the missing numbers in the given product

## B – Vision-to-Action Plan: 5.2 Multiply Using Lattice Algorithm

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	47, 48, 49 – THK, RCL, REM/UND	5.2.a	<ul style="list-style-type: none"> <li>Recall multiplication of 2-digit numbers by 1-digit numbers using lattice algorithm.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pg. 47 (Recall) TB: Pgs. 48, 49 (Example 7a)	WB: Pg. 44 (Q. 1-3)	
2 DD/MM/YYYY	48, 49, 56 – REM/UND, Drill Time	5.2.a	<ul style="list-style-type: none"> <li>Demonstrate the steps employed in solving multiplication of a 2-digit number by a 1-digit and a 2-digit number using lattice algorithm.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pgs. 48, 49 (Example 7b) TB: Pg. 56 (Drill Time Q. 4)	WB: Pg. 45 (Q. 4-12)	
3 DD/MM/YYYY	49, 50, 56 – REM/UND, Drill Time	5.2.a	<ul style="list-style-type: none"> <li>Demonstrate the steps involved in the multiplication of a 3-digit number by a 2-digit number using lattice algorithm.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pg. 50 (Example 8) TB: Pg. 56 (Drill Time Q. 5)	WB: Pgs. 45, 46 (Q. 13-16)	
4 DD/MM/YYYY	51, 56 – APP, Drill Time	5.2.a	<ul style="list-style-type: none"> <li>Solve multiplication sums by lattice algorithm.</li> </ul>	<ul style="list-style-type: none"> <li>Questioning</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pg. 51 (Example 9, 10) TB: Pg. 56 (Drill Time Q.3, 8)	WB: Pgs. 47, 48 (Q.17-20)	
5 DD/MM/YYYY	51, 52 – HOTS	5.2.a	<ul style="list-style-type: none"> <li>Solve multiplication sums by lattice algorithm.</li> </ul>	<ul style="list-style-type: none"> <li>Interactive Discussion</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pgs. 51, 52 (Example 11)	WB: Pgs. 48, 49 (Q. 21, 22)	

Annual Day:  
39/62

Day:  
1/5

Actual Date:

Page(s)  
47,48

**Example 5:** Multiply the largest 4-digit number by the smallest 1-digit number.

**Solution:** The largest 4-digit number = 9999  
The smallest 1-digit number = 1

We know that the product obtained when any number is multiplied by 1 is the number itself.

Therefore,  $9999 \times 1 = 9999$ .

Th	H	T	O
9	9	9	9
		x	1
9	9	9	9

**Example 6:** Multiply the largest 4-digit number by the largest 1-digit number.

**Solution:** The largest 4-digit number = 9999  
The largest 1-digit number = 9

Therefore,  $9999 \times 9 = 89991$ .

T	Th	Th	H	T	O
	8	8	8		
	9	9	9	9	
			x	9	
8	9	9	9	9	1

### Concept 5.2: Multiply Using Lattice Algorithm



#### Think

Jasleen knows how to multiply a 3-digit number by a 2-digit number. But she makes some mistakes. She wants a simple method for multiplication. Do you know any such method?



#### Recall

We know multiplication using standard algorithm.

Let us recall the standard algorithm of multiplication by solving the following sum.

H	T	O
	2	2
x		6

Th	H	T	O
	5	4	2
x			4

Th	H	T	O
	1	4	2
x			8

Th	H	T	O	
	1	2	4	3
x				2

#### Important Words

Duration: 1 min

- **Today:** standard algorithm

#### Transactional Tip(s)

Duration: 8 min



#### Direct Instruction:

- Discuss:
  - 'Think' section,
  - What is the meaning of 'simple method'?
  - Do learners know any other simple method of multiplication?
- Remind learners of the standard algorithm of multiplication.
- Ask learners to solve the four examples in TB: Pg. 47 'Recall'.
- Use 'Classklap Multiplication Table'.

#### Class Pulse Check

Duration: 2 min



- 1) What is the simple method of multiplication?
- 2) What is lattice algorithm?

Annual Day:  
39/62

Day:  
1/5

Actual Date:

Page(s)  
48

Important Words

Duration: 1 min

- Today: lattice algorithm



### Remembering and Understanding

There are two ways to multiply numbers:

- 1) Standard Algorithm
- 2) Lattice Algorithm

Let us now learn to multiply 2-digit and 3-digit numbers using lattice algorithm.

The important features of the lattice algorithm:

- Setting up the lattice before we begin multiplying
- Doing all the multiplications first, followed by additions
- There is no carry over in the multiplication phase of the algorithm

Let us use the lattice algorithm to multiply:

- 1) a 2-digit number by a 1-digit number and a 2-digit number
- 2) a 3-digit number by a 2-digit number

#### Multiply a 2-digit number by a 1-digit number and a 2-digit number

Multiplying a 2-digit number by a 1-digit number and a 2-digit number is similar to multiplying a 1-digit number by a 1-digit number. Let us see an example.

**Example 7:** Multiply: a)  $29 \times 3$       b)  $43 \times 52$

**Solution:** Construct the lattice as shown.

Steps	Solved a) $29 \times 3$	Solved b) $43 \times 52$	Solve these
<b>Step 1:</b> (a) Number of rows = Number of digits in the multiplier.  (b) Number of columns = Number of digits in multiplicand.			

Transactional Tip(s)

Duration: 16 min



Direct Instruction:

- Ask:
  - What is the meaning of 'simple method'?
  - Do learners know any other simple method of multiplication?
- Remind learners of the lattice algorithm of multiplication.
- Explain the lattice algorithm method using TB: Pg. 48, 49, Example 7a.
- Ask learners to solve the problems in 'Recall' section through the lattice algorithm.
- Use 'Classklap Multiplication Table'.

Class Pulse Check

Duration: 2 min



- 1) What is the first step employed in solving multiplication sums using lattice algorithm?

Steps	Solved a) $29 \times 3$	Solved b) $43 \times 52$	Solve these
<b>Step 2:</b> Write the multiplicand along the top of the lattice and the multiplier along the right, one digit for each row or column. Draw diagonals to divide each box into parts as shown.			
<b>Step 3:</b> Multiply each digit of the multiplicand by each digit of the multiplier. Write the products in the cells where the corresponding rows and columns meet.			
<b>Step 4:</b> If the product is a single digit number, put 0 in the tens place. $(2 \times 3 = 6) = 06$			
<b>Step 5:</b> Add the numbers along the diagonals from the right to find the product. Regroup if needed. Write the sum from left to right.			

**Multiply a 3-digit number by a 2-digit number**

Multiplying a 3-digit number by a 2-digit number is similar to multiplying a 2-digit number by a 2-digit number.

**Important Words**

- **Last class:** standard algorithm , lattice algorithm
- **Today:** –

**Transactional Tip(s)**

**Duration: 29 min**



**Direct Instruction:**

- Ask:
  - What is 'lattice algorithm' ?
  - What are the steps involved.
- Remind learners of the lattice algorithm method of multiplication.
- Explain the lattice algorithm method using TB: Pgs. 48, 49, Example 7b.
- Use 'Classkrap Multiplication Table'.
- Ask learners to solve the problems in 'Solve these' in the same table in TB itself.
- Ask learners to solve TB: Pg. 56, 'Drill Time', Q. 4.

**Class Pulse Check**

**Duration: 1 min**



- 1) What is the last step in solving multiplication using lattice algorithm?

Let us see an example.

**Example 8:** Multiply:  $168 \times 48$

**Solution:** Construct a lattice as shown such that:

(a) Number of rows = Number of digits in the multiplier.

(b) Number of columns = Number of digits in multiplicand.

Steps	Solved $168 \times 48$	Solve these
<b>Step 1:</b> Write the multiplicand along the top of the lattice. Write the multiplier along the right, one digit for each row or column. Draw diagonals to divide each box into parts as shown.		
<b>Step 2:</b> Multiply each digit of the multiplicand by each digit of the multiplier. Write the products in the cells where the corresponding rows and columns meet.		
<b>Step 3:</b> If the product is a single digit number, put 0 in the tens place.		
<b>Step 4:</b> Add the numbers along the diagonals to find the product and write the sum from left to right.	<p>Therefore, <math>168 \times 48 = 8064</math>.</p>	

**Important Words**

–

**Transactional Tip(s)**

Duration: 29 min



**Direct Instruction:**

- Discuss:
  - What is 'lattice algorithm'?
  - What are the steps involved.
- Remind learners of the lattice algorithm method of multiplication.
- Explain the lattice algorithm method using TB: Pg. 50, Example 8.
- Use 'Classklap Multiplication Table'.
- Ask learners to solve the problems in 'Solve these' in the same table in TB itself.
- Ask learners to solve TB: Pg. 56, 'Drill Time', Q.5.

**Class Pulse Check**

Duration: 1 min



- 1) Multiply 15 by 6.
- 2) Multiply 35 by 5.

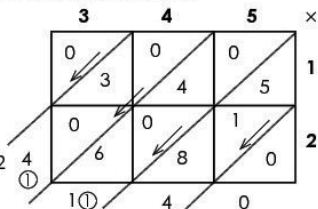


Application

Let us now see a few real-life examples involving multiplication of 3-digit numbers.

**Example 9:** There are 345 students in each class. Pooja's school has 12 such classes. How many students are there in her school?

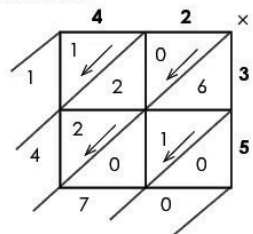
**Solution:** Number of students in each class = 345  
 Number of such classes in Pooja's school = 12  
 Total number of students  
 =  $345 \times 12 = 4140$



Therefore, there are 4140 students in Pooja's school.

**Example 10:** 42 people were sitting in a row of a stadium to enjoy a cricket match. How many people would be there in all if there were 35 such rows?

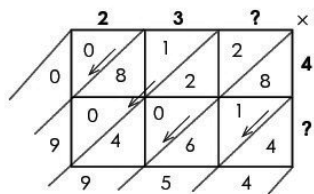
**Solution:** Number of people sitting in one row = 42  
 Number of rows = 35  
 Total number of people in 35 rows  
 =  $42 \times 35 = 1470$   
 Therefore, there are 1470 people in the stadium.



Higher Order Thinking Skills (H.O.T.S.)

We know how to multiply numbers using lattice algorithm. Let us see if we can analyse and solve the following.

**Example 11:** Find the missing numbers.  
 $23\_ \times 4\_ = 9954$



Important Words

-

Transactional Tip(s)

Duration: 29 min



Questioning:

- Write a word problem or give a real-life situation.
- Introduce the use of lattice algorithm.
- Explain the steps to be followed.
- Explain TB: Pg. 51, Example 9.
- Use 'Classklap Multiplication Table'.
- Ask learners to solve TB: Pg. 56, 'Drill Time', Q. 6.
- Instruct learners to practice TB: Pg. 51, Example 10.
- Present learners with a series of word problems to solve using the lattice algorithm. Start by calling individuals up to the blackboard to solve.
- Solve word problems in TB: Pg. 56, 'Drill Time', Q. 3, 8.

Class Pulse Check

Duration: 1 min



- 1) How many squares are required to solve the multiplication of 3-digit and 2-digit numbers using lattice algorithm?



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**Solution:** We can see that the box in the top right corner has the number 28. It is the product of 4 and ?.  
That is,  $4 \times ? = 28$   
 $4 \times 7 = 28$   
So, 7 is the first unknown number.  
Similarly, the box in the bottom left corner has 04. It is the product of 2 and?.  
That is,  $2 \times ? = 04$   
 $2 \times 2 = 04$   
So, the second unknown number is 2. So, the required numbers are 7 and 2 so that  $237 \times 42 = 9954$ .

### Concept 5.3: Mental Maths Techniques: Multiplication



#### Think

Jasleen's rose garden has rose plants planted in 7 rows. There are 8 plants in each row. Jasleen wanted to find out the total number of rose plants in her garden. How can she find that mentally?



#### Recall

To learn how to complete multiplication facts by adding partial products mentally, we must memorise tables from 1 to 5 and 10.

For example, we know that  $6 \times 5 = 30$ .

As  $6 = 4 + 2$ , we have  $(4 + 2) \times 5 = (4 \times 5) + (2 \times 5) = 20 + 10 = 30$ .



#### Remembering and Understanding

While multiplying two numbers mentally, we split the larger number into two parts.

Let us now understand how to complete multiplication facts by adding the products mentally.

**Example 12:** Find the answer by adding the products.  
 $8 \times 9$

### Important Words

–

### Transactional Tip(s)

Duration: 29 min



#### Interactive Discussion:

- Recall the steps in multiplication using lattice algorithm with an example.
- Show TB: Pg. 51, Example 11. Demonstrate how the question gives a blank space instead of two digits in the multiplication fact.
- After discussing it, explain that you can find any missing digit by working backwards from the product.
- Explain TB: Pgs. 51, 52, Example 11.
- Use 'Classklap Multiplication Table'.
- Write more examples of the same type and ask learners to solve.

### Class Pulse Check

Duration: 1 min



- 1) Which mathematical operations do we use in lattice algorithm?

## ✍️ C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	To solve the given multiplication, Maya wrote her first step as shown. Is she correct? If not, correct it. (Ans. No) <div style="text-align: center; margin-top: 10px;"> </div>	Periods 1, 2 - multiplying using standard and lattice algorithms	
2	To solve the given multiplication, what is your first step? (Ans. multiply each digit in the row by each digit in the column) <div style="text-align: center; margin-top: 10px;"> </div>	Period 3 - multiplying using standard and lattice algorithms.	
3	There are 652 books. If each book has 83 pages, find the total number of pages. (Ans. 54116 pages)	Period 4 - multiplying using standard and lattice algorithms	
4	Find the missing number in the following lattice algorithm. (Ans. 4) <div style="text-align: center; margin-top: 10px;"> </div>	Period 5 - multiplying using standard and lattice algorithms	

Post-lesson Reflection	Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>	<b>Names</b>	
Enthusiastic participation 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>	<b>Exam Revision Strategy</b>	<b>Practise</b> <input type="checkbox"/>
Concept clarity in the classroom 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>	Reteach <input type="checkbox"/> Revise <input type="checkbox"/>	
Concept clarity through the workbook 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/>	<b>App Report</b>	<b>Signature</b> _____
	Number _____	

## A – Curriculum to Learning Objectives: Multiplication

Prior Knowledge	• Addition, multiplication, multiplication tables					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	3	Numbers	3.1	Count in Ones and Tens	3.1.a	• the concept of zero
					3.1.b	• the sequence of numbers up to 99
					3.1.c	• place value and face value of numbers
2	4	Addition	4.1	Add 2-digit Numbers and 3-digit Numbers	4.1.a	• adding 2-digit and 3-digit numbers
3	6	Multiplication	6.1	Multiply 2-digit Numbers	6.1.a	• multiplying 2-digit Numbers by 1-digit
			6.2	Multiply 3-digit Numbers by 1-digit and 2-digit Numbers	6.2.a	• multiplying 3-digit numbers by 1-digit and 2-digit numbers with and without regrouping.
			6.3	Double 2-digit and 3-digit Numbers Mentally	6.3.a	• doubling the numbers mentally
4	5	Multiplication	5.1	Multiply 3-digit and 4-digit Numbers	5.1.a	• multiplying 3-digit and 4-digit numbers
					5.1.b	• properties of multiplication
			5.2	Multiply Using Lattice Algorithm	5.2.a	• multiplying using standard and lattice algorithms.
			5.3	Mental Maths Techniques: Multiplication	5.3.a	• multiplying mentally
5	5	Multiplication	5.1	Multiply Large Numbers	5.1.a	• properties of multiplication
					5.1.b	• multiplying 4-digit and 5-digit by 2-digit and 3-digit numbers
					5.1.c	• finding the missing numbers in the given product

## B – Vision-to-Action Plan: 5.3 Mental Maths Techniques: Multiplication

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	52-54, 56 – THK, RCL, REM/UND, Drill Time	5.3.a	<ul style="list-style-type: none"> <li>Recall multiplication tables.</li> <li>Interpret multiplication facts by adding partial products.</li> </ul>	<ul style="list-style-type: none"> <li>Guided Learning</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pgs. 52, 53 (Examples 12,13 ) TB: Pg. 56, (Drill Time Q.7)	WB: Pgs. 44-46 (Q.1-16)	
2 DD/MM/YYYY	52, 54, 56 – THK, APP, Drill Time	5.3.a	<ul style="list-style-type: none"> <li>Solve multiplication sums by adding the products mentally.</li> </ul>	<ul style="list-style-type: none"> <li>Guided Learning</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pg. 52 (Think) TB: Pg. 54 (Examples 14, 15 ) TB: Pg. 56, (Drill Time Q.8)	WB: Pg. 46 (Q.17-20)	
3 DD/MM/YYYY	55, 56 – HOTS, Drill Time	5.3.a	<ul style="list-style-type: none"> <li>Find the answer by adding the products.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Multiplication Table</li> </ul>	TB: Pg. 52 (Think) TB: Pg. 54 (Example 16 ) TB: Pg. 56, (Drill Time Q.7c, d, e)	WB: Pg. 46 (Q.21, 22)	
4 DD/MM/YYYY	–	5.3.a	<ul style="list-style-type: none"> <li>Solve multiplication sums mentally.</li> </ul>	<ul style="list-style-type: none"> <li>Peer Learning</li> <li>Interactive Discussion</li> </ul>	–	–	–	

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**Solution:** We can see that the box in the top right corner has the number 28. It is the product of 4 and ?.  
That is,  $4 \times ? = 28$   
 $4 \times 7 = 28$   
So, 7 is the first unknown number.  
Similarly, the box in the bottom left corner has 04. It is the product of 2 and?.  
That is,  $2 \times ? = 04$   
 $2 \times 2 = 04$   
So, the second unknown number is 2. So, the required numbers are 7 and 2 so that  $237 \times 42 = 9954$ .

### Concept 5.3: Mental Maths Techniques: Multiplication



#### Think

Jasleen's rose garden has rose plants planted in 7 rows. There are 8 plants in each row. Jasleen wanted to find out the total number of rose plants in her garden. How can she find that mentally?



#### Recall

To learn how to complete multiplication facts by adding partial products mentally, we must memorise tables from 1 to 5 and 10.

For example, we know that  $6 \times 5 = 30$ .

As  $6 = 4 + 2$ , we have  $(4 + 2) \times 5 = (4 \times 5) + (2 \times 5) = 20 + 10 = 30$ .



#### Remembering and Understanding

While multiplying two numbers mentally, we split the larger number into two parts.

Let us now understand how to complete multiplication facts by adding the products mentally.

**Example 12:** Find the answer by adding the products.

$$8 \times 9$$

#### Important Words

Duration: 1 min

- **Today:** mentally, split, product

#### Transactional Tip(s)

Duration: 12 min



#### Guided Learning:

- Read the 'Think' section.
- Explain:
  - how to solve multiplication sums mentally,
  - distributive property in the 'Recall' section,
  - easy and simple methods to solve without writing.
- Use TB: Pg. 52, 53, Example 12 to teach the multiplication of numbers mentally, by adding products.
- Use 'Classklap Multiplication Table'.
- Discuss queries and understanding of learners.
- Practice  $7 \times 6$  in the same table.
- Learners to solve TB: Pg. 56, 'Drill Time', Q. 7(a), (b).

#### Class Pulse Check



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Important Words

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Solution:

Steps	Solved $8 \times 9$	Solve this $7 \times 6$
<b>Step 1:</b> Check by how much is the larger number more than 5.	The larger number is 9, and from 5, we count 6, 7, 8 and 9. So, 9 is 4 more than 5.	The larger number is _____, and from 5, we count ___ and ___. So, ___ is _____ more than 5.
<b>Step 2:</b> Write the number as the sum of 5 and the other number.	$5 + 4 = 9$	___ + ___ = _____
<b>Step 3:</b> Multiply the numbers of the sum by the smaller number. Use memorised tables of 1 to 5 and 10 to solve mentally.	$5 \times 8 = 40$ and $4 \times 8 = 32$	$5 \times \underline{\quad} = \underline{\quad}$ and $\underline{\quad} \times \underline{\quad} = \underline{\quad}$
<b>Step 4:</b> Add both the products from step 3 to get the final answer.	$40 + 32 = 72$ Therefore, $8 \times 9 = 72$ .	___ + ___ = _____ Therefore, $7 \times 6 = \underline{\quad}$ .

**Example 13:** Find the answer by adding the products:  $14 \times 6$

Solution:

Steps	Solved $14 \times 6$	Solve this $12 \times 8$
<b>Step 1:</b> Check by how much is the larger number more than 10.	The larger number is 14, and from 10, we count 11, 12, 13 and 14. So, 14 is 4 more than 10.	The larger number is _____, and from 10 we count ___ and ___. So ___ is _____ more than 10.
<b>Step 2:</b> Write the larger number as the sum of 10 and the other number.	$10 + 4 = 14$	___ + ___ = _____

Transactional Tip(s)

Duration: 15 min



Guided Learning:

- Use TB: Pgs. 53, 54, Example 13 to teach the multiplication of numbers mentally, by adding products.
- Use Classklap Multiplication Table.
- Discuss queries and understanding of learners.
- Practice  $12 \times 8$  in the same table.
- Learners to solve TB: Pg. 56, 'Drill Time', Q. 7 c, d, e.

Class Pulse Check

Duration: 2 min



- 1) What is the value of:  
a)  $9 \times 6$  b)  $7 \times 3$  c)  $8 \times 5$  d)  $4 \times 7$
- 2) Find the answer by adding the products.  
a)  $12 \times 6$  b)  $14 \times 3$  c)  $17 \times 5$  d)  $11 \times 7$

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Steps	Solved $14 \times 6$	Solve this $12 \times 8$
<b>Step 3:</b> Multiply the sum in the previous step by the smaller number given, using memorised tables of 1 to 5 and 10.	$10 \times 6 = 60$ and $4 \times 6 = 24$	$10 \times \underline{\quad} = \underline{\quad}$ and $\underline{\quad} \times \underline{\quad} = \underline{\quad}$
<b>Step 4:</b> Add both the products from step 3 mentally to get the final answer.	$60 + 24 = 84$ Therefore, $14 \times 6 = 84$ .	$\underline{\quad} + \underline{\quad} = \underline{\quad}$ Therefore, $12 \times 8 = \underline{\quad}$ .



### Application

We have learnt some easy ways of completing multiplication facts by adding the products mentally. Let us now see some examples where we apply this concept.

**Example 14:** Rohit works for 8 hours in a day. He works 6 days in a week. For how many hours does he work in a week?

**Solution:** Number of hours Rohit works in a day = 8  
Number of days he works in a week = 6  
Total number of hours Rohit works in a week =  $8 \times 6$   
The larger number is 8, and it is 3 more than 5.  
As  $8 = 5 + 3$ ,  
 $8 \times 6 = (5 \times 6) + (3 \times 6) = 30 + 18 = 48$ .  
Therefore, Rohit works for 48 hours in a week.

**Example 15:** Jaya's father bought 7 boxes of mangoes, with 12 mangoes in each box. How many mangoes did Jaya's father buy in all?

**Solution:** Number of boxes of mangoes Jaya's father bought = 7  
Number of mangoes in each box = 12  
Total number of mangoes =  $12 \times 7$   
The larger number is 12, and it is 2 more than 10.  
So,  $12 = 10 + 2$ .  
Hence,  $12 \times 7 = (10 \times 7) + (2 \times 7) = 70 + 14 = 84$ .  
Therefore, Jaya's father bought 84 mangoes in all.

### Important Words

- **Last class:** mentally, split, product
- **Today:** –

### Transactional Tip(s)

Duration: 27 min



### Guided Learning:

- Recall the problem in 'Think' section.
- Explain the steps to solve it.
- Use TB: Pg. 54, Example 14 to teach learners the application of multiplication by the method of adding products.
- Use Classklap Multiplication Table.
- Discuss queries and understanding of learners.
- Learners to solve TB: Pg. 54, Example 15 ; TB: Pg. 56, 'Drill Time', Q. 8.

### Class Pulse Check

Duration: 2 min



- 1) How many products do we add mentally while multiplying a 2-digit number by a 1-digit number.

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### Higher Order Thinking Skills (H.O.T.S.)

Let us now see some more examples where we multiply larger numbers mentally.

**Example 16:** Find the answer by adding the products:  $17 \times 7$

**Solution:**

Steps	Solved $17 \times 7$	Solve this $19 \times 9$
<b>Step 1:</b> Check by how much is the larger number more than 10.	The larger number is 17, and from 10 we count 11, 12, 13, 14, 15, 16 and 17. So, 17 is 7 more than 10.	The larger number is _____, and from 10 we count _____ and _____. So, _____ is _____ more than 10.
<b>Step 2:</b> Take the number from step 1 and check by how much it is more than 5.	Number from step 1 is 7, and from 5, we count 6 and 7. So, 7 is 2 more than 5.	Number from step 1 is _____, and from 5, we count _____, _____ and _____. So, _____ is _____ more than 5.
<b>Step 3:</b> Write the three numbers whose sum is the larger number.	$10 + 5 + 2 = 17$	____ + ____ + ____ = _____
<b>Step 4:</b> Multiply each number of the sum in the previous step by the smaller given number. Use memorised tables of 1 to 5 and 10 to solve mentally.	$10 \times 7 = 70$ $5 \times 7 = 35$ $2 \times 7 = 14$	$10 \times \_\_\_ = \_\_\_\_\_\_$ $5 \times \_\_\_ = \_\_\_\_\_\_$ $\_\_\_ \times \_\_\_ = \_\_\_\_\_\_$
<b>Step 5:</b> Add all the three products from step 4 to get the final answer.	$70 + 35 + 14 = 119$ Therefore, $17 \times 7 = 119$ .	____ + ____ + ____ = _____ Therefore, $19 \times 9$ = _____.

### Important Words

Duration: 1 min

- **Today:** adding products

### Transactional Tip(s)

Duration: 27 min



#### Direct Instruction:

- Recall distributive property.
- Explain the steps to distribute over addition.
- Demonstrate TB: Pg. 55, Example 16.
- Use Classklap Multiplication Table.
- Discuss queries and understanding of learners.
- Learners to solve TB: Pg. 55, 'Solve this' in the text book itself.
- Ask learners to solve TB: Pg. 56, 'Drill Time', Q. 7c, d, e, by adding products.

### Class Pulse Check

Duration: 2 min



- 1) Find the answer by adding the products.  
a)  $13 \times 7$  b)  $14 \times 6$  c)  $18 \times 8$  d)  $17 \times 8$





Drill Time

Concept 5.1: Multiply 3-digit and 4-digit Numbers

1) Multiply a 3-digit number by a 3-digit number.

- a)  $247 \times 567$       b)  $509 \times 121$       c)  $892 \times 469$       d)  $731 \times 691$

2) Multiply a 4-digit number by a 1-digit number.

- a)  $6741 \times 4$       b)  $3456 \times 8$       c)  $9258 \times 9$       d)  $5555 \times 5$

3) Word problems

- a) Pranav makes 253 cotton bags in a day. How many bags will he be able to make in the year 2017? [Hint: 2017 is not a leap year]
- b) Tanya bought sweaters as Christmas gifts for her 7 cousins. If one sweater costs ₹ 2734, then how much money in all did she spend for the gifts?

Concept 5.2: Multiply Using Lattice Algorithm

4) Multiply a 2-digit number by a 2-digit number.

- a)  $24 \times 32$       b)  $56 \times 15$       c)  $13 \times 39$       d)  $67 \times 51$

5) Multiply a 3-digit number by a 2-digit number.

- a)  $158 \times 17$       b)  $451 \times 39$       c)  $651 \times 67$       d)  $721 \times 41$

6) Word problems

- a) A movie theatre sold 127 tickets for a movie. Cost of one ticket was ₹ 85. How much money did the theatre owner earn from that movie?
- b) There are 47 students in Class 3. Answer sheets were given to each student for Maths exam. If one answer sheet has 15 pages, then how many total sheets of paper were used for the exam?

Concept 5.3: Mental Maths Techniques: Multiplication

7) Multiply the following:

- a)  $9 \times 7$       b)  $9 \times 6$       c)  $11 \times 7$       d)  $14 \times 6$       e)  $13 \times 8$

8) Word problems

- a) There are 14 players in a football team. If 8 teams are participating in the district level football tournament, then how many pairs of boots are needed for them?
- b) Megha eats 8 chappatis daily. How many chappatis does she eat in a week?

Important Words

- Last class: adding products
- Today: –

Transactional Tip(s)

Duration: 30 min



Peer Learning - Pair/Group:

- Divide the class into groups of pairs.
- Using mental maths techniques, ask each group to solve multiplication problems with 2-digit numbers multiplied by 1-digit numbers.
- Ask learners to multiply a 2-digit number by different 1-digit numbers.

Interactive Discussion:

- Ask learners to:
  - discuss their ideas and experiences,
  - share their techniques with others.










Class Pulse Check



1) -

## C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	To multiply $15 \times 3$ mentally, what is easiest step? (Ans. finding two products)	Period 1 - multiplying mentally	
2	Will you use distributive property to multiply numbers mentally? Give an example. (Ans. Yes, $45 \times 2 = (40 + 5) \times 2$ )	Period 1 - multiplying mentally	
3	Find the multiplication fact in $6 \times 20 + 6 \times 8$ . (Ans. $6 \times 28$ or $28 \times 6$ )	Periods 1, 3 - multiplying mentally	
4	If you want to multiply 89 by 8 mentally, what is your first step to solve it? (Ans. Learner's response)	Periods 1, 3 - multiplying mentally	
5	Write the steps to solve $18 \times 5$ mentally. (Ans. Split the larger number and multiply each part by 5: $18 = 10 + 8$ , so $18 \times 5 = 10 \times 5 + 8 \times 5$ )	Period 3 - multiplying mentally	
6	Write the steps to solve the following word problem mentally. The cost of one pen is ₹ 65. Find the cost of 5 such pens. (Ans. Learner's response)	Period 2 - multiplying mentally	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>			
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		App Report    Number _____	Signature _____

## Chapter 5: Multiplication

### Concept 5.1: Multiply 3-digit and 4-digit Numbers

#### Drill Time

- 1) Multiply a 3-digit number by a 3-digit number.  
a)  $247 \times 567 = 140049$       b)  $509 \times 121 = 61589$   
c)  $892 \times 469 = 418348$       d)  $731 \times 691 = 505121$
- 2) Multiply a 4-digit number by a 1-digit number.  
a)  $6741 \times 4 = 26964$       b)  $3456 \times 8 = 27648$   
c)  $9258 \times 9 = 83322$       d)  $5555 \times 5 = 27775$

#### 3) Word problems

- a) Pranav makes 253 cotton bags in a day. How many bags will he be able to make in the year 2017? [Hint: 2017 is not a leap year]
- b) Tanya bought sweaters as Christmas gifts for her 7 cousins. If one sweater costs ₹ 2734, then how much money in all did she spend for the gifts?

**Solution:** a) 92345 cotton bags

b) ₹ 19138

## Chapter 5: Multiplication

### Concept 5.2: Multiply Using Lattice Algorithm

#### Drill Time

- 4) Multiply a 2-digit number by a 2-digit number.
- a)  $24 \times 32 = 768$       b)  $56 \times 15 = 840$   
c)  $13 \times 39 = 507$       d)  $67 \times 51 = 3417$
- 5) Multiply a 3-digit number by a 2-digit number.
- a)  $158 \times 17 = 2686$       b)  $451 \times 39 = 17589$   
c)  $651 \times 67 = 43617$       d)  $721 \times 41 = 29561$
- 6) Word problems
- a) A movie theatre sold 127 tickets for a movie. Cost of one ticket was ₹ 85. How much money did the theatre owner earn from that movie?
- b) There are 47 students in Class 3. Answer sheets were given to each student for Maths exam. If one answer sheet has 15 pages, then how many total sheets of paper were used for the exam?

**Solution:** a) ₹ 10795  
b) 705 sheets

# Teacher Reference: Textbook

## Chapter 5: Multiplication

### Concept 5.3: Mental Maths Techniques: Multiplication

#### Drill Time

7) Multiply the following:

a)  $9 \times 7 = \mathbf{63}$

b)  $9 \times 6 = \mathbf{54}$

c)  $11 \times 7 = \mathbf{77}$

d)  $14 \times 6 = \mathbf{84}$

e)  $13 \times 8 = \mathbf{104}$

8) Word problems

a) There are 14 players in a football team. If 8 teams are participating in the district level football tournament, then how many pairs of boots are needed for them?

b) Megha eats 8 chappatis daily. How many chappatis does she eat in a week?

**Solution:** a) 112 pairs of boots

b) 56 chappatis

# Multiplication

## Concept 5.1: Multiply 3-digit and 4-digit Numbers

### Recall

#### Multiple Choice Questions

- 1) The product of 100 and 0 is \_\_\_\_\_.  
(A) 0 (B) 100 (C) 1000 (D) 0100 [ A ]
- 2) The product of 298 and 1 is \_\_\_\_\_.  
(A) 1 (B) 1298 (C) 298 (D) 2981 [ C ]
- 3) The product of 200 and 2 is \_\_\_\_\_.  
(A) 200 (B) 2002 (C) 2200 (D) 400 [ D ]

### Remembering and Understanding

#### Multiple Choice Questions

- 4) The product of 100 and 100 is \_\_\_\_\_.  
(A) 0 (B) 100 (C) 1000 (D) 10000 [ D ]
- 5) The product of 200 and 0 is \_\_\_\_\_.  
(A) 0 (B) 200 (C) 200000 (D) 20000 [ A ]
- 6) The product of 500 and 100 is \_\_\_\_\_.  
(A) 5 (B) 5000 (C) 100000 (D) 50000 [ D ]

#### Fill in the Blanks

- 7) The product of 4573 and 1 is **4573**.
- 8) The product of 2555 and 0 is **0**.
- 9) The product of 2222 and 2 is **4444**.

### Very Short Answer Questions

10) Write the distributive property of multiplication over addition.

**Solution:** For any three numbers 'a', 'b' and 'c',  $a \times (b + c) = (a \times b) + (a \times c)$ .

11) Name the properties of multiplication.

**Solution:** Multiplicative Identity, Zero, Commutative, Associative and Distributive.

12) What is the product of 2224 and 2?

**Solution:** 4448

### Short Answer Questions

13) Find the product of 5043 and 7.

**Solution:**

	Th	H	T	O
		3	2	
	5	0	4	3
			x	7
3	5	3	0	1

14) Find the product of 2681 and 5.

**Solution:**

	Th	H	T	O
	3	4		
	2	6	8	1
			x	5
1	3	4	0	5



### Long Answer Questions

15) Find the product of 361 and 247.

**Solution:** .....

T	Th	H	T	O
		1		
		2		
		4		
		3	6	1
	x	2	4	7
		1		
	2	5	2	7
+	1	4	4	0
+	7	2	2	0
	8	9	1	6
				7

16) Multiply 222 by 222.

**Solution:** .....

T	Th	H	T	O
		2	2	2
	x	2	2	2
		1		
		4	4	4
+	4	4	4	0
+	4	4	4	0
	4	9	2	8
				4



### Application

### Short Answer Questions

17) Ann made 1987 jelly beans in a day. How many jelly beans would she make in 4 days?

**Solution:** Number of jelly beans made in a day = 1987 .....

Number of days = 4 .....



Total number of jelly beans made in a 4 day =  $1987 \times 4$

Th	H	T	O
3	3	2	
1	9	8	7
		x	4
7	9	4	8

Therefore, Ann made 7948 jelly beans in a day.

- 18) A library has five racks with 1600 books on each rack. What is the total number of books in the library?

**Solution:** Number of books on one rack = 1600

Number of racks = 5

Total number of books =  $1600 \times 5$

Th	H	T	O
3			
1	6	0	0
		x	5
8	0	0	0

Therefore, there are 8000 books in five racks in the library.

### Long Answer Questions

- 19) A small printing press prints 113 newspapers in a day. How many newspapers would it print in 123 days?

**Solution:** Number of newspapers printed in a day = 113

Number of days = 123

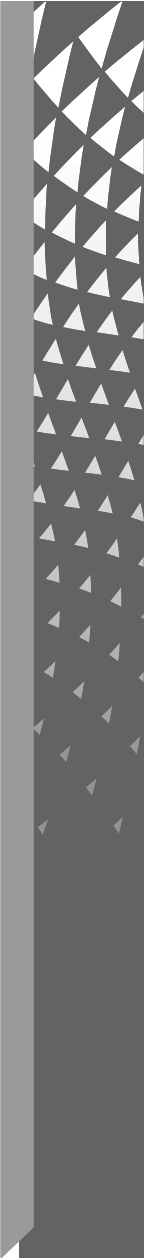
The total number of newspapers printed

in 123 days =  $123 \times 113$

Therefore, 13899 newspapers will be printed

in 123 days.

T	Th	H	T	O
		1	2	3
	x	1	1	3
		3	6	9
	1	2	3	0
1	2	3	0	0
1	3	8	9	9



- .....  
 .....  
 .....  
 .....  
 20) Khyati owns a book store. She ordered 121 cartons of Batman comics. If each carton contains 234 comics, how many comics did she order?

**Solution:** Number of comics in a carton = 234

Number of carton = 121

The total number of comics =  $234 \times 121$

T	Th	H	T	O
		2	3	4
		×	1	2
		①	①	
			2	3
			2	3
	4	6	8	0
+				
+	2	3	4	0
	2	8	3	1
				4

Therefore, Khyati ordered 28314 comics.



### Higher Order Thinking Skills (H.O.T.S.)

#### Short Answer Question

- 21) Multiply the smallest 4-digit number and the largest 1-digit number.

**Solution:** The smallest 4-digit number = 1000

The largest 1-digit number = 9

So, the product of 1000 and 9 = 9000

Therefore, the required product is 9000.

Th	H	T	O
1	0	0	0
		×	9
9	0	0	0

.....  
 .....  
 .....

### Long Answer Question

22) What is the product of the largest 3-digit number and the smallest 3-digit number?

**Solution:** The largest 3-digit number = 999

The smallest 3-digit number = 100

The product of 999 and 100 =  $999 \times 100$

	T	Th	H	T	O
			9	9	9
			1	0	0
			0	0	0
+		0	0	0	0
+	9	9	9	0	0
	9	9	9	0	0

Therefore, the required product is 99900.

## Concept 5.2: Multiply Using Lattice Algorithm



Recall

### Multiple Choice Questions

- 1) The product of 20 and 20 is \_\_\_\_\_. [ D ]  
 (A) 20 (B) 40 (C) 200 (D) 400
- 2) The product of 500 and 30 is \_\_\_\_\_. [ B ]  
 (A) 150 (B) 15000 (C) 300 (D) 5000
- 3) The product of 40 and 11 is \_\_\_\_\_. [ A ]  
 (A) 440 (B) 110 (C) 411 (D) 114



## Remembering and Understanding

### Multiple Choice Questions

- 4) The product of 30 and 3 is \_\_\_\_\_ . [ A ]  
 (A) 90 (B) 30 (C) 330 (D) 303
- 5) The product of 40 and 50 is \_\_\_\_\_ . [ B ]  
 (A) 20 (B) 2000 (C) 200 (D) 400
- 6) The product of 30 and 70 is \_\_\_\_\_ . [ A ]  
 (A) 2100 (B) 300 (C) 700 (D) 1400

### Fill in the Blanks

- 7) The product of 150 and 30 is 4500.
- 8) The product of 200 and 70 is 14000.
- 9) The product of 450 and 10 is 4500.

### Very Short Answer Questions

- 10) Is the multiplication of 3-digit numbers similar to the multiplication of 2-digit numbers?

**Solution:** Yes .....

- 11) Can we use lattice algorithm to multiply a 2-digit number by a 1-digit number?

**Solution:** Yes .....

- 12) What are the two algorithms of multiplication?

**Solution:** Standard algorithm and lattice algorithm .....

### Short Answer Questions

- 13) What are the three important features of multiplication by the lattice algorithm?

**Solution:** a) Setting up the lattice before we begin multiplying .....

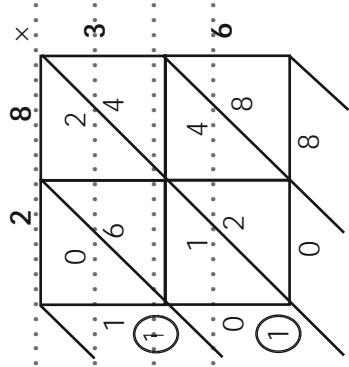
b) Doing all the multiplications first, followed by additions .....

c) There is no carry over in the multiplication phase of the algorithm .....

- 14) Multiply 28 by 36 using the lattice algorithm.

**Solution:** .....

So,  $28 \times 36 = 1008$



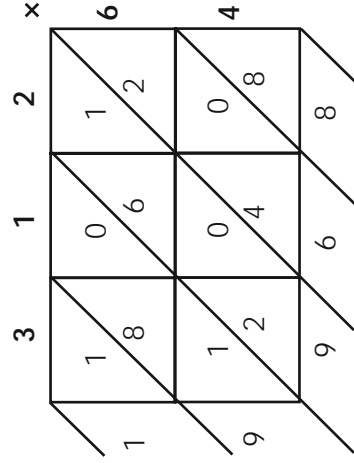
### Long Answer Questions

15) Multiply using lattice algorithm:

a) 312 by 64

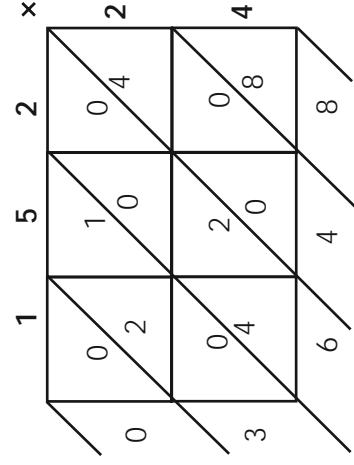
b) 152 by 24

**Solution:** a)



Therefore,  $312 \times 64 = 19968$ .

b)



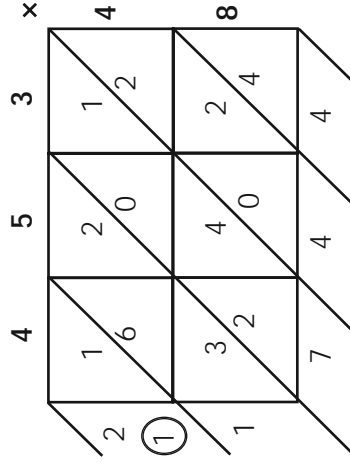
Therefore,  $152 \times 24 = 3648$ .

16) Multiply using lattice algorithm:

a) 453 by 48

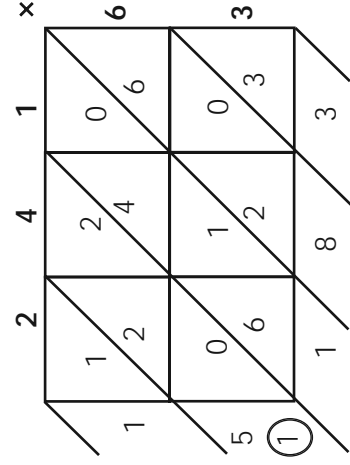
b) 241 by 63

**Solution:** a)



Therefore,  $453 \times 48 = 21744$ .

b)



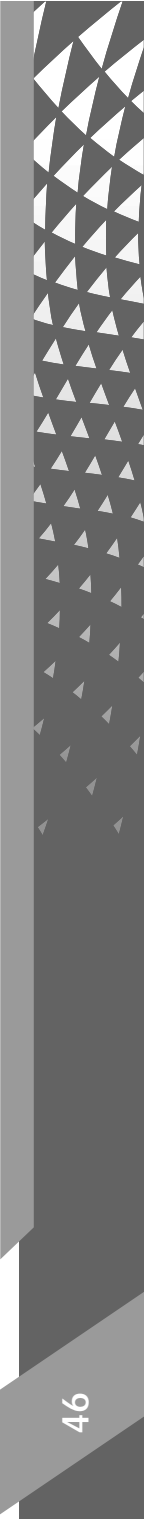
Therefore,  $241 \times 63 = 15183$ .



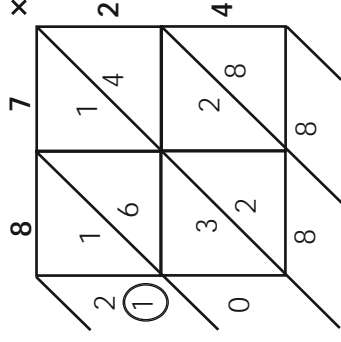
### Application

### Short Answer Questions

17) A football player spends around 24 minutes exercising per practice session. How many minutes would he have spent during 87 such sessions?

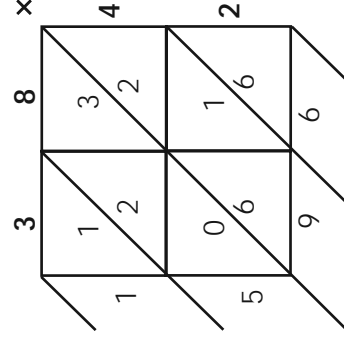


**Solution:** Number of session = 87  
 Time spent on exercising each session = 24  
 The time spent exercising for 87 session =  $87 \times 24 = 2088$   
 Therefore, the football player would have spent  
 2088 minutes in 87 sessions.



18) 38 eggs are packed in one box. How many eggs can be packed in 42 boxes?

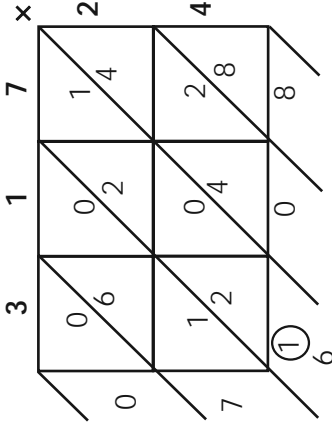
**Solution:** Number of eggs packed in a box = 38  
 Number of boxes = 42  
 The total number of eggs in 42 boxes =  $38 \times 42$   
 Therefore, 1596 eggs can be packed in 42 boxes.



### Long Answer Questions

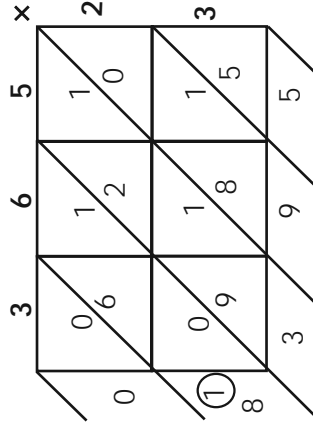
19) Daniel writes 317 pages in a week. How many pages would he write in 24 weeks?

**Solution:** Number of page written in a week = 317  
 Number of weeks = 24  
 Total number of pages written in 24 weeks  
 =  $317 \times 24$   
 Therefore, Daniel would write 7608 pages in  
 24 weeks.



20) Pranav spends ₹ 23 on cold drinks everyday. How much money would he have saved in 2018 if he would have not bought the cold drinks?

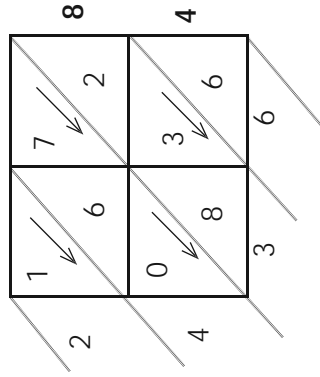
**Solution:** Number of days in 2017 = 365  
 Amount spent on cold drinks = ₹ 23  
 Total amount spent =  $365 \times 23$   
 Therefore, Pranav would have saved ₹ 8395.





### Short Answer Question

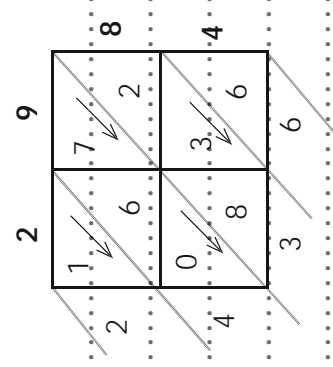
- 21) Find the missing number in the given lattice multiplication.



**Solution:** The product of ? and 8 is 72.

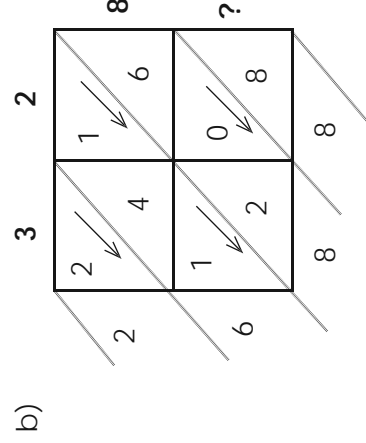
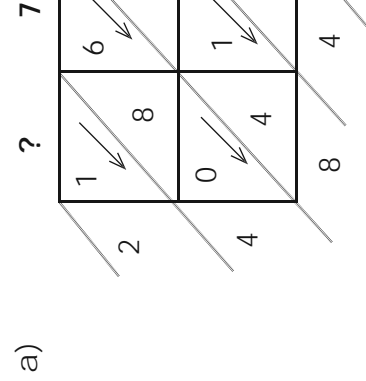
That is,  $? \times 8 = 72$

As  $9 \times 8 = 72$ , 9 is the missing number.



### Long Answer Question

- 22) Find the missing numbers in the given lattice multiplications.



**Solution:** a) The product of ? and 9 is 18.

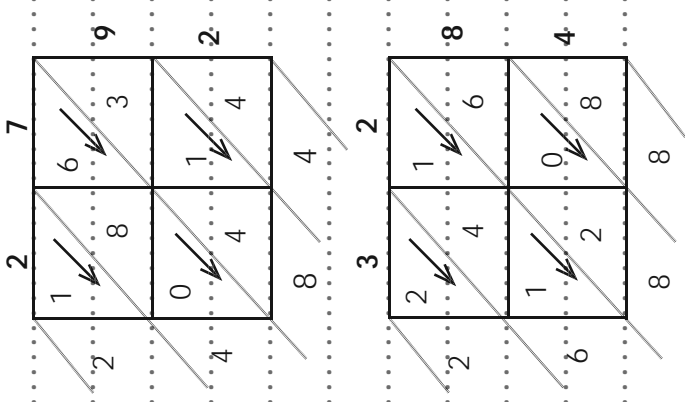
That is,  $? \times 9 = 18$

As  $2 \times 9 = 18$ , 2 is the missing number.

b) The product of 2 and ? is 8.

That is,  $2 \times ? = 8$

As  $2 \times 4 = 8$ , 4 is the missing number.



### Concept 5.3: Mental Maths Techniques: Multiplication



#### Recall

#### Multiple Choice Questions

- 1) The product of 5 and 5 is \_\_\_\_\_. [ D ]  
(A) 30 (B) 20 (C) 35 (D) 25
- 2) The product of 9 and 5 is \_\_\_\_\_. [ C ]  
(A) 34 (B) 54 (C) 45 (D) 64
- 3) The product of 4 and 8 is \_\_\_\_\_. [ B ]  
(A) 30 (B) 32 (C) 34 (D) 35



#### Remembering and Understanding

#### Multiple Choice Questions

- 4) The product of 3 and 3 is \_\_\_\_\_. [ A ]  
(A) 9 (B) 12 (C) 10 (D) 6



- 5) The product of 4 and 10 is \_\_\_\_\_ . [ A ]  
 (A) 40 (B) 10 (C) 14 (D) 6
- 6) The product of 10 and 10 is \_\_\_\_\_ . [ C ]  
 (A) 1 (B) 10 (C) 100 (D) 101

### Fill in the Blanks

- 7) The product of 2 and 9 is **18** .
- 8) The product of 7 and 9 is **63** .
- 9) The product of 8 and 6 is **48** .

### Very Short Answer Questions

- 10) Find the product of 7 and 6.

**Solution:** ..... 42 .....

- 11) Multiply 8 and 7.

**Solution:** ..... 56 .....

- 12) Multiply 14 and 3.

**Solution:** ..... 42 .....

### Short Answer Questions

- 13) Multiply: a) 3 and 4 b) 5 and 9

**Solution:** a)  $3 \times 4 = 12$  .....  
 b)  $5 \times 9 = 45$  .....

- 14) Multiply: a) 7 and 3 b) 9 and 9

**Solution:** a)  $7 \times 3 = 21$  .....  
 b)  $9 \times 9 = 81$  .....

### Long Answer Questions

- 15) Multiply: a) 21 and 4 b) 51 and 1 c) 45 and 2 d) 17 and 5

**Solution:** a)  $21 \times 4 = 84$  .....  
 b)  $51 \times 1 = 51$  .....  
 c)  $45 \times 2 = 90$  .....  
 d)  $17 \times 5 = 85$  .....







## Practice Questions

- 1) Multiply: a) 471 and 189      b) 112 and 221      c) 231 and 231
- 2) If one crate has 12 eggs, how many eggs will 32 crates contain?
- 3) Solve: a)  $769 \times 999$       b) 462 and 124      c) 521 and 231
- 4) There are 7 balloons stuck in a row. How many such balloons are stuck in 2 such rows?
- 5) Solve: a)  $2300 \times 7$       b)  $1400 \times 2$       c)  $3600 \times 3$
- 6) Multiply: a) 9382 by 8      b) 2762 by 3      c) 1798 by 4
- 7) Use distributive property to solve  $2 \times (4 + 3)$ .
- 8) Fill in the blanks to show that multiplication distributes over subtraction:  
 $4 \times (8 - 5) = \underline{\hspace{2cm}} \times \underline{\hspace{2cm}} - 4 \times 5$
- 9) If each carton carries 430 biscuits, how many biscuits are there in 327 cartons?
- 10) Multiply mentally: a) 58 and 2      b) 45 and 3      c) 63 and 5
- 11) The cost of one book is ₹ 241. What is the cost of 830 books?
- 12) There are 568 pages in a storybook. How many pages will 173 such storybooks have?
- 13) Multiply mentally: a) 23 and 8      b) 34 and 9      c) 48 and 9
- 14) If a man earns ₹ 2891 per day, how much would he earn in 9 days?
- 15) Multiply: a) 44 and 44      b) 33 and 43      c) 88 and 22
- 16) Solve: a)  $87 \times 23$       b)  $21 \times 46$       c)  $98 \times 11$
- 17) Solve: a)  $572 \times 21$       b)  $421 \times 23$       c)  $562 \times 31$
- 18) Solve: a)  $290 \times 11$       b)  $129 \times 21$       c)  $342 \times 44$
- 19) What is the sum of the digits in the ones and the tens place when 19 is multiplied by 9?
- 20) Solve: a)  $55 \times 2$       b)  $23 \times 4$       c)  $65 \times 5$
- 21) If 43 tiles are used on one floor, how many tiles will be used on 7 such floors?
- 22) Multiply: a) 108 and 572      b)  $234 \times 651$       c)  $562 \times 341$
- 23) There are 298 notes in a box. If there are 63 boxes, how many notes are there in all?
- 24) There are 457 packets of chocolates. Each packet is sold at ₹ 89. What is the total amount the shopkeeper earns after selling all the packets?
- 25) What is the product of 9 and 9?
- 26) Multiply mentally: a) 18 and 2      b) 12 and 8      c) 19 and 1
- 27) Solve mentally: a)  $8 \times 7$       b)  $9 \times 9$       c)  $4 \times 6$
- 28) Multiply mentally: a) 15 and 9      b) 14 and 7      c) 11 and 5
- 29) What is the digit in the hundreds place when 5691 is multiplied by 4?
- 30) A garden has 18 seeds planted in one square. How many seeds can be planted in 4 squares?

## Chapter 5: Multiplication



### Practice Questions

- 1) a) 89019    b) 24752    c) 53361    2) 384 eggs
- 3) a) 768231    b) 57288    c) 120351    4) 14 balloons
- 5) a) 16100    b) 2800    c) 10800    6) a) 75056    b) 8286    c) 7192
- 7) 14    8) 4, 8
- 9) 140610 biscuits    10) a) 116    b) 135    c) 315
- 11) ₹ 200030    12) 98264 pages
- 13) a) 184    b) 306    c) 432    14) ₹ 26019
- 15) a) 1936    b) 1419    c) 1936    16) a) 2001    b) 966    c) 1078
- 17) a) 12012    b) 9683    c) 17422    18) a) 3190    b) 2709    c) 15048
- 19) 8    20) a) 110    b) 92    c) 325
- 21) 301 tiles    22) a) 61776    b) 152334    c) 191642
- 23) 18774 notes    24) ₹ 40673
- 25) 81    26) a) 36    b) 96    c) 19
- 27) a) 56    b) 81    c) 24    28) a) 135    b) 98    c) 55
- 29) 7    30) 72 seeds

## A – Curriculum to Learning Objectives: Measurement

Prior Knowledge	• <i>Clock, parts of the day</i>					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	3	Numbers	3.1	Count in Ones and Tens	3.1.a	• the concept of zero
					3.1.b	• the sequence of numbers up to 99
2	3	Numbers	3.3	Ordinal Numbers	3.3.c	• forming the greatest and the smallest 3-digit numbers
4	6	Time	6.1	Duration of Events	6.1.a	• reading and writing time
					6.1.b	• the 12-hour and the 24-hour clock formats
					6.1.c	• converting 12-hour clock to 24-hour clock format and vice versa
					6.1.d	• the terms 'duration', 'end time' and 'start time'
			6.2	Estimate Time	6.2.a	• problems involving estimation of time
5	7	Time	7.1	Convert Time	7.1.a	• converting larger units to smaller units of time and vice versa
					7.1.b	• word problems based on time
			7.2	Add and Subtract Time	7.2.a	• adding and subtracting time

## B – Vision-to-Action Plan: 6.1 Duration of Events

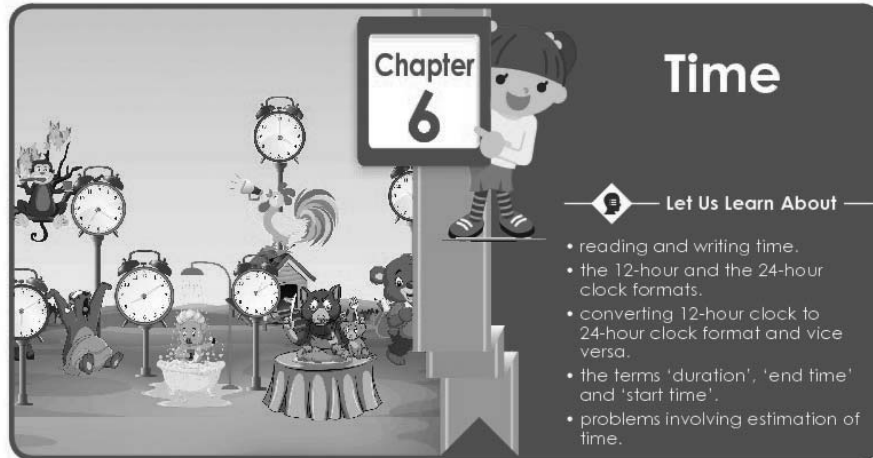
Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	57, 58, 59 – THK, RCL	6.1.a	<ul style="list-style-type: none"> <li>Recall information about the hour hand and the minute hand.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Wall clock</li> </ul>	TB: Pg.58 (a-d)	WB: Pg. 53 (Q.1-3)	
2 DD/MM/YYYY	59 – REM/UND	6.1.b	<ul style="list-style-type: none"> <li>Read the time shown by the clocks.</li> <li>Relate the 12-hour clock time with the 24-hour clock time.</li> </ul>	<ul style="list-style-type: none"> <li>Peer Learning</li> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Wall clock</li> </ul>	TB: Pgs. 58, 59 (example 1)	WB: Pgs. 53, 54 (Q.4-12)	
3 DD/MM/YYYY	60, 61, 66 – REM/UND, Drill Time	6.1.c	<ul style="list-style-type: none"> <li>Convert the 24-hour time into the 12-hour clock format.</li> </ul>	<ul style="list-style-type: none"> <li>Practising</li> </ul>	–	TB: Pg. 61, (Examples 2, 3) TB: Pg. 66 (Drill Time Q. 1a, b, c, 2,)	WB: Pgs. 54, 55 (Q.13-16) TB: Pg. 66 (Q. 1d, e Drill Time)	
4 DD/MM/YYYY	61-63, 66 – APP, HOTS, Drill Time	6.1.d	<ul style="list-style-type: none"> <li>Solve word problems based on the 12-hour and 24-hour clocks.</li> </ul>	<ul style="list-style-type: none"> <li>Guided Learning</li> <li>Questioning</li> </ul>	–	TB: Pgs. 61, 62 (Examples 4-7) TB: Pg. 66 (Drill Time Q.3)	WB: Pgs. 55-57 (Q.17-22)	

Annual Day:  
48/62

Day:  
1/4

Actual Date:

Page(s)  
57



Chapter 6 Time

Let Us Learn About

- reading and writing time.
- the 12-hour and the 24-hour clock formats.
- converting 12-hour clock to 24-hour clock format and vice versa.
- the terms 'duration', 'end time' and 'start time'.
- problems involving estimation of time.

### Concept 6.1: Duration of Events



#### Think

Jasleen was going to school. When she started from home, the time shown by the

clock was . Jasleen was easily able to read it as 8 o'clock.

When she reached the school, the time shown by the school clock was



Jasleen's found it difficult to read the time from the clock. Can you tell what time it is?



#### Recall

There are 24 hours in a day. In a clock, the hour hand shows hours and completes one turn in 12 hours.

#### Important Words

Duration: 1 min

- **Today:** time, clock, hands, hour, minute, 24 hours, day, one turn

#### Transactional Tip(s)

Duration: 27 min



#### Direct Instruction:

- Bring a wall clock to the class.
- Explain 'Think' section using the clock.
- Explain reading a clock.
- Show different timings on the clock.
- Ask learners to read the time.
- Show each time in TB: Pg. 58, a-d.
- Ask learners to read the time.

#### Class Pulse Check

Duration: 2 min



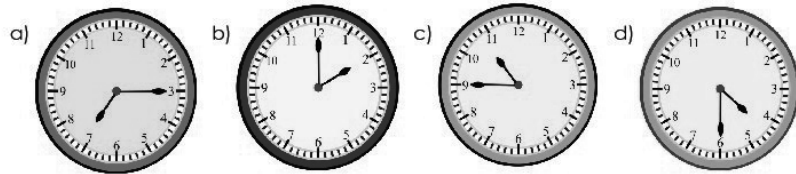
- 1) How many hours are there in a day?
- 2) How many minutes are there in an hour?

The minute hand shows minutes and takes one turn in one hour.

We have learnt to read time to the nearest hour and minutes when the minute hand is on any one of the numbers on the clock.

Let us recall the concept by writing the time for the clocks shown below:

Read the time shown by the clocks given:



 **Remembering and Understanding**

Observe this clock.

The long hand is called the **minute hand**.

The short hand is called the **hour hand**.

It has numbers from 1 to 12 on its face.

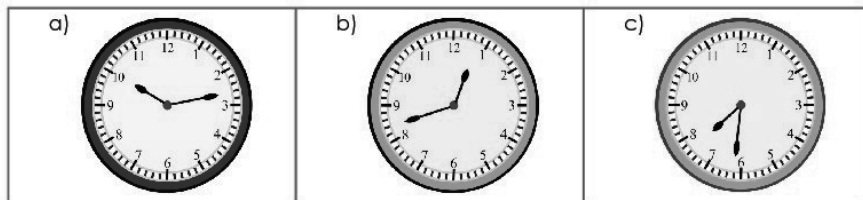


Between 12 and 1, there are four lines. Between 1 and 2, there are four lines. They divide the space between two consecutive numbers into five equal parts.

Each division between these consecutive numbers indicates a minute.

Thus, these sixty divisions together make 60 minutes or 1 hour.

**Example 1:** Let us read the time shown by these clocks. One is done for you.



**Important Words**

**Duration: 1 min**

- **Last class:** time, clock, hands, hour, minute, 24 hours, day, one turn
- **Today:** long and short hands

**Transactional Tip(s)**

**Duration: 10 min**



**Peer Learning - Pair/Group:**

- Divide the class into pairs and have a practice of reading the time shown by the clocks.
- In each pair, each member will identify the minute hand and the hour hand and explain how to read the clock.
- Use TB: Pgs. 58, 59, Example 1 to teach how to read time.

**Class Pulse Check**



1) -



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a) The hour hand has crossed 10. The minute hand is on the third division after 2. So, the minutes is $(2 \times 5 + 3) = 13$ minutes. Therefore, the time shown is 10:13.	b) The hour hand has crossed _____. The minute hand is on the _____. So, the minutes is _____. The time is _____.	c) The hour hand has crossed _____. The minute hand is on the _____. So, the minutes is _____. The time is _____.
--	--	--

We have learnt to read and write time in the 12-hour clock format. Now, let us learn to read time in the 24-hour clock format.

In 12-hour clock format:

- The hour hand of the clock goes around the clock face (dial) twice in 24 hours.
- To identify morning or evening, we write a.m. or p.m. along with the time.

In 24-hour clock format:

- The time is expressed as a 4-digit number (hhmm) followed by 'h' to denote hours.

12-hour clock time	24-hour clock time	Read as
4:20 a.m.	0420 h	Four twenty hours
11:40 a.m.	1140 h	Eleven forty hours
5:30 p.m.	1730 h	Seventeen thirty hours
7:35 p.m.	1935 h	Nineteen thirty-five hours

- Here, the first two digits from the left tell us the hours and the next two digits tell us the minutes.
- We do not write a.m. or p.m.
- 12 o'clock at midnight is written as 0000 h.
- 12 o'clock in the afternoon is written as 1200 h. The time before noon is written in the 12-hour format but without a.m. For example, 5:30 a.m. is written as 0530 hours.
- The time post noon is written by adding 12 to the number of hours.
- When the number of hours is more than 12, then the time indicates post noon. For example, 1730 h, 1815 h, 2210 h and so on.
- When the hour hand is at 12 and the minutes are more than 00, the time is past noon and we write p.m. along with the number. For example, 1220 h = 12:20 p.m. (Here, we do not subtract 12 from hours.)

Important Words

Duration: 1 min

–

Transactional Tip(s)

Duration: 16 min



Direct Instruction:

- Draw two columns on the blackboard and show how the 12-hour clock time and the 24-hour clock time is read.
- Explain how the time post noon is written by adding 12 to the number of hours.
- Use the steps given in TB: Pg. 59 to teach the conversion of time from the 12-hour clock format to the 24-hour format and vice-versa.

Class Pulse Check

Duration: 2 min



- 1) Where do you see the 24-hour clock format around you?
- 2) How do we write 12 o'clock of midnight?

To convert the time in 24-hour clock to 12-hour clock format, we subtract 12 from the number of hours and write p.m. after the difference.

To convert time from 12-hour clock into 24-hour clock for the time after 12 noon, we add 12 to the number of hours and omit writing p.m.

**Do you know?**

- Railways/Airlines/Armed forces use the 24-hour clock to record time.
- The 24-hour clock is used in digital watches.

**Example 2:** Convert the given time to 12-hour clock format.

- a) 1320 h      b) 0550 h
- c) 0915 h      d) 2105 h
- e) 1800 h      f) 1945 h
- g) 2355 h      h) 0030 h

**Solution:** The 12-hour clock format are given below.

- a)  $(13 - 12):20 = 1:20$  p.m.      b) 5:50 a.m.
- c) 9:15 a.m.      d)  $(21 - 12):05 = 9:05$  p.m.
- e)  $(18 - 12):00 = 6$  p.m.      f)  $(19 - 12):45 = 7:45$  p.m.
- g)  $(23 - 12):55 = 11:55$  p.m.      h)  $(00 + 12):30 = 12:30$  a.m.

We have learnt how to read and show time, exact to minutes and hours.

Let us now consider an example that involves finding the length of time between two given times.

**Example 3:** The clocks given show the start time and end time of a Maths class in a school. How long was the Maths class?



**Solution:** The start time is 9:00 and the end time is 9:45.

So, the time between is the length of the Maths class =  $9:45 - 9:00$   
= 45 minutes

**Important Words**

Duration: 1 min

- **Last class:** long and short hands
- **Today:** Convert, 24-hour and 12-hour clocks, start time, end time

**Transactional Tip(s)**

Duration: 27 min



**Practising:**

- Explain the method to convert time given in the 24-hour clock to the 12-hour clock time and vice versa.
- Ask each learner to randomly write any time in the 24-hour clock format and then convert it into a 12-hour format.
- Ask learners to solve:
  - TB: Pg. 60, Examples 2, 3,
  - TB: Pg. 66, 'Drill Time', Q.1a, b, c.

**Class Pulse Check**

Duration: 2 min



- 1) What is 'time duration'?
- 2) How do we calculate time interval?

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The time between two given times is called the **length of time** or **time duration** or **time interval**. It is given by the **difference of end time** and **start time**.



### Application

Let us see a real-life example involving duration of time.

**Example 4:** Neha went to the airport to see off her uncle. There she saw the departure time for Flight 142 to Hyderabad as 1102 h. What was the time of departure of the flight in the 12-hour clock time?

**Solution:** Time of departure of the flight = 1102 h  
1102 h is in hhmm form.  
Since  $11 < 12$ , the given time is a.m.  
Therefore, the given time in 12-hour clock is 11:02 a.m.



### Higher Order Thinking Skills (H.O.T.S.)

Let us now see a few more real-life examples involving the duration of time.

**Example 5:** Anil took a flight from Delhi at 10:10 p.m. and reached Hyderabad in 2 hours 5 minutes. At what time did the flight reach Hyderabad?

**Solution:** Start time of the flight = 10:10 p.m.  
Duration of travel = 2 hours 5 minutes  
End time = Start time + Duration  
= 10:10 p.m. + 2 hours 5 minutes  
= 12:15 a.m. (After 12 midnight, time is taken as a.m.)  
Therefore, Anil's flight reached Hyderabad at 12:15 a.m.

**Example 6:** A movie began at 5:35 p.m. Lucky switched on the TV at 6:23 p.m. For how much time did Lucky miss the movie?

**Solution:** Start time of the movie = 5:35 p.m.  
Time at which Lucky switched on the TV = 6:23 p.m.  
5:35 pm to 6 p.m. = 25 minutes  
6 pm to 6:23 p.m. = 23 minutes

### Important Words

Duration: 1 min

- **Last class:** Convert, 24-hour and 12-hour clocks, start time, end time
- **Today:** –

### Transactional Tip(s)

Duration: 19 min



### Guided Learning:

- Explain the importance of the time conversion in real life using examples.
- Use TB: Pgs. 61, 62, Examples 4-7 to explain calculation of time interval.
- Ask learners to solve TB: Pg. 66, 'Drill Time', Q. 3.

### Class Pulse Check

Duration: 1 min



- 1) Check the time table of each day and find out the duration of each period.

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\_\_\_\_\_

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The time for which Lucky missed the movie =  $(25 + 23) = 48$  minutes

Therefore, Lucky missed the movie for 48 min.

**Example 7:** When Shruti was having her breakfast, the clock showed 7:45. Express the time in the 12-hour and 24-hour clock formats?

**Solution:** The time when Shruti was having her breakfast = 7:45

This time in the 12 hour clock time is 7:45 a.m.

In the 24-hour clock time, it is 0745 h.

### Concept 6.2: Estimate Time



#### Think

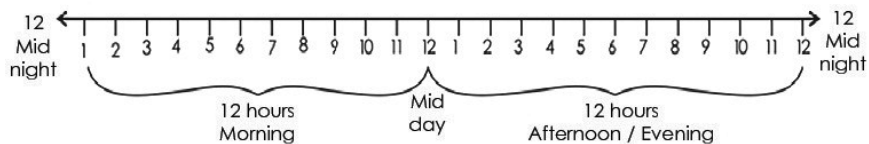
Jasleen's father was trying to book flight tickets from Mangalore to Dubai. He asked Jasleen to see the flight timings. He wanted her to find the time it would take for him to reach Dubai.

Do you know how to find that?



#### Recall

The time from midnight 12 to midday 12 is 12 hours. The time from midday 12 to midnight 12 is 12 hours. Observe this timeline.



The time after midnight is written with a.m. after it. The time after midday is written with p.m. after it. So, 4 o'clock in the morning is 4 a.m., and 4 o'clock in the evening is 4 p.m. We can show the time in the morning or evening on a clock face. We know how to find the length of the time between two given times.

### Important Words

–

### Transactional Tip(s)

Duration: 8 min



#### Questioning:

- Divide the class into small groups and encourage learners to discuss about framing word problems based on duration of time from day-to-day life.
- Exchange all word problems with other groups and
- then solve them. Correct wrong answers, if any.

### Class Pulse Check










Duration: 1 min



- 1) The first period starts at 9:00 a.m. and the bell for next period rings at 9:40 a.m. What is the duration of the first period?

## C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	Each division between the consecutive numbers on a clock indicates a second. Is it true? (Ans. No)	Period 1 - reading and writing time	
2	How do you write 12 o'clock at midnight? (Ans. 0000 h)	Period 2 - the 12-hour and the 24-hour clock formats	
3	What will you do to convert the time in 24-hour clock to 12-hour clock format? (Ans. we subtract 12 from the number of hours and write p.m. after the difference)	Period 3 - converting 12-hour clock to 24-hour clock format and vice versa	
4	Convert 1739 h to 12-hour clock format. Convert 10:21 p.m. to 24-hour clock format. (Ans. 5:39p.m./2221h))	Period 3 - converting 12-hour clock to 24-hour clock format and vice versa	
5	Find the duration between 1132 a.m. to 4:49 p.m. (Ans. 5 hours 17 minutes)	Period 3 - the terms 'duration', 'end time' and 'start time'	
6	A magic show began at 6:25 p.m. and ended at 11:23 p.m. How long did the show run? (Ans. 4 hours 58 minutes)	Period 4 - the terms 'duration', 'end time' and 'start time'	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>			
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		App Report    Number _____	Signature _____

## A – Curriculum to Learning Objectives: Measurement

Prior Knowledge	• <i>Time, reading clock, addition, parts of the day</i>					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
4	6	Time	6.1	Duration of Events	6.1.a	• reading and writing time
					6.1.b	• the 12-hour and the 24-hour clock formats
					6.1.c	• converting 12-hour clock to 24-hour clock format and vice versa
					6.1.d	• the terms 'duration', 'end time' and 'start time'
			6.2	Estimate Time	6.2.a	• problems involving estimation of time
5	7	Time	7.1	Convert Time	7.1.a	• converting larger units to smaller units of time and vice versa
					7.1.b	• word problems based on time
			7.2	Add and Subtract Time	7.2.a	• adding and subtracting time

## B – Vision-to-Action Plan: 6.2 Estimate Time

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	62, 63 – THK, RCL	6.2.a	<ul style="list-style-type: none"> <li>Recall the concept of different units of time using a timeline.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	–	TB: Pg. 63 (Examples a-d)	WB: Pg. 57, 58 (Q.1-3)	
2 DD/MM/YYYY	63, 64 – REM/UND	6.2.a	<ul style="list-style-type: none"> <li>Define duration, start time and end time.</li> <li>Find the time duration of various events.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Peer Learning</li> </ul>	–	TB: Pgs. 63, 64 (Examples 8-12)	WB: Pgs. 58, 59 (Q.4-16)	
3 DD/MM/YYYY	64, 65, 67 – APP, Drill Time	6.2.a	<ul style="list-style-type: none"> <li>Estimate time in real-life situations.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	–	TB: Pgs. 64, 65 (Examples 13-14) TB: Pg. 67 (Drill Time Q.4)	WB: Pgs. 60, 61 (Q.17-20)	
4 DD/MM/YYYY	65 – HOTS	6.2.a	<ul style="list-style-type: none"> <li>Solve sums based on time.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Peer Learning</li> </ul>	<ul style="list-style-type: none"> <li>Pocket calendar</li> </ul>	TB: Pg. 65 (Example 15)	WB: Pg. 61 (Q.21, 22)	

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The time for which Lucky missed the movie =  $(25 + 23) = 48$  minutes

Therefore, Lucky missed the movie for 48 min.

**Example 7:** When Shruti was having her breakfast, the clock showed 7:45. Express the time in the 12-hour and 24-hour clock formats?

**Solution:** The time when Shruti was having her breakfast = 7:45

This time in the 12 hour clock time is 7:45 a.m.

In the 24-hour clock time, it is 0745 h.

### Concept 6.2: Estimate Time



#### Think

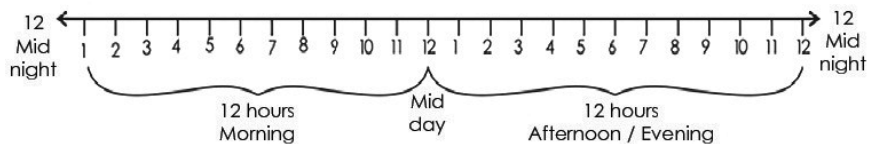
Jasleen's father was trying to book flight tickets from Mangalore to Dubai. He asked Jasleen to see the flight timings. He wanted her to find the time it would take for him to reach Dubai.

Do you know how to find that?



#### Recall

The time from midnight 12 to midday 12 is 12 hours. The time from midday 12 to midnight 12 is 12 hours. Observe this timeline.



The time after midnight is written with a.m. after it. The time after midday is written with p.m. after it. So, 4 o'clock in the morning is 4 a.m., and 4 o'clock in the evening is 4 p.m. We can show the time in the morning or evening on a clock face. We know how to find the length of the time between two given times.

#### Important Words

Duration: 1 min

- **Today:** timeline, midnight, a.m., p.m.

#### Transactional Tip(s)

Duration: 27 min



#### Direct Instruction:

- Read 'Think' section.
- Explain all the terms in 'Recall' section.
- Ask learners to answer TB: Pg. 63, a-d .

#### Class Pulse Check

Duration: 2 min



- 1) Express the following in a.m. or p.m.
  - a) 12:00 at midnight
  - b) 12:45 afternoon
  - c) 1:15 at midnight
  - d) 7:00 in the evening



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Now, let us compare the different units of time.

- A minute is a shorter period of time than an hour.
- An hour is shorter than a day. A day is shorter than a week.
- A week is shorter than a month.
- A month is shorter than a year.

Express the following in a.m. or p.m.

- a) 3:30 in the morning      b) 11:45 before noon  
c) 12:15 at midnight      d) 5 in the evening



### Remembering and Understanding

We have learnt how to find the duration of time with the help of start time and end time.

Duration = End time – Start time

End time = Start time + Duration

Start time = End time – Duration

Let us understand this through a few examples.

**Example 8:** If an event starts at 1:15 p.m. and it takes 2 hours to get over, then by what time will the event end?

**Solution:** The start time of the event = 1:15 p.m.

Duration of the event = 2 hours

End time of the event = Start Time + Duration = 1:15 p.m. + 2 hours = 3:15 p.m.

Therefore, the end time of the event is 3:15 p.m.

**Example 9:** If a dance class ends at 9:20 a.m. and has taken 1 hour 15 minutes to complete, when did it begin?

**Solution:** The end time of the dance class = 9:20 a.m.

Duration of the class = 1 hour 15 minutes

Start time of the class = End Time – Duration

= 9:20 a.m. – 1 hour 15 minutes

= 8:05 a.m.

Therefore, the dance class began at 8:05 a.m.

### Important Words

Duration: 1 min

- **Last class:** timeline, midnight, a.m., p.m.
- **Today:** end time, start time, duration

### Transactional Tip(s)

Duration: 15 min



#### Direct Instruction:

- Explain what is duration, end time and start time.
- Explain how to find the end time if the start time and duration are given.
- Share a few examples of the same.
- Use TB: Pgs. 63, 64, Examples 8-12 to teach learners to calculate start time, end time and duration.

### Class Pulse Check



1) -

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**Example 10:** Ravi's swimming class is for a duration of 1 h 50 min. If the class begins at 10:15 a.m., at what time does it end?

**Solution:** Duration of Ravi's swimming class = 1 h 15 min  
The start time of the class = 10:15 a.m.  
The end time of the class = 10:15 a.m. + 1 h 15 min  
 $= (10 + 1) \text{ h} + (15 + 15) \text{ min}$   
 $= 11 \text{ h } 30 \text{ min}$

Therefore, Ravi's swimming class ends at 11:30 a.m.

**Example 11:** On the Sports day of a school, the indoor games competition begins at 11:40 a.m. If the competition goes on for 2 hours, at what time will it end?

**Solution:** Start time of indoor games competition = 11:40 a.m.  
Duration of competition = 2 hours  
End time = Start time + Duration  
 $= 11:40 \text{ a.m.} + 2 \text{ h} = 1:40 \text{ p.m.}$

**Example 12:** Our school's annual day begins at 5:30 p.m. and would end after 5 h 12 min. At what time will it end? Express the end time in the 24-hour clock format.

**Solution:** Start time of our annual day = 5:30 p.m.  
Duration of the celebration = 5 h 12 min  
End time = Start time + Duration  
 $= 5:30 \text{ p.m.} + 5 \text{ h } 12 \text{ min}$   
 $= 10:42 \text{ p.m.}$   
Therefore, the annual day ended at 10:42 p.m.  
In 24-hour clock time, it is  $(10 + 12) 42 \text{ h} = 2242 \text{ h}$ .



### Application

Let us see a few real-life examples involving the estimation of time.

**Example 13:** Radha participated in a drawing competition which was scheduled for one hour starting at 9 a.m. If Radha completes her drawing 15 minutes before the end time, at what time does she complete her drawing?

### Important Words

–

### Transactional Tip(s)

Duration: 13 min



### Peer Learning - Pair/Group:

- Divide the class into groups of three.
- First learner gives duration, second learner gives end time and the third learner should find the start time.
- Repeat this activity to find duration and end time also.
- Let each learner get a chance to find the three.
- Then, in each group, they will check answers and will correct wrong answers, if any.

### Class Pulse Check

Duration: 1 min



- 1) You take 35 minutes to reach your school from your house. If you start at 8:10 a.m., by what time will you reach your school?

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3/4

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**Solution:** Drawing competition was for 1 hour, starting at 9 a.m.  
So, the competition was scheduled to end at 10 a.m.  
Radha completed her drawing 15 minutes before the end time. That is, she took (60 – 15) minutes that is 45 minutes for the drawing.  
45 minutes from 9 a.m. is 9:45 a.m.

Therefore, the time at which Radha completed her drawing was 9:45 a.m.

**Example 14:** Leela goes for the music class at 4:48 p.m. and comes back at 6:45 p.m. How much time does she spend in the class?

**Solution:** Start time of Leela's music class is 4:48 p.m.

End time of Leela's music class is 6:45 p.m.

4:48 p.m. 12 minutes 5 p.m. 1 hour 6 p.m. 45 minutes 6:45 p.m.

Time spent by Leela in the class

= 1 hour + 45 minutes + 12 minutes = 1 hour 57 minutes

Therefore, Leela spent 1 hour 57 minutes in the class.



### Higher Order Thinking Skills (H.O.T.S.)

Let us consider another example that involves estimating time.

**Example 15:** On 12<sup>th</sup> February, Raju saw the calendar and circled 21<sup>st</sup> March as his father's birthday. He wanted to buy a gift for his father. How many days are left for him to buy the gift?

**Solution:** Since it is not mentioned as a leap year, we assume the number of days in February to be 28.

Days in February = 28 – 11 = 17

Days in March = 21

Total number of days = 17 + 21 = 38

Therefore, there are 38 days from 12<sup>th</sup> February to 21<sup>st</sup> March for Raju to buy a gift for his father.

### Important Words

- **Last class:** end time, start time, duration
- **Today:** –

### Transactional Tip(s)

Duration: 28 min



#### Direct Instruction:

- Recall the terms duration, end time and start time.
- Recall how to find the end time if the start time and duration are given.
- Share a few real-life examples of the same.
- Use TB: Pg. 64, 65, Examples 13, 14 to make learners understand how to calculate end time and duration in real – life scenarios.
- Ask learners to solve TB: Pg. 67, 'Drill Time', Q. 4.

### Class Pulse Check

Duration: 1 min



- 1) A street vendor comes to your society at 9:00 a.m. in the morning and leaves by 9:15 a.m. For how much time is he present in your society?



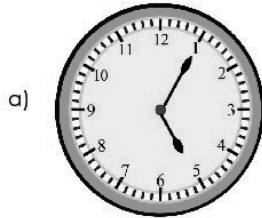
Drill Time

Concept 6.1: Duration of Events

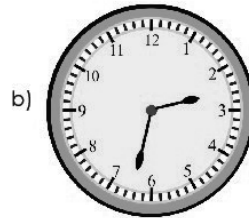
1) Find the duration of time (in 24-hour clock) from the given start time and end time.

- a) Start Time = 12:00 and End Time = 02:15
- b) Start Time = 15:00 and End Time = 19:00
- c) Start Time = 3:15 and End Time = 7:20
- d) Start Time = 7:20 and End Time = 10:41
- e) Start Time = 5:56 and End Time = 7:57

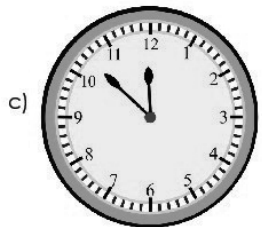
2) Read the times on the clocks and write them in the 12-hour and 24-hour formats.



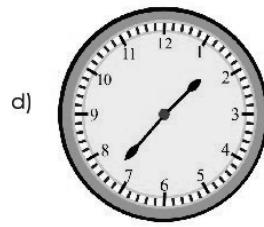
Evening



Afternoon



Morning



Afternoon

Important Words

-

Transactional Tip(s)

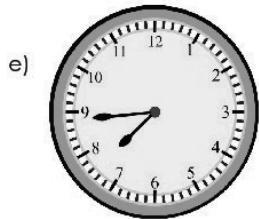


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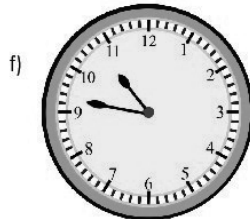
Class Pulse Check



1) -



Evening



Night

**3) Word problems**

- a) Karthik started his running race at 8:20 a.m. and finished it at 8:45 a.m. For how long did he run?
- b) Shirish was eating his dinner when it was 10:36 in the clock. What is the time in 12-hour and 24-hour clock formats?

**Concept 6.2: Estimate Time**

**4) Word problems**

- a) If Sohail's magic show begins at 5:56 p.m. and lasts for 2 hours, at what time does his show end?
- b) Sunny's karate class lasted for 4 hours. If it ended at 8:20 p.m., when did it begin?

**Important Words**

-

**Transactional Tip(s)**

-



**Class Pulse Check**

1) -



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4/4

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**Solution:** Drawing competition was for 1 hour, starting at 9 a.m.  
So, the competition was scheduled to end at 10 a.m.  
Radha completed her drawing 15 minutes before the end time. That is, she took (60 – 15) minutes that is 45 minutes for the drawing.  
45 minutes from 9 a.m. is 9:45 a.m.  
Therefore, the time at which Radha completed her drawing was 9:45 a.m.

**Example 14:** Leela goes for the music class at 4:48 p.m. and comes back at 6:45 p.m. How much time does she spend in the class?

**Solution:** Start time of Leela's music class is 4:48 p.m.  
End time of Leela's music class is 6:45 p.m.  
4:48 p.m. 12 minutes 5 p.m. 1 hour 6 p.m. 45 minutes 6:45 p.m.  
Time spent by Leela in the class  
= 1 hour + 45 minutes + 12 minutes = 1 hour 57 minutes  
Therefore, Leela spent 1 hour 57 minutes in the class.



#### Higher Order Thinking Skills (H.O.T.S.)

Let us consider another example that involves estimating time.

**Example 15:** On 12<sup>th</sup> February, Raju saw the calendar and circled 21<sup>st</sup> March as his father's birthday. He wanted to buy a gift for his father. How many days are left for him to buy the gift?

**Solution:** Since it is not mentioned as a leap year, we assume the number of days in February to be 28.  
Days in February = 28 – 11 = 17  
Days in March = 21  
Total number of days = 17 + 21 = 38  
Therefore, there are 38 days from 12<sup>th</sup> February to 21<sup>st</sup> March for Raju to buy a gift for his father.

#### Important Words

–

#### Transactional Tip(s)

Duration: 28 min



#### Direct Instruction:

- Explain the terms duration, end date and start date.
- Explain how to find the end date if the start date and duration are given.
- Share a few real - life examples of the same.
- Use TB: Pg. 65, Example 15.

#### Peer Learning - Pair/Group:

- Divide the class into groups.
- Ask learners to bring pocket calendars.
- Each learner in the group gives the starting date and end date.
- Others will calculate the duration.
- Let each learner to get a chance to find his/her term.
- Then, in each group, they will check answers and will correct wrong answers if any.

#### Class Pulse Check

Duration: 2 min












- 1) Find the number of days between 26th January and 15th August.

Time

65

## C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	If an exam ends at 4:20 p.m. and has taken 2 hours 30 minutes to complete, when did it begin? (Ans. 6:50 p.m.)	Period 3 - problems involving estimation of time	
2	What will you find by adding start time and duration? (Ans. End time)	Period 2 - problems involving estimation of time	
3	What will you find if you know end time and duration? (Ans. Start time)	Period 2 - problems involving estimation of time	
4	A train stops for 420 seconds at every station. For how many minutes does it stop if there are 11 stops in all? (Ans. 77 minutes)	Period 3 - problems involving estimation of time	
5	To find the time interval between two times, Maya added both the times. Is she correct? (Ans. No)	Period 3 - problems involving estimation of time	
6	Akhil goes for the office at 8:45 a.m. and comes back at 6:45 p.m. How much time does he spend in the office? (Ans. 10 hours)	Period 4 - problems involving estimation of time	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>			
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		App Report    Number _____	Signature _____

# Teacher Reference: Textbook

## Chapter 6: Time

### Concept 6.1: Duration of Events

#### Drill Time

- 1) Find the duration of time (in 24-hour clock) from the given start time and end time.
  - a) Start Time = 12:00 and End Time = 02:15 = **14 hours 15 minutes**
  - b) Start Time = 15:00 and End Time = 19:00 = **4 hours**
  - c) Start Time = 3:15 and End Time = 7:20 = **4 hours 5 minutes**
  - d) Start Time = 7:20 and End Time = 10:41 = **3 hours 21 minutes**
  - e) Start Time = 5:56 and End Time = 7:57 = **2 hours 1 minute**

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- 2) Read the times on the clocks and write them in the 12-hour and 24-hour formats.



a)

Evening



b)

Afternoon



c)

Morning



d)

Afternoon



e)

Evening



f)

Night



# Teacher Reference: Textbook

**Solution:**

Time	12-hour	24-hour
a)	05:05	17:05
b)	2:32	14:32
c)	11:52	11:52
d)	1:37	13:37
e)	7:44	19:44
f)	10:46	22:46

3) Word problems

a) Karthik started his running race at 8:20 a.m. and finished it at 8:45 a.m. For how long did he run?

b) Shirish was eating his dinner when it was 10:36 in the clock. What is the time in 12-hour and 24-hour clock formats?

**Solution:** a) 25 minutes

b) 12-hour = 10:36; 24-hour clock = 22:36

# Teacher Reference: Textbook

## Chapter 6: Time

### Concept 6.2: Estimate Time

#### Drill Time

- 4) Word problems
- a) If Sohail's magic show begins at 5:56 p.m. and lasts for 2 hours, at what time does his show end?
  - b) Sunny's karate class lasted for 4 hours. If it ended at 8:20 p.m., when did it begin?

**Solution:** a) 7:56 p.m.

b) 12-hour clock = 4:20 p.m.



# Time

## Concept 6.1: Duration of Events



### Recall

#### Multiple Choice Questions

- 1) 1 year 4 months = \_\_\_\_ months [ **D** ]  
(A) 13 (B) 14 (C) 15 (D) 16
- 2) How many Sundays are there in a month? [ **D** ]  
(A) 3 (B) 3 or 4 (C) 2 (D) 4 or 5
- 3) How many total number of days are there in a month? [ **B** ]  
(A) 27 or 30 (B) 30 or 31 (C) 24 (D) 26



### Remembering and Understanding

#### Multiple Choice Questions

- 4) Which of the following is done to convert 12-hour clock time post noon into 24-hour clock time? [ **C** ]  
(A) write the same number of hours without a.m.  
(B) write the same number of hours without p.m.  
(C) add 12 to the hours and write the sum without p.m.  
(D) subtract 12 from the hours and write the difference without p.m.
- 5) How is 02:00 a.m. expressed in the 24-hour clock format? [ **B** ]  
(A) 14:00 h (B) 0200 hours (C) 2:00 p.m. (D) 1400 h
- 6) How many rounds does the hour hand take to complete 24 hours? [ **B** ]  
(A) 1 (B) 2 (C) 3 (D) 4

### Fill in the Blanks

- 7) 7 a.m. is written in the 24-hour format as 0700 h.
- 8) We read 1650 h as sixteen fifty hours.
- 9) 0000 h is the 24-hour format for 12 midnight.

### Very Short Answer Questions

- 10) Write the time shown on the clock in the 12-hour format.



**Solution:** 8:00 a.m. or 8:00 p.m. ....

- 11) How many turns does the hour hand take in 12 hours?

**Solution:** One turn .....

- 12) Write 7:45 p.m. in the 24-hour format.

**Solution:** 7:45 p.m. = (7 + 12) 45 h = 1945 h .....

### Short Answer Questions

- 13) Express the following using a.m. or p.m.

a) 4 minutes past midnight      b) 10 minutes after 2:40 in the afternoon

**Solution:** a) 4 minutes past midnight is 12:04 a.m.  
b) 10 minutes after 02:40 in the afternoon is 02:50 p.m. ....

- 14) The clocks given show the start time and the end time of the short interval in a school.  
How long was the short interval?



**Solution:** The length of the short interval = End time – Start time = 6 o'clock – 5:55 = 5 minutes .....

## Long Answer Questions

- 15) The clocks show the time in the evening. Write it in the 24-hour format.



**Solution:** ..... 21:04 h ..... 18:45 h ..... 15:30 h ..... 23:15 h .....

.....  
 .....  
 .....

- 16) Draw the following times on a clock. Then write them in the 12-hour format.

a) 9:18 in the morning

b) 11:24 at night

**Solution:**



a)



b)

..... In the 12-hour format, the time(s) are .....

..... a) 09:18 a.m. .... b) 11:24 p.m. ....

.....



## Application

### Short Answer Questions

- 17) How much time has elapsed between 8:20 a.m. and 8:40 a.m. of the same day?

**Solution:** ..... Time elapsed = End time – Start time .....

..... = 08:40 a.m. – 08:20 a.m. = 20 minutes .....

- 18) Jay went to play cricket at 5:30 p.m. and returned home at 7:00 p.m. For how long did he play cricket?
- Solution:** Time when Jay went to play cricket = 05:30 p.m.  
 Time when Jay came back = 07:00 p.m.  
 Time duration for which Jay played cricket = 07:00 p.m. – 05:30 p.m.  
 = 1 hour 30 minutes  
 Therefore, Jay played cricket for 1 hour 30 minutes.

### Long Answer Questions

- 19) Meena went for her music class at 4:40 p.m. and returned home at 6:40 p.m. Zaheer went for his dance class at 5:30 p.m. and came back at 7:00 p.m. How much time did they both spend for their classes?
- Solution:** Time when Meena went to music class = 04:40 p.m.  
 Time when Meena returned = 06:40 p.m.  
 Time spend by Meena = 06:40 p.m. – 04:40 p.m. = 2 hours  
 Time when Zaheer went to dance class = 5:30 p.m.  
 Time when Zaheer returned = 07:00 p.m.  
 Time spend by Zaheer = 07:00 p.m. – 05:30 p.m. = 1 hours 30 minutes.
- 20) Ammini returned home from school at 1:05 p.m. and played video games for 15 minutes. Then, it took her 1 hour and 15 minutes to finish her homework. What time was it when Ammini finished her homework?
- Solution:** Time when Ammini returned from school = 01:05 p.m.  
 Time for which Ammini played video games = 15 minutes  
 Time she took to complete her homework = 1 hour 15 minutes  
 Total time Ammini took for playing games and doing homework  
 = 15 minutes + 1 hour 15 minutes = 1 hour 30 minutes  
 The time when Ammini finished her homework = 01:05 p.m. + 1 hour 30 minutes  
 = 02:35 p.m.





Short Answer Question

- 21) The clock showed 06:15 when Sunil began his Maths homework in the evening. It showed 07:25 when he finished it. Write the start time in the 12-hour format and the end time in the 24-hour format.

**Solution:** The time when Sunil began his homework in the evening = 06:15  
 In the 12-hour format, it is 06:15 p.m.  
 The time when Sunil finished his homework in the evening = 07:25  
 In the 24-hour format, it is 1925 h.

Long Answer Question

- 22) The annual function of School A starts at 2 p.m. and is expected to last for 2 hours 30 minutes. In School B, the annual function starts at 10:30 a.m. and is expected to last for 3 hours. When will the annual functions end at both the schools?

**Solution:** Start time of School A annual function = 2 p.m.  
 Duration of annual function of School A = 2 hours 30 minutes  
 End time = 2 + 2:30 = 4:30 p.m.  
 Start time of School B annual function = 10:30 a.m.  
 Duration of annual function of School B = 3 hours  
 End time = 10:30 + 3 = 1:30 p.m.

Concept 6.2: Estimate Time



Recall

Multiple Choice Questions

- 1) A week is shorter than \_\_\_\_\_. [ A ]  
 (A) a month (B) an hour (C) a day (D) a minute



- 2) 06:20 in the morning is written as \_\_\_\_\_. [ D ]  
 (A) 06:20 hours (B) 6:20 p.m. (C) 18:20 a.m. (D) 6:20 a.m.
- 3) 11:45 at night is written as \_\_\_\_\_. [ A ]  
 (A) 2345 h (B) 23:45 p.m. (C) 11:45 a.m. (D) 11:45 h



### Remembering and Understanding

#### Multiple Choice Questions

- 4) Duration = End Time \_\_\_\_\_ Start Time [ A ]  
 (A) - (B) × (C) + (D) ÷
- 5) The time(s) we must know to find the duration of an event are \_\_\_\_\_. [ D ]  
 (A) start time (B) end time  
 (C) neither (A) nor (B) (D) both (A) and (B)
- 6) The start time is 9:45 a.m. and the duration is 1 hour. What is the end time? [ B ]  
 (A) 09:30 a.m. (B) 10:45 a.m.  
 (C) 10:45 p.m. (D) 10:30 a.m.

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#### Fill in the Blanks

- 7) Start Time = End Time - \_\_\_\_\_ Duration \_\_\_\_\_
- 8) End Time = \_\_\_\_\_ Start Time \_\_\_\_\_ + Duration \_\_\_\_\_
- 9) \_\_\_\_\_ Duration \_\_\_\_\_ = End Time - Start Time \_\_\_\_\_

#### Very Short Answer Questions

- 10) Soumitro went to school at 9:00 a.m. He returned home after 3 hours. What time did his clock show when he got home? Express your answer in the 12-hour format.  
**Solution:** 9:00 + 3 hours = 12:00 noon
- 11) If Pratigya woke up from sleep at 10 in the morning, denote the time using a.m. or p.m.?  
**Solution:** 10:00 a.m.
- 12) The start time of a Maths class is 10:30 a.m. and the duration is 1 hour. What is the end time?  
**Solution:** 10:30 a.m. + 1 hours = 11:30 a.m.



### Short Answer Questions

13) The start time of a cartoon film is 7:15 p.m. and the duration is 1 hour 15 minutes. What is the end time?

**Solution:** End Time = Start time + Duration  
= 07:15 p.m. + 1 hour 15 minutes = 08:30 p.m.

14) The end time of a movie is 7:45 a.m. and the duration is 2 hours 30 minutes. What is the start time?

**Solution:** Start time = End Time – Duration  
07:45 a.m. – 2 hour 30 minutes = 5:15 a.m.

### Long Answer Questions

15) Kiran starts cooking at 11:20 a.m. He cooks for 1 hour 50 minutes. He then takes an hour to bake cakes. What will be the time when he finishes cooking?

**Solution:** Start time of cooking = 11:20 a.m.  
Duration to cook = 1 hour 50 minutes  
Duration to bake cake = 1 hour  
End time = 11:20 + 1 hours 50 minutes + 1 hour  
= 12:70 a.m. = 1:10 p.m. + 1 hour  
= 2:10 p.m.

Therefore, Kiran will finish his cooking at 2:10 p.m.

16) Leela usually takes 1 hour 15 minutes to complete her homework while Shashi takes 1 hour 30 minutes. They both start working at 6:30 p.m. At what time will each girl finish her homework?

**Solution:** Start time of homework = 06:30 p.m.  
Time taken by Leela to finish his homework = 1 hour 15 minutes  
The time at which Leela will finish his homework at = (6 + 1):(30 + 15) p.m. = 07:45 p.m.  
Time taken by Shashi to finish his homework = 1 hour 30 minutes  
The time at which Shashi will finish his homework at = (6 + 1):(30 + 30) p.m.  
= 7:60 p.m. = 8.00 p.m.



### Short Answer Questions

17) Seema went to the railway station to see off her aunt. There she saw that the departure time of the train to Delhi has been changed from 11:10 h to 3 hours later. What was the changed time of departure of the train. Express your answer in the 12-hour format?

**Solution:** New departure time = 11 hours 10 minutes + 3 hour = 14 hours 10 minutes  
= 14:10 h. Since  $14 > 12$ , the given time is p.m.  
Therefore, 14:10 hour is (14 - 12):10 p.m. or 2:10 p.m. in the 12-hour format.

18) A school's open house began at 12:30 p.m. and ended after 3 hours 10 minutes. At what time did it end? Express the time in the 24-hour format.

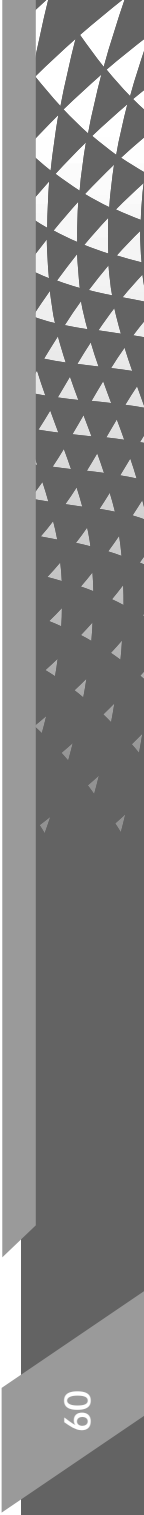
**Solution:** Start time of open house = 12:30 p.m.  
Duration = 3 hours 10 minutes  
End time = Start time + Duration  
= 12:30 p.m. + 3 hours 10 minutes  
= 15:40 p.m. = 1540 hours

### Long Answer Questions

19) Gymnasts attending a training camp spend 1 hour and 40 minutes on the balance beam. They practice pole vault for 2 hours and 55 minutes. If the camp ended at 1:10 p.m., at what time did it start? Express the time in the 24-hour format.

**Solution:** Add the times to find the total elapsed time.  
1 hour 40 minutes + 2 hours 55 minutes = 4 hour 35 minutes  
Now find 4 hours and 35 minutes before 01:10 p.m.  
Count back by hours to find 4 hours before 01:10 p.m.  
This is 09:10 a.m. Now, subtract 35 minutes from 09:10 a.m. That is 08:35 a.m.  
Therefore, the gymnastics camp started at 08:35 a.m. (0835 h).

20) Zafar took part in an essay writing competition which was for two hours. The competition started at 8:30 a.m. If Zafar completed his essay 20 minutes before the end time, at what time did he complete his essay?



**Solution:** The essay writing competition was for 2 hours, starting at 08:30 a.m.  
 So, the competition was scheduled to end at 10:30 a.m.  
 Mohan completed his essay 20 minutes before time. That is, he finished 20 minutes before 10:30 a.m.  
 20 minutes before 10:30 a.m. is 10:10 a.m.  
 Therefore, the time at which Zafar completed his essay was 10:10 a.m.



### Higher Order Thinking Skills (H.O.T.S.)

#### Short Answer Question

21) Dharmendra's vacation started on 11<sup>th</sup> December and ended on 20<sup>th</sup> December. For how many days was his vacation?

**Solution:** Start date of vacation = 11<sup>th</sup> December  
 End date of vacation = 20<sup>th</sup> December  
 Duration = End date - Start date = 20<sup>th</sup> December - 11<sup>th</sup> December + 1 = 10 days.

#### Long Answer Question

22) Diksha's Test 1 started on March 17 and continued for 5 days. She appeared for the first paper of Test 2 on April 5 and the last paper on April 11. How many days did it take to finish both the tests?

**Solution:** Start date of Test 1 = March 17  
 Duration = 5 days  
 Start date of Test 2 = April 5  
 End date of Test 2 = April 11  
 Duration = April 11 - April 5 + 1 = 7 days  
 It took 5 days and 7 days to finish both the tests.  
 Number of days she took to finish both the tests = 5 + 7 = 12 days.



## Practice Questions

- 1) If it takes 2 hours 30 minutes to clean a floor. If the cleaning started at 6:15 p.m., when will it end?
- 2) What is the time if the minute hand is at 6 and the hour hand is between 6 and 7?
- 3) Represent 6:00 a.m. in the 24-hour clock format.
- 4) The start time of a cartoon show was 11:20 a.m. It continued for 2 hours 30 minutes. When did the show end?
- 5) Represent 2345 h in the 12-hour clock format.
- 6) The painting competition ended at 4:30 in the evening. Its duration was for 3 hours. When did it start?
- 7) Suhas had his dinner at 8:47. Express this time in both 12-hour and 24-hour clock formats.
- 8) The music class started at 3:45 p.m. but Raju reached at 3:57 p.m. How much time of the class did Raju miss?
- 9) Find the time interval between 2:16 a.m. and 4:19 p.m.
- 10) Represent 9:45 p.m. in the 24-hour clock format and write how it is read.
- 11) Find the time interval between 3:56 a.m. and 7:17 a.m.
- 12) Vishakha completed her Maths homework at 1642 h. Show the time in the 12-hour clock format.
- 13) Find the time interval between 7:24 p.m. and 12:29 a.m.
- 14) Ramesh's favourite TV cartoon starts at 9:20 p.m. If he reaches home after playing by 8:30 p.m., how much time does he have until the show starts?
- 15) State the time if the hour hand is at 3 and the minute hand is at 12.

## Chapter 6: Time



### Practice Questions

- 1) 08:45 p.m.
- 2) 6:30 a.m. or 6:30 p.m.
- 3) 0600 h
- 4) 01:50 p.m.
- 5) 11:45 p.m.
- 6) 01:30 p.m.
- 7) 12-hour clock format = 8:47 p.m., 24-hour clock format = 2047 h
- 8) 12 minutes
- 9) 9 hours 03 minutes
- 10) 2145 h, twenty-one forty-five hours
- 11) 3 hours 21 minutes
- 12) 4:42 p.m.
- 13) 5 hours 5 minutes
- 14) 50 minutes
- 15) 3 o'clock

## A – Curriculum to Learning Objectives: Division

Prior Knowledge	• <i>Repeated subtraction, Division of small numbers, Multiplication tables</i>					
Class	Ch. No.	Chapter Name	C. No.	Concept Name	L. Obj. No.	Learning Objectives
1	3	Numbers	3.1	Count in Ones and Tens	3.1.a	• the concept of zero
					3.1.b	• the sequence of numbers up to 99
					3.1.c	• place value and face value of numbers
2	3	Numbers	3.1	Count by Hundreds	3.1.a	• reading and writing numerals and number names up to 999
					3.1.c	• place values, face values and expanded forms of numbers
3	3	Numbers	3.1	Count by Thousands	3.1.a	• writing 4-digit numbers with place value chart
4	7	Division	7.1	Divide Large Numbers	7.1.a	• dividing 4-digit numbers by 1-digit and 2-digit numbers
					7.1.b	• dividing 3-digit numbers by 2-digit numbers
					7.1.c	• properties of division
5	6	Division	6.1	Divide Large Numbers	6.1.a	• dividing 5-digit by 1-digit and 2-digit numbers
					6.1.b	• rules of divisibility
					6.1.c	• finding prime and composite numbers
			6.2	Factors and Multiples	6.2.a	• factors, multiples, H.C.F. and L.C.M. of numbers
			6.3	H.C.F. and L.C.M.	6.3.a	• prime factorisation of numbers

## B – Vision-to-Action Plan: 7.1 Divide Large Numbers

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
1 DD/MM/YYYY	68, 69 – THK, RCL	7.1.a	<ul style="list-style-type: none"> <li>Recall the concepts of 'dividend', 'divisor' and 'quotient.'</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	<ul style="list-style-type: none"> <li>Number Strip (Cuisenaire strip)</li> </ul>	TB: Pg. 70 (a-e)	WB: Pg. 63 – (Q.1-3)	
2 DD/MM/YYYY	69, 70, 76 – REM/UND, Drill Time	7.1.a	<ul style="list-style-type: none"> <li>Divide a 4-digit number by a 1-digit number.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Practising</li> </ul>	–	TB: Pgs. 69, 70, (Example 1, solve these) TB: Pg. 76 (Drill Time, Q.1)	WB: Pgs. 63, 64 – (Q. 4-9)	
3 DD/MM/YYYY	71, 72, 76 – REM/UND, Drill Time	7.1.b	<ul style="list-style-type: none"> <li>Divide a 3-digit number by a 2-digit number.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Practising</li> </ul>	–	TB: Pg. 71, (Example 2, solve these) TB: Pg. 76, (Drill Time, Q.2b, d)	WB: Pg. 64 (Q. 10-13)	
4 DD/MM/YYYY	72-74 , 76 – REM/UND, Drill Time	7.1.a	<ul style="list-style-type: none"> <li>Divide a 4-digit number by a 2-digit number.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Practising</li> </ul>	–	TB: Pg. 72-74 (Example 2, solve these) TB: Pg. 76, (Drill Time, Q.2a, c)	WB: Pg. 65 (Q. 15, 16)	

Period and Planned Date	TB Page No. and Key Competency	L. Obj. No.	Learning Outcome(s)	Teaching Strategies	Resources	Practice		Areas to Focus
						CW	HW	
5 DD/MM/YYYY	74 – REM/UND	7.1.c	<ul style="list-style-type: none"> <li>Identify the properties of division.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> <li>Peer Learning</li> </ul>	–	TB: Pg. 74 (Properties)	WB: Pg. 64 (Q. 14)	
6 DD/MM/YYYY	75, 76 – APP, Drill Time	7.1.a 7.1.b	<ul style="list-style-type: none"> <li>Solve word problems based on the division of large numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Peer Learning</li> </ul>	–	TB: Pg. 75, (Examples 5, 6) TB: Pg. 76 (Drill Time Q. 3)	WB: Pgs. 65, 66 (Q. 17-20)	
7 DD/MM/YYYY	76 – HOTS	7.1.a 7.1.b	<ul style="list-style-type: none"> <li>Solve sums based on division of large numbers.</li> </ul>	<ul style="list-style-type: none"> <li>Direct Instruction</li> </ul>	–	TB: Pg. 76, (Examples 7, 8)	WB: Pg. 67 (Q. 21, 22)	



Annual Day:  
56/62

Day:  
1/7

Actual Date:

Page(s)  
68



### Concept 7.1: Divide Large Numbers



#### Think

Jasleen and seven of her friends want to share 3540 papers equally among themselves. Do you think the papers can be divided, without some being left over?



#### Recall

Recall that we can write two multiplication facts for a division fact. For example, a multiplication fact for  $45 \div 9 = 5$  can be written as  $9 \times 5 = 45$  or  $5 \times 9 = 45$ .

45	÷	9	=	5
↓		↓		↓
Dividend		Divisor		Quotient

The number that is divided is called the **dividend**. The number that divides is called the **divisor**. The number of times the divisor divides the dividend is called the **quotient**.

#### Important Words

Duration: 1 min

- **Today:** multiplication fact, dividend, divisor, quotient, remainder

#### Transactional Tip(s)

Duration: 27 min



#### Direct Instruction:

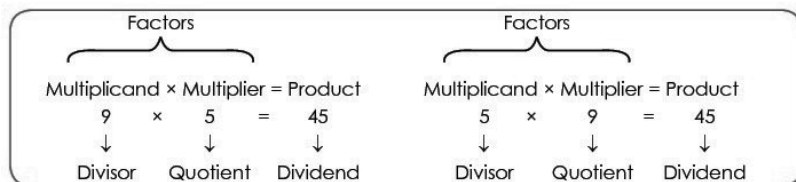
- Read TB: Pg. 68, 'Think'.
- Explain:
  - the terms in a multiplication fact and the same in a division fact,
  - the difference between a multiplication fact and a division fact,
  - how a multiplication fact can be converted into a division fact and vice versa, how division and multiplication are reverse operations.
- Ask learners to solve TB: Pg. 69, a-e.
- Discuss the possibility of using repeated subtraction.
- Explain with an example by taking large numbers.

#### Class Pulse Check

Duration: 2 min



- 1) Identify the dividend in the following sums.  
a)  $64 \div 8 = 8$     b)  $54 \div 6 = 9$



The part of the dividend that remains without being divided is called the **remainder**.

Let us solve the following to revise the concept of division.

- a)  $72 \div 9$     b)  $42 \div 3$     c)  $120 \div 5$     d)  $80 \div 4$     e)  $24 \div 1$



### Remembering and Understanding

In Class 3, we have learnt that division and multiplication are reverse operations. Let us now understand the division of large numbers using multiplication.

#### Division of a 4-digit number by a 1-digit number

Dividing a 4-digit number by a 1-digit number is similar to that of a 3-digit number by a 1-digit number.

**Example 1:** Solve:  $2065 \div 5$

**Solution:**

Steps	Solved	Solve these
<b>Step 1:</b> Check if the thousands digit of the dividend is greater than the divisor. If it is not, consider the hundreds digit also.	$\begin{array}{r} 5 \overline{)2065} \\ 2 \text{ is not greater than } 5. \text{ So, consider } 20. \end{array}$	$\begin{array}{r} 7 \overline{)3748} \\ - \\ \hline \\ - \\ \hline \\ - \\ \hline \\ - \\ \hline \end{array}$
<b>Step 2:</b> Find the largest number in the multiplication table of the divisor that can be subtracted from the 2-digit number of the dividend. Write the quotient. Write the product of the quotient and divisor below the dividend.	$\begin{array}{r} 4 \\ 5 \overline{)2065} \\ -20 \\ \hline 5 \times 4 = 20 \\ 5 \times 5 = 25 \\ 25 > 20 \end{array}$	
<b>Step 3:</b> Subtract and write the difference.	$\begin{array}{r} 4 \\ 5 \overline{)2065} \\ -20 \\ \hline \end{array}$	Dividend = ____ Divisor = ____ Quotient = ____ Remainder = ____

#### Important Words

Duration: 1 min

- **Last class:** multiplication fact, dividend, divisor, quotient, remainder
- **Today:** 4-digit number

#### Transactional Tip(s)

Duration: 8 min



#### Direct Instruction:

- Explain the division of a 4- digit number by a 1- digit number on the blackboard.
- Explain TB: Pgs. 69, 70, Example 1.

#### Class Pulse Check

1) -





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### Division of a 3-digit number by a 2-digit number

Let us understand the division of 3-digit numbers by 2-digit numbers, through some examples.

**Example 2:** Divide:  $414 \div 12$

**Solution:** Write the dividend and the divisor as Divisor  $\overline{)$  Dividend

Steps	Solved	Solve these
<b>Step 1:</b> Guess the quotient by thinking of dividing 41 by 12. Find the multiplication fact which has the number less than or equal to the dividend and the divisor.	$\begin{array}{r} 12 \overline{) 414} \\ 12 \times 3 = 36 \\ 12 \times 4 = 48 \\ 36 < 41 < 48 \\ \text{So, 36 is the number to be subtracted from 41.} \end{array}$	$\begin{array}{r} 14 \overline{) 324} \\ - \\ \hline \end{array}$
<b>Step 2:</b> Write the factor other than the dividend and the divisor as the quotient.	Write 3 in the quotient and 36 below 41, and subtract. Then bring down the next number in the dividend. $\begin{array}{r} 3 \\ 12 \overline{) 414} \\ -36 \downarrow \\ \hline 054 \end{array}$	Dividend = ____ Divisor = ____ Quotient = ____ Remainder = ____
<b>Step 3:</b> Guess the quotient by thinking of dividing 54 by 12. Find the multiplication fact which has the number less than or equal to the dividend and divisor. Write the factor other than the dividend and the divisor as the quotient.	$\begin{array}{r} 34 \\ 12 \overline{) 414} \\ -36 \downarrow \\ \hline 054 \\ -048 \\ \hline 6 \end{array}$ Quotient = 34 Remainder = 6	$\begin{array}{r} 16 \overline{) 548} \\ - \\ \hline \end{array}$ Dividend = ____ Divisor = ____ Quotient = ____ Remainder = ____

### Important Words

Duration: 1 min

- **Last class:** 4-digit number
- **Today:** 3-digit, 2-digit numbers

### Transactional Tip(s)

Duration: 12 min



#### Direct Instruction:

- Explain:
  - the division of a 3- digit number by a 2- digit number on the blackboard,
  - TB: Pg. 71, Example 2,
  - checking for the correctness of division.

### Class Pulse Check

1) -



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Checking for the correctness of division:

We can check whether our division is correct or not using a multiplication fact of the division.

**Step 1:** Compare the remainder and the divisor.

[**Note:** The remainder must always be less than the divisor.]

**Step 2:** Check if  $(\text{Quotient} \times \text{Divisor}) + \text{Remainder} = \text{Dividend}$

Let us now check if our division in example 2 is correct.

Steps	Checked
<b>Step 1:</b> Remainder < Divisor	Dividend = 414 Divisor = 12 Quotient = 34 Remainder = 6 $6 < 12$ (True)
<b>Step 2:</b> $(\text{Quotient} \times \text{Divisor}) + \text{Remainder} = \text{Dividend}$	$34 \times 12 + 6 = 414$ $408 + 6 = 414$ $414 = 414$ (True)

**Note:** a) If remainder > divisor, the division is incorrect.

b) If  $(\text{Quotient} \times \text{Divisor}) + \text{Remainder}$  is not equal to Dividend, the division is incorrect.

#### Dividing a 4-digit number by a 2-digit number

Dividing a 4-digit number by a 2-digit number is similar to dividing a 3-digit number by a 2-digit number. Let us understand this through the following example.

**Example 3:** Solve:  $2340 \div 15$

**Solution:**

Steps	Solved	Solve these
<b>Step 1:</b> Check if the thousands digit of the dividend is greater than the divisor. If it is not, consider also the hundreds digit too.	2 is not greater than 15. So, consider 23. $15 \overline{) 2340}$	$12 \overline{) 5088}$ — — — —

#### Important Words

- **Today:** 3-digit, 2-digit numbers

#### Transactional Tip(s)

Duration: 15 min



#### Direct Instruction:

- Explain:
  - the division of a 3- digit number by a 2- digit number on the blackboard,
  - TB: Pg. 71, Example 2,
  - checking for the correctness of division.

#### Class Pulse Check

Duration: 2 min



1) -

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Steps	Solved	Solve these
<p><b>Step 2:</b> Guess the quotient by thinking of dividing 23 by 15.</p> <p>Find the multiplication fact which has a number less than or equal to the dividend and the divisor.</p>	$\begin{array}{r} 1 \\ 15 \overline{) 2340} \\ \underline{-15} \phantom{0} \end{array}$ <p><math>15 \times 1 = 15</math> <math>15 \times 2 = 30</math> <math>15 &lt; 23 &lt; 30</math> So, 15 is the required number.</p>	Dividend = ____ Divisor = ____ Quotient = ____ Remainder = ____
<p><b>Step 3:</b> Write the factor other than the dividend and the divisor as the quotient.</p>	<p>Write 1 in the quotient and 15 below 23 and subtract. Then bring down the next number in the dividend.</p> $\begin{array}{r} 1 \\ 15 \overline{) 2340} \\ \underline{-15 \downarrow} \phantom{0} \\ 84 \phantom{0} \end{array}$	$\begin{array}{r} 14 \overline{) 4874} \\ \underline{\phantom{00}00} \\ \phantom{00}874 \\ \underline{\phantom{0000}00} \\ \phantom{0000}74 \\ \underline{\phantom{000000}00} \\ \phantom{000000}74 \\ \underline{\phantom{00000000}00} \\ \phantom{00000000}74 \\ \underline{\phantom{0000000000}00} \\ \phantom{0000000000}74 \\ \underline{\phantom{000000000000}00} \\ \phantom{000000000000}74 \end{array}$
<p><b>Step 4:</b> Guess the quotient by thinking of dividing 84 by 15.</p> <p>Find the multiplication fact which has a number less than or equal to the dividend and the divisor.</p> <p>Write the factor other than the dividend and the divisor as the quotient.</p>	<p><math>15 \times 5 = 75</math> <math>15 \times 6 = 90</math> <math>75 &lt; 84 &lt; 90</math> So, 75 is the required number that is to be subtracted from 84.</p> $\begin{array}{r} 156 \\ 15 \overline{) 2340} \\ \underline{- 15 \downarrow} \phantom{0} \\ 84 \phantom{0} \\ \underline{- 75} \phantom{0} \\ 9 \phantom{0} \end{array}$	Dividend = ____ Divisor = ____ Quotient = ____ Remainder = ____

### Important Words

- Last class: 3-digit, 2-digit numbers
- Today: –

### Transactional Tip(s)

Duration: 10 min



### Direct Instruction:

- Explain:
  - the division of a 4-digit number by a 2-digit number on the blackboard,
  - TB: Pgs. 72, 73, 74, Example 3,
  - checking for the correctness of division.

### Class Pulse Check



1) -

Important Words

–

Steps	Solved	Solve these
<p><b>Step 5:</b> Subtract and write the difference. Repeat till all the digits of the dividend are brought down.</p>	$15 \times 5 = 75$ $15 \times 6 = 90$ $90 = 90$ So, 90 is the required number. $\begin{array}{r} 156 \\ 15 \overline{)2340} \\ \underline{-15\phantom{0}} \\ 84 \\ \underline{-75\phantom{0}} \\ 90 \\ \underline{-90} \\ 00 \end{array}$ Quotient = 156 Remainder = 0	$16 \overline{)3744}$ _____ _____ _____ _____ Dividend = _____ Divisor = _____ Quotient = _____ Remainder = _____
<p><b>Step 6:</b> Check if (Divisor <math>\times</math> Quotient) + Remainder = Dividend is true. If this is false, the division is incorrect.</p>	$15 \times 156 + 0 = 2340$ $2340 + 0 = 2340$ $2340 = 2340$ (True)	

Let us see some properties of division.

**Properties of division**

- 1) Dividing a number by 1 gives the same number as the quotient.  
For example:  $15 \div 1 = 15$ ;  $1257 \div 1 = 1257$ ;  $1 \div 1 = 1$ ;  $0 \div 1 = 0$
- 2) Dividing a number by itself gives the quotient as 1.  
For example:  $15 \div 15 = 1$ ;  $1257 \div 1257 = 1$ ;  $1 \div 1 = 1$
- 3) Division by zero is not possible and is not defined.  
For example:  $10 \div 0$ ;  $1257 \div 0$ ;  $1 \div 0$  are not defined

Transactional Tip(s)

Duration: 18 min



Practising:

- Instruct learners to:
  - complete TB: Pgs. 72, 73, 74, 'Solve these' in the TB itself,
  - Solve TB: Pg. 76, 'Drill Time', Q. 2 a, c.

Class Pulse Check

Duration: 2 min



- 1) Divide 2000 by 20.
- 2) Divide 6000 by 15.

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Important Words

Duration: 1 min

- Today: property

Steps	Solved	Solve these
<b>Step 5:</b> Subtract and write the difference. Repeat till all the digits of the dividend are brought down.	$15 \times 5 = 75$ $15 \times 6 = 90$ $90 = 90$ So, 90 is the required number. $\begin{array}{r} 156 \\ 15 \overline{)2340} \\ \underline{-15\downarrow} \\ 84 \\ \underline{-75\downarrow} \\ 90 \\ \underline{-90} \\ 00 \end{array}$ Quotient = 156 Remainder = 0	$16 \overline{)3744}$ _____ _____ _____ _____ Dividend = _____ Divisor = _____ Quotient = _____ Remainder = _____
<b>Step 6:</b> Check if (Divisor $\times$ Quotient) + Remainder = Dividend is true. If this is false, the division is incorrect.	$15 \times 156 + 0 = 2340$ $2340 + 0 = 2340$ $2340 = 2340$ (True)	

Let us see some properties of division.

#### Properties of division

- 1) Dividing a number by 1 gives the same number as the quotient.  
For example:  $15 \div 1 = 15$ ;  $1257 \div 1 = 1257$ ;  $1 \div 1 = 1$ ;  $0 \div 1 = 0$
- 2) Dividing a number by itself gives the quotient as 1.  
For example:  $15 \div 15 = 1$ ;  $1257 \div 1257 = 1$ ;  $1 \div 1 = 1$
- 3) Division by zero is not possible and is not defined.  
For example:  $10 \div 0$ ;  $1257 \div 0$ ;  $1 \div 0$  are not defined

Transactional Tip(s)

Duration: 27 min



Peer Learning - Pair/Group:

- Divide the class in pairs.
- Ask the learners to take any sets of numbers and verify the properties of division.

Direct Instruction:

- Recall the properties of multiplication as given in TB: Pg. 45.
- Explain the properties of division as given in TB: Pg. 74.

Class Pulse Check

Duration: 2 min



- 1) Can we divide any number by zero?
- 2) Dividing 17 by itself will give \_\_\_\_\_.





Application

Division of large numbers can be applied in many real-life situations. Consider these examples.

**Example 4:** 4720 apples are to be packed in 8 baskets. If each basket has the same number of apples, how many apples are packed in each basket?

$$\begin{array}{r} 590 \\ 8 \overline{) 4720} \\ \underline{-40} \phantom{0} \\ 72 \\ \underline{-72} \\ 0000 \\ \underline{-0000} \\ 0000 \end{array}$$

**Solution:** Total number of apples = 4720

Number of baskets = 8

The number of apples packed in each basket =  $4720 \div 8$

Therefore, 590 apples are packed in each basket.

**Example 5:** 2825 notebooks were distributed equally among 25 students. How many books did each student get?

$$\begin{array}{r} 113 \\ 25 \overline{) 2825} \\ \underline{-25} \phantom{0} \\ 32 \\ \underline{-25} \\ 075 \\ \underline{-075} \\ 0000 \end{array}$$

**Solution:** Number of notebooks = 2825

Number of students = 25

Number of books each student got =  $2825 \div 25$

Therefore, each student got 113 notebooks.

**Example 6:** 8308 people watched a hockey match. If 10 people watched from each cabin in the stadium, how many cabins were full? How many people were there in the remaining cabin?

$$\begin{array}{r} 830 \\ 10 \overline{) 8308} \\ \underline{-80} \phantom{0} \\ 30 \\ \underline{-30} \\ 008 \end{array}$$

**Solution:** Number of people = 8308

Number of people in each cabin = 10

Number of cabins =  $8308 \div 10 = 830$

Number of people in the remaining cabin = 8 (Remainder in the division of 8308 by 10).

Therefore, 8 people were remaining in the cabin.



Higher Order Thinking Skills (H.O.T.S.)

Let us see some more examples of situations where we use division of large numbers.

Important Words

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Transactional Tip(s)

Duration: 27 min



Peer Learning - Pair/Group:

- Recall 'Think' section and introduce the use of division in real life.
- Ask each pair of learners to prepare a word problem involving division that they will solve together.
- Explain TB: Pg. 75, Example 4.
- Instruct learners to solve:
  - TB: Pg. 75, Examples 5, 6,
  - TB: Pg. 76, 'Drill Time', Q. 3.

Class Pulse Check

Duration: 2 min



- 1) Which are the common words used while solving division questions?
- 2) Which one will be smaller number between the divisor and the remainder?

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**Example 7:** A school has 530 students in the primary section, 786 students in the middle school and 658 students in the high school section. If equal number of students are seated in 6 halls, how many students are seated in each hall?

**Solution:** Number of students in the primary section = 530

Number of students in the middle school section = 786

Number of students in the high school section = 658

Thus, the total number of students in the school

$$= 530 + 786 + 658 = 1974$$

1974 children are equally seated in 6 halls.

Therefore, the number of students in each hall =  $1974 \div 6 = 329$  students.

$$\begin{array}{r} 329 \\ 6 \overline{) 1974} \\ \underline{-18} \phantom{0} \\ 017 \\ \underline{-012} \\ 54 \\ \underline{-54} \\ 00 \end{array}$$

**Example 8:** Divide the largest 4-digit number by the largest 2-digit number. Write the quotient and the remainder.

**Solution:** The largest 4-digit number is 9999.

The largest 2-digit number is 99.

The required division is  $9999 \div 99$

Quotient = 101; Remainder = 0

$$\begin{array}{r} 101 \\ 99 \overline{) 9999} \\ \underline{-99} \phantom{00} \\ 009 \\ \underline{-000} \\ 99 \\ \underline{-99} \\ 00 \end{array}$$



### Drill Time

#### Concept 7.1: Divide Large Numbers

1) Divide a 4-digit number by a 1-digit number.

- a)  $1347 \div 6$     b)  $4367 \div 5$     c)  $3865 \div 4$     d)  $5550 \div 5$

2) Divide a 4-digit and 3-digit numbers by a 2-digit number.

- a)  $3195 \div 10$     b)  $612 \div 10$     c)  $2676 \div 12$     d)  $267 \div 11$

3) Word Problems

- a) An amount of ₹ 1809 is distributed equally among 9 women. How much money did each of them get?
- b) 10 boxes have 1560 pencils. How many pencils are there in a box?
- c) A school has 1254 students, who are equally grouped into 14 groups. How many students are there in each group? How many students are remaining?

### Important Words

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### Transactional Tip(s)

Duration: 28 min



#### Direct Instruction:

- Explain TB: Pg. 76, Example 7.
- Instruct learners to complete TB: Pg. 76, Example 8.
- Ask learners to frame similar problems.
- Check the problems and ask them to solve.
- Check the solutions.

### Class Pulse Check










Duration: 2 min



- 1) What is the dividend when 8404 is divided by 5?

## C – Exit Assessment

	Suggested questions to test the learning objective(s)	Learning objective(s)	Number of learners who answered correctly
1	If $1528 \div 8 = 191$ without doing actual division can you find the quotient of $1528 \div 4$ . If yes, find it. (Ans. 382)	Periods 2, 4 - dividing 4-digit numbers by 1-digit and 2-digit numbers	
2	If $1452 \div 12 = 121$ , then find $2904 \div 12$ . What do you observe? (Ans. As dividend is doubled, quotient will also be doubled.)	Periods 2,4 - dividing 4-digit numbers by 1-digit and 2-digit numbers	
3	Arrange 693 plants into 7 rows. How many plants are there in each row? (Ans. 99)	Periods 3, 5 - dividing 3-digit numbers by 2-digit numbers	
4	Fill in the blank. If $808 = 89 \times 9 + \text{remainder}$ , then the remainder is _____. (Ans. 7)	Period 7 - dividing 3-digit numbers by 2-digit numbers	
5	By what number will you divide 256 to get the quotient as 1? which property will you use? (Ans. 256/Dividing a number by itself gives the quotient as 1.)	Period 4 - properties of division	
6	Which is correct? $0 \div 1 = 0$ or $1 \div 0 = 0$ (Ans. $0 \div 1 = 0$ )	Period 4 - properties of division	

Post-lesson Reflection		Handhold Learners	Challenge Learners
TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/>			
Enthusiastic participation  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>			
Concept clarity in the classroom  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		Exam Revision Strategy    Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/>	
Concept clarity through the workbook  <input type="checkbox"/>  <input type="checkbox"/>  <input type="checkbox"/>		App Report    Number _____	Signature _____

## Chapter 7: Division

### Concept 7.1: Divide Large Numbers

#### Drill Time

- 1) Divide a 4-digit number by a 1-digit number.
  - a)  $1347 \div 6 = 224$ , Remainder = 3
  - b)  $4367 \div 5 = 873$ , Remainder = 2
  - c)  $3865 \div 4 = 966$ , Remainder = 1
  - d)  $5550 \div 5 = 1110$
- 2) Divide a 4-digit and 3-digit numbers by a 2-digit number.
  - a)  $3195 \div 10 = 319$ , Remainder = 5
  - b)  $612 \div 10 = 61$ , Remainder = 2
  - c)  $2676 \div 12 = 223$
  - d)  $267 \div 11 = 24$ , Remainder = 3
- 3) Word Problems
  - a) An amount of ₹ 1809 is distributed equally among 9 women. How much money did each of them get?
  - b) 10 boxes have 1560 pencils. How many pencils are there in a box?
  - c) A school has 1254 students, who are equally grouped into 14 groups. How many students are there in each group? How many students are remaining?

**Solution:** a) ₹ 201

b) 156 pencils

c) 89 students in each group; 8 students remain



## Concept 7.1: Divide Large Numbers



### Recall

#### Multiple Choice Questions

- 1) The number of times the divisor divides the dividend is called the \_\_\_\_\_. [ C ]  
(A) divisor (B) dividend (C) quotient (D) remainder
- 2) In  $520 \div 8 = 65$ , 65 is the \_\_\_\_\_. [ B ]  
(A) dividend (B) quotient (C) divisor (D) remainder
- 3) 120 roses are distributed equally among 3 girls. Each girl gets \_\_\_\_\_ roses. [ D ]  
(A) 36 (B) 24 (C) 18 (D) 40



### Remembering and Understanding

#### Multiple Choice Questions

- 4) The quotient when 1800 is divided by 3 is \_\_\_\_\_. [ B ]  
(A) 60 (B) 600 (C) 18 (D) 90
- 5) The remainder when 2000 is divided by 10 is \_\_\_\_\_. [ A ]  
(A) 0 (B) 1 (C) 20 (D) 10
- 6) The quotient in  $190 \div 19$  is \_\_\_\_\_. [ D ]  
(A) 190 (B) 0 (C) 19 (D) 10

#### Fill in the Blanks

- 7) The quotient when 180 is divided by 9 is **20**.
- 8) In  $300 \div 10$ , the remainder is **0**.

9) The quotient in  $1600 \div 8$  is 200.

### Very Short Answer Questions

10) What is the quotient when 4000 is divided by 4?

**Solution:** .....  
1000

11) What is the remainder when 6000 is divided by 10?

**Solution:** .....  
0

12) What is the quotient when 220 is divided by 22?

**Solution:** .....  
10

### Short Answer Questions

13) Check the correctness of division if:

Dividend = 324; Divisor = 9; Quotient = 36; Remainder = 1

**Solution:** Dividend = Divisor  $\times$  Quotient + Remainder .....

$$324 = 9 \times 36 + 1$$

As  $324 \neq 325$ , the division is incorrect. ....

14) State the property when the number is divided by 1. Give two examples.

**Solution:** Property = Dividing a number by 1 gives the same number as the quotient. ....

For example: a)  $13 \div 1 = 13$  .....

b)  $1468 \div 1 = 1468$  .....





18) 230 students were equally seated in 10 classes. How many students were there in each class?

**Solution:** Total number of students = 230  
 Number of classes = 10  
 Number of students in each class =  $230 \div 10 = 23$   
 Therefore, there were 23 students in each class.

**Long Answer Questions**

19) If a set of 2000 mangoes are equally arranged in 8 boxes, how many mangoes are in each box? How many mangoes remain unarranged after the equal distribution?

**Solution:** Total number of mangoes = 2000  
 Number of boxes = 8  
 Number of mangoes in each box =  $2000 \div 8 = 250$   
 Therefore there are 250 mangoes in each box. No mangoes would remain after equal distribution.

20) There were 1240 dogs in 10 shelter homes. If each shelter had equal number of dogs, how many dogs were in each shelter?

**Solution:** Total number of dogs = 1240  
 Number of shelter homes = 10  
 Number of dogs in each shelter home =  $1240 \div 10 = 124$   
 Therefore, there were 124 dogs in each shelter home.









## Practice Questions

- 1) Divide: a) 4291 by 3      b) 2492 by 2      c) 1463 by 3
- 2) Divide: a) 7528 by 4      b) 1421 by 3      c) 9872 by 3
- 3) Solve: a)  $1949 \div 9$       b)  $1443 \div 3$       c)  $2651 \div 7$
- 4) Solve: a)  $7644 \div 2$       b)  $2114 \div 4$       c)  $8742 \div 8$
- 5) 478 people are attending a wedding. If 14 tables are arranged, how many people will be left without any tables?
- 6) Divide: a) 582 by 20      b) 426 by 12      c) 128 by 42
- 7) What is the quotient when 952 is divided by 24?
- 8) What is the remainder when 105 is divided by 51?
- 9) Divide: a) 1009 by 31      b) 4143 by 23      c) 6121 by 21
- 10) Solve: a)  $8743 \div 23$       b)  $9873 \div 33$       c)  $2768 \div 33$
- 11) Solve: a)  $7321 \div 55$       b)  $8721 \div 21$       c)  $2986 \div 33$
- 12) Check the correctness of division when dividend = 4322, divisor = 2, quotient = 2160, remainder = 0
- 13) Divide: a)  $19 \div 0$       b)  $14 \div 1$       c)  $29 \div 2$
- 14) What is the quotient when the number is divided by 1?
- 15) 5093 bags are equally distributed among 29 boxes. How many bags remain?
- 16) If 193 kg of rice is filled in bags of 5 kg, how many bags will be equally filled with rice?
- 17) Divide 829 by 33.
- 18) Rafiq baked 2840 cookies. He packed them equally in 20 boxes. Were there any cookies left unpacked?
- 19) Maria has 468 litres of orange juice. She pours an equal quantity in 14 cans. How many cans are equally filled?
- 20) There are 1408 cards arranged in 18 piles. How many cards could not be arranged in the pile?

## Chapter 7: Division



### Practice Questions

- 1) a) Quotient = 1430, Remainder = 1  
c) Quotient = 487, Remainder = 2
  - 2) a) Quotient = 1882, Remainder = 0  
c) Quotient = 3290, Remainder = 2
  - 3) a) Quotient = 216, Remainder = 5  
c) Quotient = 378, Remainder = 5
  - 4) a) Quotient = 3822, Remainder = 0  
c) Quotient = 1092, Remainder = 6
  - 5) 2 people
  - 6) a) Quotient = 29, Remainder = 2  
c) Quotient = 3, Remainder = 2
  - 7) Quotient = 39
  - 9) a) Quotient = 32, Remainder = 17  
c) Quotient = 291, Remainder = 10
  - 10) a) Quotient = 380, Remainder = 3  
c) Quotient = 83, Remainder = 29
  - 11) a) Quotient = 133, Remainder = 6  
c) Quotient = 90, Remainder = 16
  - 12) No
  - 13) a) not defined  
c) Quotient = 14, Remainder = 1
  - 14) the number itself
  - 16) 38 bags
  - 18) No
  - 20) 4 cards
- b) Quotient = 1246, Remainder = 0
  - b) Quotient = 473, Remainder = 2
  - b) Quotient = 481, Remainder = 0
  - b) Quotient = 528, Remainder = 2
  - b) Quotient = 35, Remainder = 6
  - 8) Remainder = 3
  - b) Quotient = 180, Remainder = 3
  - b) Quotient = 299, Remainder = 6
  - b) Quotient = 415, Remainder = 6
  - b) Quotient = 14, Remainder = 0
  - 15) 18 bags
  - 17) Quotient = 25, Remainder = 4
  - 19) 33 cans

# Art Integrated Lesson Plans

**Grade:** Grade 4, FA 1

**Subject:** Mathematics

**Concept:** Reflection and Symmetry

**Learning Outcome(s):**

- Identifies reflections of figures, numbers and letters by sketching
- Identifies symmetrical and asymmetrical shapes using paper folding

**Integrated Art Form(s):**

- Sketching
- Crafts

**Materials Required:**

Ice-Breaker:

- 1) Plastic counters of basic shapes such as square, triangle, star, circle and rectangle.
- 2) Plastic counters of numbers and letters
- 3) A4 size card boards
- 4) A mirror

Core Activity:

- 1) Coloured sheets of paper
- 2) A pair of scissors
- 3) A pencil

## Art Integrated Lesson Plans

4) A ruler

### **Resources (External References):**

Ice-Breaker:

- Symmetry in Indian Temples- Akshardham

Core Activity: NA

### **Time Needed:**

Ice-Breaker: 25 min

Core Activity: 50 min

(to be done over 2 teaching periods)

### **Ice-Breaker:**

**Summary:** Show learners the video clip on Akshardham and facilitate a group activity to demonstrate symmetry in mirror images to set the context for understanding symmetry in architecture.

### **Procedure:**

#### **Step 1:**

- Inform learners that Swaminarayan Akshardham at New Delhi is a *mandir* or a Hindu temple and a spiritual and cultural campus dedicated to devotion, learning and harmony. This mandir complex was built from carved sandstone and marble and was inaugurated on 6 November 2005. There are many open gardens, water bodies and step-well styled courtyard in the premises. Sahaj Anand - a spiritual multimedia water show is displayed every day, around 7. 15 pm. Many people come to watch the show for a wonderful experience.
- Tell learners that they are going to watch a video on Akshardham, and urge them to pay close attention to the symmetry in the

## Art Integrated Lesson Plans

structure of the temple.

- Play the video on symmetry in Indian temples- Akshardham
- Ask learners to note how symmetry can be observed in monuments.

### Step 2:

- Divide the class into groups of 4.
- Provide each group with plastic counters of different shapes, numbers and letters, a mirror and a cardboard.
- Instruct them to place 5 counters on the cardboard, one below another.
- Ask them to place the mirror beside each counter and observe its reflection (mirror image).
- Instruct them to draw the shape of the counter and its mirror image.
- Advise the learners to observe the similarity or difference in the object and its mirror image.
- Encourage all the learners to participate in the activity.
- Display the following chart to the learners and ask them to observe the mirror images of the letters of the English alphabet.

Letters	Mirror-Images	Letters	Mirror-Images	Letters	Mirror-Images
A	A	J	∩	S	Ɔ
B	B	K	∫	T	T
C	∩	L	J	U	U
D	D	M	M	V	V
E	E	N	N	W	W
F	F	O	O	X	X
G	∩	P	∩	Y	Y
H	H	Q	∩	Z	Ɔ
I	I	R	∩	-	-

### Core Activity:

**Summary:** Facilitate a group activity where learners cut different shapes from paper and identify if they are symmetrical or not.

## Art Integrated Lesson Plans

### **Procedure:**

- Give each learner coloured sheets of paper, a pair of scissors, a ruler and a pencil.
- Ask them to draw different shapes of their choice on the sheets, and cut them out using the scissors.
- Advise the learners to fold the sheets such that their corners touch each other.
- Ask them to press the fold to form a crease.
- Instruct the learners to open the folded sheet of paper and observe the parts of the shape on the two sides of the crease.
- Urge the learners to identify if the two parts are identical or different.
- Instruct them to write “symmetric” or “asymmetric” below each figure accordingly.
- Encourage all the learners to participate in the activity.

### **Extension Activity:**

- Instruct learners to share their observation of symmetry in the historic places of their state.
- Ask learners to find mirror images of the letters of their regional language.

### **Assessment:**

Use the Assessment Rubric given to evaluate the learner.

### **Conclusion:**

These activities improve the creativity of the learners and enhance their understanding of symmetry and reflection.

# Art Integrated Lesson Plans

## Suggested Rubric for Assessing Art Integrated Learning

LEVELS	Proficient	Evolving	Beginner	Pre-Beginner
	4	3	2	1
Knowledge Construction and Expression	<b>Demonstrates excellent</b> use of inquiry and higher order thinking skills, and <b>accurate representation</b> of arts standards.	<b>Demonstrates good</b> use of inquiry and higher order thinking skills and <b>effective representation</b> of arts standards.	<b>Demonstrates moderate</b> use of inquiry and higher order thinking skills and <b>occasional representation</b> of arts standards.	<b>Demonstrates minimal</b> use of inquiry and higher order thinking skills and <b>little representation</b> of arts standards.
Collaboration	<b>Participates proactively</b> in community building through collaborative work, and <b>always communicates</b> well within team(s) and with the facilitator.	<b>Participates actively</b> in community building through collaborative work, and <b>mostly communicates</b> within team(s) and with the facilitator.	<b>Participates moderately</b> in community building through collaborative work, and <b>occasionally communicates</b> within team(s) and with the facilitator.	<b>Participates rarely</b> in community building through collaborative work, and <b>hardly communicates</b> within team(s) and with the facilitator.
Envisioning	<b>Engages proactively</b> in rigorous arts integration by embracing change; has multiple perspectives and takes <b>adequate calculated risks</b> .	<b>Engages actively</b> in arts integration by accepting change; has some perspectives and takes <b>some calculated risks</b> .	<b>Engages moderately</b> in arts integration by accepting few changes; has few perspectives and takes <b>few calculated risks</b> .	<b>Engages rarely</b> in arts integration; has minimal perspectives and <b>hardly takes risks</b> .
Art and Content Integration	Displays a <b>clear connect</b> between the arts and learning outcomes.	Displays an <b>acceptable connect</b> between the arts and learning outcomes.	Displays a <b>moderate connect</b> between the arts and learning outcomes.	Displays a <b>rare connect</b> between the arts and learning outcomes.
Self-Assessment	Demonstrates <b>significantly increased awareness</b> of relevance and purpose of the arts integration process.	Demonstrates <b>increased awareness</b> of relevance and purpose of the arts integration process.	Demonstrates <b>occasional awareness</b> of relevance and purpose of the arts integration process.	Demonstrates <b>rare awareness</b> of relevance of the arts integration process.

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# Art Integrated Lesson Plans

**Grade:** 4, FA 2

**Subject:** Mathematics

**Concept:** Multiply 3-digit and 4-digit Numbers

**Learning Outcome(s):**

- Multiplies 3-digit and 4-digit numbers using roleplay

**Integrated Art Form(s):**

- Roleplay

**Materials Required:**

Ice-Breaker: NA

Core Activity:

- 1) Dummy currency

**Resources (External References):**

Ice-Breaker:

- [Simple Trick for Multiplying 3-digit numbers](#)

Core Activity: NA

## Art Integrated Lesson Plans

### **Time Needed:**

Ice-Breaker: 20 min

Core Activity: 50 min

### **Ice-Breaker:**

**Summary:** Show learners a video clip on multiplication trick for 3-digit numbers to set the context for the activity.

### **Procedure:**

- Inform learners that they are going to watch a video on a trick to multiply two 3-digit numbers.
- Instruct them to carefully observe the method.
- Play the video, and pause to explain after each step is shown.
- Ask learners to remember the method as they will use it for their next activity.

### **Core Activity:**

**Summary:** Facilitate a roleplay activity where learners apply their understanding of multiplication of 3-digit numbers and 4-digit numbers.

### **Procedure:**

- Divide the class into four groups.
- Give each learner some dummy currency.
- Instruct two learners in each group to play the role of shopkeepers who sell different items such as dresses, sarees, and so on that are famous in their region/state. For example, learners from Tamil Nadu can pretend to sell Kanchipuram dress materials, south cotton sarees, silk veshtis and so on.
- Assist learners in setting up their shops for the roleplay.
- Tell the shopkeepers that the price of each of their items must be greater than 100.
- Tell the other learners in each group to play the role of customers.

## Art Integrated Lesson Plans

- Instruct the customers to purchase items in quantities that are greater than 100. For example: 110 silk veshtis, 215 south cotton sarees and so on.
- Ask them to then find out the amount that they have to pay to the shopkeeper. For example, if a customer buys 215 sarees, each costing Rs. 875, they have to calculate the amount they have to pay using the multiplication trick ( $215 \times \text{Rs. } 875$ ).
- Encourage all learners in a group to participate in the activity by choosing different 3-digit and 4-digit numbers.

### **Extension Activity:**

Ask learners to find the cost of their local attire and the amount they have to spend to buy it in quantities more than 100.

### **Assessment:**

Use the Assessment Rubric given to evaluate the learner.

### **Conclusion:**

Learners use their knowledge of Indian currency and the cultural attires of their states to understand the concept of multiplication of 3-digit and 4-digit numbers.

# Art Integrated Lesson Plans

## Suggested Rubric for Assessing Art Integrated Learning

LEVELS	Proficient	Evolving	Beginner	Pre-Beginner
	4	3	2	1
Knowledge Construction and Expression	<b>Demonstrates excellent</b> use of inquiry and higher order thinking skills, and <b>accurate representation</b> of arts standards.	<b>Demonstrates good</b> use of inquiry and higher order thinking skills and <b>effective representation</b> of arts standards.	<b>Demonstrates moderate</b> use of inquiry and higher order thinking skills and <b>occasional representation</b> of arts standards.	<b>Demonstrates minimal</b> use of inquiry and higher order thinking skills and <b>little representation</b> of arts standards.
Collaboration	<b>Participates proactively</b> in community building through collaborative work, and <b>always communicates</b> well within team(s) and with the facilitator.	<b>Participates actively</b> in community building through collaborative work, and <b>mostly communicates</b> within team(s) and with the facilitator.	<b>Participates moderately</b> in community building through collaborative work, and <b>occasionally communicates</b> within team(s) and with the facilitator.	<b>Participates rarely</b> in community building through collaborative work, and <b>hardly communicates</b> within team(s) and with the facilitator.
Envisioning	<b>Engages proactively</b> in rigorous arts integration by embracing change; has multiple perspectives and takes <b>adequate calculated risks</b> .	<b>Engages actively</b> in arts integration by accepting change; has some perspectives and takes <b>some calculated risks</b> .	<b>Engages moderately</b> in arts integration by accepting few changes; has few perspectives and takes <b>few calculated risks</b> .	<b>Engages rarely</b> in arts integration; has minimal perspectives and <b>hardly takes risks</b> .
Art and Content Integration	Displays a <b>clear connect</b> between the arts and learning outcomes.	Displays an <b>acceptable connect</b> between the arts and learning outcomes.	Displays a <b>moderate connect</b> between the arts and learning outcomes.	Displays a <b>rare connect</b> between the arts and learning outcomes.
Self-Assessment	Demonstrates <b>significantly increased awareness</b> of relevance and purpose of the arts integration process.	Demonstrates <b>increased awareness</b> of relevance and purpose of the arts integration process.	Demonstrates <b>occasional awareness</b> of relevance and purpose of the arts integration process.	Demonstrates <b>rare awareness</b> of relevance of the arts integration process.

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# Art Integrated Lesson Plans

**Grade:** Grade 4, SA 1

**Subject:** Mathematics

**Concept:** Divide Large Numbers

**Learning Outcome(s):**

- Divides 3-digit numbers by 2-digit numbers using flash cards
- Divides 4-digit numbers by 1-digit and 2-digit numbers through role play

**Integrated Art Form(s):**

- Role play

**Materials Required:**

Ice-Breaker:

- 1) Flashcards with 3-digit and 2-digit numbers on either sides
- 2) A4 sheets of paper
- 3) Pencils
- 4) Colour pencils

Core Activity:

- 1) Dummy currency notes

## Art Integrated Lesson Plans

### Resources (External References):

Ice-Breaker: NA

Core Activity:

- Division of 3-digit and 4-digit numbers by a 1-digit number

### Time Needed:

Ice-Breaker: 15 min

Core Activity: 60 min

### Ice-Breaker:

**Summary:** Help learners recall multiplication tables to introduce them to the concept of dividing 3-digit numbers.

### **Procedure:**

- Provide each learner with three flashcards with 3-digit and 2-digit numbers on either side, a few A4 sheets of paper, pencils and colour pencils.
- Inform learners that they have to copy the numbers from the flashcard given to them on the A4 sheets.
- Ask learners to use different coloured pencils for different numbers.
- Ask them to then divide the 3-digit number from a card by the 2-digit number. Tell learners that they must do the same for all the numbers that they have noted down.
- Instruct them to write the quotient, the divisor, the dividend and the remainder in each case.

## Art Integrated Lesson Plans

### Core Activity:

**Summary:** Facilitate a role play activity where learners apply their understanding of division of 4-digit numbers by 1-digit and 2-digit numbers.

### **Procedure:**

- Divide the class into four groups.
- Give each learner some dummy currency.
- Instruct two learners in each group to play the role of shopkeepers who sell different items such as dresses, sarees and so on that are famous in their region. For example, students of Gujarat can think of selling Bandhani scarves, dress materials, sarees and so on.
- Help learners set up their shops.
- Inform the shopkeepers that the price of the items they sell must be greater than Rs. 1000.
- Ask some of the other learners in each group to play the role of customers.
- Instruct the customers to buy items in numbers not greater than 100 and pay the shopkeepers the correct amount of money with the currency notes given to them.
- Ask the remaining learners in the groups to find out the price of each item when the customers tell them the number of items they bought and the total amount they paid to the shopkeeper.

For example, if a customer pays Rs. 2150 and buys 10 bandhani kurtas, they have to find the cost of each kurta, which is  $\text{Rs. } 2150 \div 10 = \text{Rs. } 215$ . Similarly, if a customer pays Rs. 10000 for 8 bandhani sarees, they have to find the cost of each saree, which can be calculated as  $\text{Rs. } 10000 \div 8 = \text{Rs. } 1250$ .

- Encourage all learners to participate in the activity.

## Art Integrated Lesson Plans

### Extension Activity:

Ask learners to find out the prices of some of their regional or cultural attire from the total amount they spend to buy a few of them together.

### Assessment:

Use the Assessment Rubric given to evaluate the learner.

### Conclusion:

Learners use their knowledge of Indian currency and the cultural attire of their states to understand the concept of division of 3-digit and 4-digit numbers in a fun and practical way.

### Suggested Rubric for Assessing Art Integrated Learning

		Proficient	Evolving	Beginner	Pre-Beginner
LEVELS		4	3	2	1
RATING					
<b>P A R A M E T E R S</b>	Knowledge Construction and Expression	<b>Demonstrates excellent</b> use of inquiry and higher order thinking skills, and <b>accurate representation</b> of arts standards.	<b>Demonstrates good</b> use of inquiry and higher order thinking skills and <b>effective representation</b> of arts standards.	<b>Demonstrates moderate</b> use of inquiry and higher order thinking skills and <b>occasional representation</b> of arts standards.	<b>Demonstrates minimal</b> use of inquiry and higher order thinking skills and <b>little representation</b> of arts standards.
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## Art Integrated Lesson Plans

Envisioning	<b>Engages proactively</b> in rigorous arts integration by embracing change; has multiple perspectives and takes <b>adequate calculated risks</b> .	<b>Engages actively</b> in arts integration by accepting change; has some perspectives and takes <b>some calculated risks</b> .	<b>Engages moderately</b> in arts integration by accepting few changes; has few perspectives and takes <b>few calculated risks</b> .	<b>Engages rarely</b> in arts integration; has minimal perspectives and <b>hardly takes risks</b> .
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# How to Create an Effective Learning Environment?

NCF 2022 aims at achieving a holistic overall transformation of the teaching-learning process that will ensure an enjoyable, inclusive and positive overall learning experience. NCF 2022 asserts that the teacher is at the heart of the practice of education and is the torchbearer of the transformation it envisions for the Indian education system. It also re-emphasises the overall guiding principles of the NEP 2020, some of which include:

- a) achieving Foundational Literacy and Numeracy by all students by Grade 3,
- b) emphasis on conceptual understanding rather than rote learning and learning for examinations,
- c) development of 21st-century skills such as problem-solving, creativity, and critical thinking to encourage logical decision-making and innovation
- d) respect for diversity and respect for the local context in curriculum and pedagogy

Here we have outlined some additional pointers that are in alignment with NCF 2022 that we feel will support teachers of mathematics.

What would you choose as your goal for maths teaching?

- (A) to complete the syllabus as per the book by the end of the year
- (B) to ensure that learners perform to the best of their abilities in tests
- (C) to ensure that learners are able to add, subtract, multiply and divide one-digit, two-digit, three-digit, four-digit and five-digit numbers



Which option did you choose? Did you choose all of them? All of these options are parts of the larger goals of maths teaching. The National Curriculum Framework states that maths teaching should not focus on *mathematical content* but on *mathematical learning environments*, where learners are exposed to processes such as:

- ☆ Visualisation
- ☆ Representation
- ☆ Use of patterns
- ☆ Mathematical communication
- ☆ Estimation and approximation
- ☆ Formal problem solving

- ☆ Making connections
- ☆ Optimisation
- ☆ Reasoning and proof




These are some keywords related to the larger goals of teaching mathematics. The ClassKlap Teacher Companion Books have been developed keeping in mind these larger goals. However, there are some broad principles of mathematics teaching as well, which will help you create an effective learning environment. Below are some of these principles:

- 1) Have learners repeat maths problems in their own words:** This is an important exercise for Indian classrooms since English is not the mother tongue for most learners. Being able to rephrase word problems in their own words in English or their mother tongue is a great way to ensure that learners are engaging with the content. It also provides you, the teacher, insight into the comprehension level of your learners.
- 2) Error analysis:** Correcting learners' homework or classwork is actually an exciting opportunity for you to see trends in errors. Use that input for your next lesson to ensure that misconceptions keep getting clarified as you teach.
- 3) Summarise key points:** Use the blackboard to put up the key points/facts/steps/formulas related to the concept you are teaching. Ideally, every lesson or concept should begin with a clearly defined objective and should end with you summarising the key points you want learners to remember. Guiding learners to repeat the key points in verbal or written form is an effective principle.
- 4) Make maths teaching concrete:** Maths is all around us! It is the building block for nearly everything we do in our everyday lives. Art, architecture, finance, engineering and even sports and music have maths as their basis. The more we are able to relate maths to life around us and make this otherwise abstract subject concrete, the more beneficial it is for learners. Do not leave any opportunity to provide concrete examples using objects (manipulatives) or to share concrete examples before proceeding to abstract concepts. NCF 2022 lays special emphasis on developing mathematical abstract ideas (concepts) through concrete experience [ELPS].
- 6) Focus on fact fluency:** Maths is all about remembering the rules and practising. Research proves that learners who are provided with the opportunity to practise maths, develop the skills necessary to solve complex maths problems. Helping learners develop pace in processing basic fundamental skills such as addition, subtraction, multiplication and division is extremely important. This can be easily achieved through games, quizzes, timed group competitions and activity-oriented teaching.



**7) Show concern for the performance of individual learners:** Each learner is unique and may have different kinds of difficulties in learning. It is important to remember and have faith that *all learners can learn*. Showing faith in the learning abilities of all your learners, paying attention to their thought processes, making your classes interactive and taking everyone along through your teaching will certainly ensure success.

# End-of-Term Reflection




Q 1) Which were the four best performing areas/concepts for Term 1 as per your Teacher Companion Book?


- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_

Q 2) Which four areas/concepts were highlighted for improvement as per your Teacher Companion Book?

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_



Q 3) Which transactional tips do you find most useful to remediate the areas/concepts highlighted for improvement?



Q 4) How many periods have you used to remediate areas/concepts highlighted in the Teacher Companion Book?

Q 5) What other transactional tips do you plan on using in Term 2?

Q 6) List at least five learners who you would like to particularly support based on inputs from the Teacher Companion Book.

- 1) \_\_\_\_\_
- 2) \_\_\_\_\_
- 3) \_\_\_\_\_
- 4) \_\_\_\_\_
- 5) \_\_\_\_\_

