



ESSENTIAL CODING

Basic 4 Facilitator's Guide





Essential Coding

Basic 4

Facilitator's Guide

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Table of Contents

Introduction

• Overview of the Essential Coding Series and Facilitator's Guide	7
• How This Book Teaches Coding Without Computers	8
• Structure of Learning Levels	10
• Coding Links	13

Diagnostic Assessment

• Level 1: Reasoning	21
• Level 2: Critical Thinking & Analysis	35
• Level 3: Data Handling and Representation	46
• Level 4: Algorithmic Intelligence	53
• Core Competencies Mapping	62

Facilitator's Page-wise Teaching Instructions

Level 1 – Reasoning

1.1	3D Shapes	65
1.2	Patterns	67
1.3	Counting Combination	70
1.4	Word Builders	74
1.5	Number Pyramid	75
	• Coding Challenge - 1: Toy Tale	78
	• Review Exercise	
	• Differentiated Learning	
	• Teacher Closure	

Level 2 – Critical Thinking & Analysis

2.1	Riddle Time	80
2.2	Spot the Difference	82
2.3	Grid Map	83
2.4	Symmetry	86

2.5	Wonder Maze	88
	• Coding Challenge - 2: Escape Room	89
	• Review Exercise	
	• Differentiated Learning	
	• Teacher Closure	

Level 3 – Data Handling and Representation

3.1	Representing Data	92
3.2	Symbolic Representation	94
3.3	Deciphering	96
	• Coding Challenge - 3: Ice Bergs	98
	• Review Exercise	
	• Differentiated Learning	
	• Teacher Closure	

Level 4 – Algorithmic Intelligence

4.1	Sequence of Steps	100
4.2	Algorithm	102
4.3	Understanding Programs	104
4.4	Decision Making	105
4.5	Loop: Programs	107
	Coding Challenge - 4: Wake Up Routine	108
	Review Exercise	
	Differentiated Learning	
	Teacher Closure	

Answer Key

Level 1 – Reasoning

1.1	3D Shapes	112
1.2	Patterns	114

1.3	Counting Combination	118
1.4	Word Builders	122
1.5	Number Pyramid	124
	• Coding Challenge - 1: Toy Tale	126

Level 2 – Critical Thinking & Analysis

2.1	Riddle Time	127
2.2	Spot the Difference	129
2.3	Grid Map	131
2.4	Symmetry	134
2.5	Wonder Maze	135
	• Coding Challenge - 2: Escape Room	137

Level 3 – Data Handling and Representation

3.1	Representing Data	138
3.2	Symbolic Representation	140
3.3	Deciphering	142
	• Coding Challenge 3: Ice Bergs	144

Level 4 – Algorithmic Intelligence

4.1	Sequence of Steps	145
4.2	Algorithm	147
4.3	Understanding Programs	149
4.4	Decision Making	150
4.5	Loop: Programs	151
	Coding Challenge - 4: Wake Up Routine	153

Introduction

Overview of the Essential Coding Series and Facilitator's Guide

The books in the **Essential Coding** series introduce young learners to the foundations of computational thinking and early coding skills through engaging visual activities and problem-solving tasks. These activities encourage learners to observe carefully, think logically, recognise patterns, and solve challenges step by step.

The content is organised into four progressive levels that gradually develop learners' thinking abilities—from basic reasoning to algorithmic thinking. Each level focuses on important skills such as counting, comparison, classification, pattern recognition, logical reasoning, and step-by-step problem solving.

Every activity includes a “**Completed in ____ Min.**” section to help teachers manage classroom time effectively and encourage learners to develop focus and time awareness. The book also includes **QR codes** linked to educative videos that support better understanding of concepts through visual learning and guided explanation.

At the end of each level, learners complete a **Coding Challenge** activity to apply the skills learned through observation, reasoning, and logical thinking.

The book also includes a **Progress Report** section to help teachers evaluate learners' development in four key computational thinking areas:

- ❖ Reasoning
- ❖ Critical Thinking & Analysis
- ❖ Data Handling and Representation
- ❖ Algorithmic Intelligence

Teachers can use this section to record progress, provide feedback, and identify areas where additional support may be needed.

Using This Facilitator's Guide Effectively

This Facilitator's Guide is designed to help teachers conduct lessons in a structured and meaningful manner. Before teaching, teachers are encouraged to read the “Overview Section”, “How This Book Teaches Coding Without Computers”, and “Structure of Learning Levels” sections to understand the learning approach and progression.

For every concept, teachers should follow the sequence provided in the guide:

- ❖ **Diagnostic Assessment:** (includes Diagnostic Check, Remediation Support, and Extension Activities)
- ❖ **Facilitator's Page-wise Teaching Instructions:** (includes Teacher Instructions, Teacher-Learner Interaction, Teacher Guidance, Reinforcement, Coding Link, and Review Exercise)
- ❖ **Level Completion Components:** (includes Review Exercise, Differentiated Learning, and Teacher Closure)

This structured flow helps teachers introduce concepts clearly, observe learner understanding, provide support where needed, and connect activities with computational thinking and early coding skills.

How This Book Teaches Coding Without Computers

■ Building Foundations for Coding

Include statements like:

- ❖ Coding starts with thinking, not typing
- ❖ Every activity builds a coding skill
- ❖ Learners are developing computational thinking
- ❖ These skills prepare learners for real programming

■ How this Book Teaches Coding

Teaching Philosophy

Coding does not begin with computers. It begins with thinking.

This book develops computational thinking skills, which are the foundation of coding:

Observation

- ❖ Logical reasoning
- ❖ Pattern recognition
- ❖ Sequencing
- ❖ Decision-making

Every activity in this book is intentionally designed to build a coding skill.

What Teachers Must Understand

Coding = Giving clear instructions to solve a problem

Learners are already “coding” when they:

- ❖ Count
- ❖ Follow steps
- ❖ Identify patterns
- ❖ Make decisions

Your role is to help learners see the connection.

Coding Link

Whenever you see this icon:

- ❖ Coding Link

Explain to learners how the activity relates to coding.

Teaching Strategy

- ❖ Every lesson should follow this flow:
- ❖ Introduce concept (real-life example)
- ❖ Demonstrate activity
- ❖ Guide learners step-by-step
- ❖ Ask questions
- ❖ Reinforce learning
- ❖ Explain Coding Link

Classroom Strategy

- ❖ Encourage learners to think aloud
- ❖ Allow trial and error
- ❖ Use real objects when possible
- ❖ Keep lessons interactive

Professional Positioning

Teachers should communicate clearly:

“This is not just an activity. This is coding thinking.”

Final Note for Teachers

By teaching this book well, you are not just teaching activities.

You are:

- ❖ Building problem solvers
- ❖ Developing logical thinkers
- ❖ Preparing future programmers

Every activity is a step into coding.

■ Inclusive Learning Statement

This Facilitator’s Guide promotes inclusive and learner-centred education by encouraging teachers to support learners with diverse learning needs through differentiated instruction, peer collaboration, visual aids, oral participation, hands-on activities, movement-based learning, and flexible assessment strategies. Teachers should ensure that all learners, including learners requiring additional learning support, are actively involved in classroom activities, discussions, problem-solving tasks, and coding-related experiences in a respectful and supportive learning environment.

Structure of Learning Levels

Level 1: Reasoning

This level develops learners' basic reasoning, spatial awareness, number sense, and pattern recognition skills. Learners practise identifying shapes, understanding patterns, solving number puzzles, and recognising word relationships.

■ 1.1 3D Shapes

Learners explore solid shapes such as cube, cuboid, cone, cylinder, and sphere. They learn about the faces, edges, and vertices of these shapes and identify them in everyday objects.

■ 1.2 Patterns

Learners observe and complete patterns using colours, shapes, numbers, letters, and sequences. These activities help them recognise repeating structures and predict what comes next in a pattern.

■ 1.3 Counting Combination

Learners practise combining numbers to reach a given total. This strengthens their number sense, addition skills, and logical reasoning.

■ 1.4 Word Builders

Learners identify and form words through word searches and picture-based spelling activities, strengthening observation and vocabulary skills.

■ 1.5 Number Pyramid

Learners solve number pyramids where each number is formed by adding the two numbers below it. This activity develops logical reasoning and understanding of number relationships.

..... Coding Challenge - 1: Toy Tale

Learners analyse different toys and classify them based on features such as wheels, round shapes, legs, and other characteristics, encouraging observation and classification skills.

Level 2: Critical Thinking & Analysis

This level focuses on improving learners' analytical thinking, spatial reasoning, and visual comparison skills.

■ 2.1 Riddle Time

Learners solve riddles using clues and logical thinking, improving reasoning and inference skills.

■ 2.2 Spot the Difference

Learners compare two pictures and identify small differences, improving observation and attention to detail.

■ 2.3 Grid Map

Learners locate objects using a coordinate grid with letters and numbers, helping them understand spatial location and mapping concepts.

■ 2.4 Symmetry

Learners explore symmetry by identifying mirror images and completing symmetrical shapes.

■ 2.5 Wonder Maze

Learners solve maze puzzles by following correct paths, strengthening problem-solving and logical navigation skills.

..... Coding Challenge - 2: Escape Room

Learners apply their logical reasoning to help a character complete a task by choosing the correct path or sequence.

Level 3: Data Processing

This level introduces learners to collecting, organising, interpreting, and analysing information.

■ 3.1 Representing Data

Learners study information shown in graphs and tables and answer questions based on the data presented.

■ 3.2 Symbolic Representation

Learners understand how symbols and signs can communicate information, such as road signs and pictorial symbols.

■ 3.3 Deciphering

Learners decode hidden messages using codes and symbols, introducing the idea of coded communication.

Coding Challenge - 3: Ice Bergs

Learners analyse conditions and rules to determine which icebergs can hold certain weights, strengthening logical reasoning and classification skills.

Level 4: Algorithmic Intelligence

This level introduces learners to algorithmic thinking and basic programming concepts.

4.1 Sequence of Steps

Learners understand how tasks can be completed through a sequence of steps, breaking larger tasks into smaller manageable actions.

4.2 Algorithm

Learners learn that an algorithm is a step-by-step procedure used to solve a problem. They practise creating algorithms for simple tasks.

4.3 Understanding Programs

Learners explore how a program is a set of instructions that guides actions, such as arranging objects or completing tasks according to given steps.

4.4 Decision Making

Learners study If–Then–Else conditions, which help computers make decisions based on specific situations.

4.5 Loop: Programs

Learners understand loops, where **instructions repeat multiple times** to create patterns or complete tasks.

Coding Challenge - 4: Wake Up Routine

Learners analyse a daily routine and arrange events in the correct order based on time, applying sequencing and logical reasoning.

Additional Learning Section

Fun with Coding – ScratchJr

The book introduces learners to ScratchJr, a beginner-friendly block-based programming platform. Learners discover how to:

- ❖ Create simple animations and stories
- ❖ Move characters (sprites) on the screen
- ❖ Change backgrounds and add sounds
- ❖ Combine blocks to form a program

Coding Links

This book introduces young learners to the foundations of computational thinking and early coding skills through engaging visual activities and problem-solving tasks. The activities encourage learners to observe carefully, think logically, recognise patterns, and solve simple challenges step by step.

The content is organised into four progressive levels that gradually develop learners' thinking abilities—from basic reasoning to algorithmic thinking. Each level focuses on specific cognitive skills such as counting, comparison, classification, pattern recognition, logical reasoning, and step-by-step problem solving.

Every activity in this book includes a **“Completed in ____Min.”** section, which indicates the suggested time learners may take to complete the activity. This helps teachers manage classroom time effectively and encourages learners to develop focus and time awareness while solving tasks.

At the end of each level, learners attempt a Coding Challenge activity. These activities allow learners to apply the skills learned in the level to solve a fun challenge that involves observation, reasoning, and logical thinking.

The book also includes a Progress Report section at the end that allows teachers to evaluate learners' development in four key computational thinking areas:

- ❖ Reasoning
- ❖ Critical Thinking & Analysis
- ❖ Data Processing
- ❖ Algorithmic Intelligence

Teachers can record progress, provide feedback, and identify areas where additional support may be required.

Level 1: Reasoning

■ Concept 1.1: 3D Shapes

Activity A: Identify the Shape

🔗 **Coding Link:** This is similar to how computers recognise objects. Computers look at features like shape and structure to identify things. When learners observe faces, edges, and vertices, they are identifying objects like a computer.

Activity B: Match the 3D Shapes

🔗 **Coding Link:** Computers connect real-world objects with stored information. When learners match objects with shapes, they are linking data just like a computer matches images with known patterns.

■ Concept 1.2: Patterns

Activity A: Complete the Colour Patterns

🔗 **Coding Link:** Computers follow patterns to perform tasks correctly. When learners identify and continue colour patterns, they are understanding repeating sequences like in coding.

Activity B: Identify the Next Pattern

🔗 **Coding Link:** Computers predict what comes next based on a rule. When learners find the next shape, they are thinking like a computer that follows pattern rules step by step.

Activity C: Number Patterns

🔗 **Coding Link:** Computers follow number rules to calculate results. When learners apply rules like add or subtract, they are performing operations just like a computer program.

Activity D: Identify the Pattern and Choose the Correct Option

🔗 **Coding Link:** Computers analyse sequences to make correct decisions. When learners compare patterns and choose the right answer, they are analysing data like a computer.

■ Concept 1.3: Counting Combination

Activity A: Write the Number Combinations

🔗 **Coding Link:** Computers break numbers into smaller parts to solve problems. When learners find combinations, they are dividing and combining data like a computer.

Activity B: Solve Using the Hints

🔗 **Coding Link:** Computers use symbols to represent values. When learners replace symbols with numbers, they are decoding information just like a computer system.

Activity C: Colour the Picture Using the Colour Code

🔗 **Coding Link:** Computers follow coded instructions to perform actions. When learners colour using number codes, they are following instructions like a computer program.

Activity D: How Many Are Remaining?

🔗 **Coding Link:** Computers calculate how many items are left after some are used. When learners subtract and find the remaining number, they are processing data like a computer.

■ Concept 1.4: Word Builders

Activity A: Find the Names of the Fruits

🔗 **Coding Link:** Computers search through data to find specific information. When learners find hidden words, they are scanning and recognising patterns like a computer.

Activity B: Colour the Correct Letters and Write the Word

🔗 **Coding Link:** Computers combine letters to form meaningful words. When learners choose correct letters, they are forming outputs just like a computer processes language.

■ Concept 1.5: Number Pyramid

Activity A: Complete the Number Pyramid

🔗 **Coding Link:** Computers solve problems step by step using rules. When learners add numbers in the pyramid, they are following a rule repeatedly like a computer program.

Activity B: Number Pyramid Block Game

🔗 **Coding Link:** Computers build results layer by layer using previous data. When learners complete the pyramid, they are processing information step by step like a computer.

..... Coding Challenge - 1: Toy Tale

Activity: Identify and Sort the Toys

🔗 **Coding Link:** Computers group and organise data based on features. When learners sort toys by their properties, they are classifying information just like a computer system.

Level 2: Critical Thinking & Analysis

■ Concept 2.1: Riddle Time

Activity A: Read and Solve the Rhythmic Riddles

🔗 **Coding Link:** Computers use clues and data to find correct answers. When learners read riddles and think about the hints, they are analysing information just like a computer system.

Activity B: Guess Who They Are

🔗 **Coding Link:** Computers match clues with the correct result. When learners match riddles with answers, they are connecting information just like a computer processes data.

■ Concept 2.2: Spot the Difference

Activity A: Find Six Differences

🔗 **Coding Link:** Computers compare two sets of data to find differences. When learners observe pictures and identify changes, they are comparing information like a computer.

Activity B: Find Six Differences in the Picture

🔗 **Coding Link:** Computers scan information carefully to detect small changes. When learners find differences, they are analysing details just like a computer system.

■ Concept 2.3: Grid Map

Activity A: Find the Location on the Grid

🔗 **Coding Link:** Computers use coordinates to locate objects on a screen or map. When learners read grid positions like A1 or E2, they are locating data just like a computer.

Activity B: Locate the Landforms on the Grid

🔗 **Coding Link:** Computers store and find positions using grid systems. When learners identify locations of landforms, they are working with coordinates like in coding.

Activity C: Rearrange the Objects on the Grid

Coding Link: Computers follow directions such as left, right, up, and down to move objects. When learners follow movement instructions, they are controlling actions like a computer program.

■ Concept 2.4: Symmetry

Activity A: Draw a Line of Symmetry

🔗 **Coding Link:** Computers use symmetry to create balanced designs and images. When learners draw lines of symmetry, they are understanding how computers create mirror images.

Activity B: Complete the Symmetrical Shape

🔗 **Coding Link:** Computers copy one part of an image to create the other half. When learners complete symmetrical shapes, they are repeating patterns like a computer.

■ Concept 2.5: Wonder Maze

Activity A: Help Fafa Reach the Badminton Court

🔗 **Coding Link:** Computers find the correct path by checking different options. When learners solve the maze, they are choosing the correct path step by step like a computer.

Activity B: Help Bunny Find Its Home

🔗 **Coding Link:** Computers solve problems by following directions carefully. When learners trace the correct path in a maze, they are using logical steps like a computer program.

Activity: Help the Lady Reach the Terrace

🔗 **Coding Link:** Computers analyse situations and choose the best path to reach a goal. When learners solve the puzzle and find the correct route, they are thinking like a computer solving a problem.

Level 3: Data Handling and Representation

■ **Concept 3.1: Representing Data**

Activity A: Study the Graph and Answer the Questions

🔗 **Coding Link:** Computers use graphs to understand and compare data easily. When learners read the bar graph and answer questions, they are analysing information just like a computer system.

Activity B: Arrange the Data in Descending Order

🔗 **Coding Link:** Computers organise data to make it easy to understand. When learners arrange numbers from highest to lowest, they are sorting data just like a computer program.

■ **Concept 3.2: Symbolic Representation**

Activity A: Identify the Symbols

🔗 **Coding Link:** Computers use symbols and signs to give instructions quickly. When learners identify symbols like traffic signs, they are understanding how computers use symbols to communicate information.

Activity B: Interpret the Pictorial Table

🔗 **Coding Link:** Computers use symbols to represent numbers in data. When learners count symbols and find totals, they are interpreting data just like a computer system.

■ **Concept 3.3: Deciphering**

Activity A: Decode the Treasure Box Code

🔗 **Coding Link:** Computers use codes to store and protect information. When learners decode symbols into letters, they are converting coded data into meaningful information like a computer.

Activity B: Decode the Dot Code

🔗 **Coding Link:** Computers translate coded patterns into readable information. When learners match dot patterns with letters, they are decoding data step by step like a computer program.

..... Coding Challenge - 3: Ice Bergs

🔗 **Coding Link:** Computers follow rules to analyse and classify data. When learners study the conditions and decide which icebergs can hold weight, they are applying rules just like a computer system.

Level 4: Algorithmic Intelligence

■ Concept 4.1: Sequence of Steps

Activity A: Help Latif Get Ready for School

🔗 **Coding Link:** This is how computers work. Computers follow steps in a correct order to complete a task. When learners arrange daily routine steps, they are understanding sequencing like a computer program.

Activity B: Arrange the Steps to Plant a Garden

🔗 **Coding Link:** Computers cannot do tasks randomly; they must follow a proper sequence. When learners arrange steps in the correct order, they are creating a sequence just like in coding.

■ Concept 4.2: Algorithm

Activity A: Write an Algorithm to Find the Difference

🔗 **Coding Link:** Computers use algorithms, which are step-by-step instructions to solve problems. When learners write steps to find a difference, they are creating an algorithm like in coding.

Activity B: Complete the Algorithm (Brushing Routine)

🔗 **Coding Link:** Computers need complete and clear instructions to work properly. When learners fill in missing steps, they are understanding how important each step is in a program.

■ Concept 4.3: Understanding Programs

Activity A: Complete the Program for Arranging Books

🔗 **Coding Link:** A program is a set of instructions that tells what to do. When learners complete the steps to arrange books, they are following and understanding a program like in coding.

■ Concept 4.4: Decision Making

Activity A: Rules for Nana

🔗 **Coding Link:** Computers make decisions using conditions like 'if-then-else'. When learners choose outcomes based on rules, they are using decision-making logic like a computer

■ Concept 4.5: Loop: Programs

Activity A: Robo Climbing the Stairs

🔗 **Coding Link:** Computers repeat actions using loops. When learners find how many times steps repeat, they are understanding loops like in coding.

Activity B: Alice's Weekly Classes

🔗 **Coding Link:** Computers recognise repeating patterns to predict what comes next. When learners identify repeating schedules, they are understanding loops like a computer program.

..... Coding Challenge - 4: Wake Up Routine

Activity: Arrange the Wake-Up Routine

🔗 **Coding Link:** Computers follow instructions in a proper order to complete tasks correctly. When learners arrange wake-up times in order, they are organising steps like a computer program.

Diagnostic Assessment

Level 1: Reasoning

Concept 1.1: 3D Shapes

(LB Pages 8–10)

⇒ Activity A: Identify the Shape

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify common 3D shapes such as cube, cone, cylinder, cuboid, and sphere.
- ❖ Observe faces, edges, and vertices of shapes.
- ❖ Compare 3D objects with real-life examples.
- ❖ Name objects that resemble solid shapes.

Observe learners who:

- ❖ Confuse 2D and 3D shapes.
- ❖ Cannot identify faces, edges, or vertices correctly.
- ❖ Need repeated visual guidance.
- ❖ Struggle to connect clues with shapes.

Remediation Support

For learners struggling with identifying 3D shapes:

- ❖ Use real classroom objects such as dice, cans, balls, and boxes.
- ❖ Allow learners to hold and observe solid objects.
- ❖ Compare one shape at a time.
- ❖ Count faces, edges, and vertices together slowly.

For learners struggling with shape properties:

- ❖ Use labelled diagrams of shapes.
- ❖ Highlight edges and vertices using coloured markers.
- ❖ Repeat shape vocabulary regularly.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Draw and label different 3D shapes.
- ❖ Identify more real-life examples of 3D objects.
- ❖ Compare shapes using faces, edges, and vertices.
- ❖ Create a classroom display of 3D objects.

⇒ Activity B: Match the 3D Shapes

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify real-life objects based on shape.
- ❖ Compare solid shapes visually.
- ❖ Recognise cones, cubes, cylinders, and spheres.
- ❖ Classify objects according to shape.

Observe learners who:

- ❖ Cannot match objects with shapes correctly.
- ❖ Guess answers randomly.
- ❖ Need repeated teacher support.
- ❖ Confuse similar solid shapes.

Remediation Support

For learners struggling with object-shape matching:

- ❖ Use real objects such as cans, dice, balls, and cones.
- ❖ Compare one object and one shape at a time.
- ❖ Discuss shape features clearly.
- ❖ Encourage learners to touch and rotate objects.

For learners needing additional support:

- ❖ Use flashcards showing objects and shapes together.
- ❖ Demonstrate examples slowly.
- ❖ Repeat matching practice regularly.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Draw additional objects for each 3D shape.
- ❖ Sort classroom objects into shape categories.
- ❖ Create their own object-shape matching activity.
- ❖ Explain why objects belong to a particular shape group.

⇒ Activity A: Complete the Colour Patterns**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Observe repeating colour sequences carefully.
- ❖ Identify what comes next in a pattern.
- ❖ Recognise repeated shapes and colours.
- ❖ Read patterns aloud from left to right.

Observe learners who:

- ❖ Cannot identify the repeating rule.
- ❖ Colour shapes randomly.
- ❖ Need repeated teacher prompts.
- ❖ Struggle to continue the sequence correctly.

Remediation Support

For learners struggling with colour patterns:

- ❖ Use coloured blocks or counters for demonstration.
- ❖ Explain one row of the pattern at a time.
- ❖ Point to each colour while reading the sequence.
- ❖ Encourage learners to say the pattern aloud.

For learners needing additional support:

- ❖ Use simpler AB or ABC patterns first.
- ❖ Use finger tracking while observing patterns.
- ❖ Provide repeated pattern practice.

Extension Activity*(Work Individually / in Groups)*

Ask fast learners to:

- ❖ Create their own colour patterns.
- ❖ Extend complex sequences independently.
- ❖ Explain the pattern rule clearly.
- ❖ Design pattern puzzles for classmates.

⇒ Activity B: Identify the Next Pattern**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Observe changing shapes and directions carefully.
- ❖ Recognise patterns involving size, bars, arrows, or dots.

- ❖ Predict the next object in a sequence.
- ❖ Compare similarities between repeated shapes.

Observe learners who:

- ❖ Cannot recognise changing patterns.
- ❖ Guess answers without analysing carefully.
- ❖ Need repeated visual support.
- ❖ Struggle to predict the next sequence.

Remediation Support

For learners struggling with visual patterns:

- ❖ Discuss one sequence at a time.
- ❖ Point out how the shapes or symbols change.
- ❖ Use arrows and shapes for demonstration.
- ❖ Encourage learners to compare neighbouring figures.

For learners needing extra support:

- ❖ Use simpler shape sequences first.
- ❖ Provide guided examples before independent work.
- ❖ Allow learners to work with partners.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own visual pattern sequences.
- ❖ Draw the next steps in a complex pattern.
- ❖ Challenge classmates with pattern puzzles.
- ❖ Explain how the sequence changes each step.

⇒ Activity C: Number Patterns

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Read number sequences aloud.
- ❖ Identify increasing and decreasing patterns.
- ❖ Recognise addition and subtraction rules.
- ❖ Predict missing numbers in sequences.

Observe learners who:

- ❖ Cannot identify the rule in the pattern.
- ❖ Need repeated counting support.

- ❖ Confuse addition and subtraction patterns.
- ❖ Struggle to continue the sequence correctly.

Remediation Support

For learners struggling with number patterns:

- ❖ Use number lines and counters for demonstration.
- ❖ Show step-by-step addition or subtraction.
- ❖ Practise skip-counting activities regularly.
- ❖ Encourage learners to say sequences aloud.

For learners needing additional support:

- ❖ Highlight changing numbers using colours.
- ❖ Start with smaller number sequences first.
- ❖ Use visual examples for repeated practice.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own number patterns.
- ❖ Use larger numbers in pattern sequences.
- ❖ Write pattern rules independently.
- ❖ Challenge classmates with pattern puzzles.

⇒ Activity D: Identify the Pattern and Choose the Correct Option

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Observe sequences carefully.
- ❖ Identify patterns in numbers, letters, and words.
- ❖ Compare consecutive elements in a sequence.
- ❖ Predict the next item logically.

Observe learners who:

- ❖ Cannot identify the sequence rule.
- ❖ Guess answers randomly.
- ❖ Need repeated guidance while analysing patterns.
- ❖ Struggle to compare sequence changes.

Remediation Support

For learners struggling with sequence analysis:

- ❖ Discuss one pattern at a time.
- ❖ Highlight the change between consecutive elements.

- ❖ Use oral questioning to identify the rule.
- ❖ Encourage learners to read patterns aloud.

For learners needing extra support:

- ❖ Start with simple alphabet or number patterns.
- ❖ Use colour coding to highlight repeated changes.
- ❖ Provide guided examples before independent work.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own sequence puzzles.
- ❖ Write patterns using letters, months, or numbers.
- ❖ Challenge classmates with multiple-choice pattern questions.
- ❖ Explain how they identified the correct option.

Concept 1.3: Counting Combination

(LB Pages 15–18)

⇒ Activity A: Write the Number Combinations

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Add two numbers mentally.
- ❖ Recognise that numbers can be formed using different combinations.
- ❖ Count objects carefully.
- ❖ Identify pairs of numbers that make a total.

Observe learners who:

- ❖ Cannot identify correct number combinations.
- ❖ Need repeated support with addition.
- ❖ Confuse totals while combining numbers.
- ❖ Struggle to represent numbers in different ways.

Remediation Support

For learners struggling with combinations:

- ❖ Use counters or beads to demonstrate addition.
- ❖ Show number bonds using visual aids.
- ❖ Practise combining small numbers first.
- ❖ Encourage learners to count aloud while adding.

For learners needing additional support:

- ❖ Use number cards for matching totals.

- ❖ Highlight one combination at a time.
- ❖ Repeat practice using real objects.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create multiple combinations for the same number.
- ❖ Write their own number-bond puzzles.
- ❖ Challenge classmates with combination questions.
- ❖ Use larger totals independently.

➞ Activity B: Solve Using the Hints

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Match symbols with number values.
- ❖ Perform simple addition and subtraction.
- ❖ Read coded information carefully.
- ❖ Interpret clues correctly.

Observe learners who:

- ❖ Cannot decode symbols correctly.
- ❖ Forget symbol values while solving.
- ❖ Need repeated teacher guidance.
- ❖ Struggle to apply operations correctly.

Remediation Support

For learners struggling with symbolic values:

- ❖ Write symbol-number values clearly on the board.
- ❖ Replace one symbol at a time together.
- ❖ Use flashcards with symbols and values.
- ❖ Practise simple coded calculations first.

For learners struggling with calculations:

- ❖ Use counters to solve sums and differences.
- ❖ Encourage learners to calculate step by step.
- ❖ Repeat decoding practice regularly.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own symbol-code puzzles.
- ❖ Write coded maths questions for classmates.

- ❖ Solve larger coded calculations independently.
- ❖ Explain how the symbols were decoded.

➞ **Activity C: Colour the Picture Using the Colour Code**

Diagnostic Check

(Work Individually)

Before the activity, ask learners to:

- ❖ Recognise colours and numbers correctly.
- ❖ Read and follow colour instructions.
- ❖ Match numbers with colours.
- ❖ Observe picture sections carefully.

Observe learners who:

- ❖ Forget the colour code.
- ❖ Colour incorrect sections randomly.
- ❖ Need repeated teacher reminders.
- ❖ Struggle to follow coded instructions.

Remediation Support

For learners struggling with colour coding:

- ❖ Display the colour key clearly on the board.
- ❖ Colour one example section together first.
- ❖ Encourage learners to identify the number before colouring.
- ❖ Use finger pointing while checking codes.

For learners needing additional support:

- ❖ Use larger colour charts for reference.
- ❖ Highlight one colour code at a time.
- ❖ Allow learners to work slowly with guidance.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own colour-coded picture.
- ❖ Design number-colouring games.
- ❖ Use additional colour-number combinations.
- ❖ Challenge classmates with coded colouring activities.

⇒ Activity D: How Many Are Remaining?

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Count groups of objects correctly.
- ❖ Perform simple subtraction mentally.
- ❖ Recognise how many objects are left after removing some.
- ❖ Compare quantities visually.

Observe learners who:

- ❖ Miscount remaining objects.
- ❖ Need repeated subtraction support.
- ❖ Confuse subtraction with addition.
- ❖ Struggle to verify answers independently.

Remediation Support

For learners struggling with subtraction:

- ❖ Use crayons or counters for hands-on subtraction.
- ❖ Cross out coloured objects while counting.
- ❖ Solve one subtraction example at a time.
- ❖ Encourage learners to count remaining items aloud.

For learners needing additional support:

- ❖ Start with smaller quantities first.
- ❖ Use number lines for subtraction practice.
- ❖ Allow learners to work with partners.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own “how many left” problems.
- ❖ Use larger numbers for subtraction activities.
- ❖ Challenge classmates with subtraction puzzles.
- ❖ Explain subtraction strategies independently.

⇒ Activity A: Find the Names of the Fruits**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Recognise fruit names correctly.
- ❖ Read words horizontally and vertically.
- ❖ Observe letter grids carefully.
- ❖ Identify familiar spelling patterns.

Observe learners who:

- ❖ Cannot identify hidden words correctly.
- ❖ Skip letters while searching.
- ❖ Need repeated visual guidance.
- ❖ Struggle to scan rows and columns systematically.

Remediation Support

For learners struggling with word searching:

- ❖ Highlight the first letter of target words.
- ❖ Use finger tracking while searching.
- ❖ Search one row or column at a time.
- ❖ Read fruit names aloud before searching.

For learners needing additional support:

- ❖ Use smaller grids first.
- ❖ Provide guided examples before independent work.
- ❖ Allow learners to work with partners.

Extension Activity*(Work Individually / in Groups)*

Ask fast learners to:

- ❖ Create their own fruit word-search puzzle.
- ❖ Hide additional fruit names in a grid.
- ❖ Challenge classmates with hidden-word games.
- ❖ Explain how they located the words.

⇒ Activity B: Colour the Correct Letters and Write the Word**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Recognise pictures and their names.

- ❖ Identify correct spelling patterns.
- ❖ Read letters carefully.
- ❖ Match pictures with words.

Observe learners who:

- ❖ Cannot identify the correct letters.
- ❖ Need repeated spelling support.
- ❖ Guess answers randomly.
- ❖ Struggle to connect pictures with words.

Remediation Support

For learners struggling with spelling:

- ❖ Say each word aloud slowly.
- ❖ Highlight beginning and ending sounds.
- ❖ Use picture-word flashcards for practice.
- ❖ Encourage learners to spell aloud while choosing letters.

For learners needing additional support:

- ❖ Provide guided spelling examples.
- ❖ Use letter cards for word formation.
- ❖ Repeat vocabulary regularly.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own picture-word activity.
- ❖ Write additional words using letter combinations.
- ❖ Challenge classmates with spelling games.
- ❖ Explain why the chosen letters form the correct word.

Concept 1.5: Number Pyramid

(LB Pages 21–23)

⇒ Activity A: Complete the Number Pyramid

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Add numbers mentally and using written methods.
- ❖ Observe relationships between numbers.
- ❖ Recognise how two numbers combine to form another.
- ❖ Follow number patterns carefully.

Observe learners who:

- ❖ Cannot add numbers accurately.
- ❖ Need repeated teacher support.
- ❖ Struggle to identify missing numbers.
- ❖ Guess answers without checking calculations.

Remediation Support

For learners struggling with addition:

- ❖ Use counters or beads for addition practice.
- ❖ Show how the two lower numbers form the upper number.
- ❖ Practise simple addition facts repeatedly.
- ❖ Encourage learners to add aloud step by step.

For learners needing visual support:

- ❖ Highlight connected number pairs using colours.
- ❖ Solve one pyramid level at a time.
- ❖ Use guided examples before independent work.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own number pyramids.
- ❖ Use larger numbers independently.
- ❖ Explain how the top numbers are formed.
- ❖ Challenge classmates with pyramid puzzles.

⇒ Activity B: Number Pyramid Block Game

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Add numbers correctly in sequence.
- ❖ Observe patterns in number pyramids.
- ❖ Recognise how each block depends on the blocks below.
- ❖ Check calculations carefully.

Observe learners who:

- ❖ Miscalculate sums frequently.
- ❖ Need repeated addition support.
- ❖ Struggle to follow the pyramid rule.
- ❖ Forget to solve from bottom to top.

Remediation Support

For learners struggling with pyramid blocks:

- ❖ Solve one row at a time together.
- ❖ Use counters to demonstrate addition.
- ❖ Highlight the two blocks being added.
- ❖ Encourage learners to verify answers step by step.

For learners needing additional support:

- ❖ Start with smaller pyramids first.
- ❖ Use colour coding for related blocks.
- ❖ Allow partner support during solving.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Design larger number pyramids independently.
- ❖ Create their own pyramid games.
- ❖ Use bigger numbers in calculations.
- ❖ Challenge classmates with pyramid puzzles.

Coding Challenge – 1: Toy Tale

(LB Page 24)

⇒ Activity: Identify and Sort the Toys

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Observe toy features carefully.
- ❖ Classify toys based on shape, wheels, or legs.
- ❖ Count groups of objects correctly.
- ❖ Compare similarities between objects.

Observe learners who:

- ❖ Cannot classify toys correctly.
- ❖ Miscount objects while grouping.
- ❖ Need repeated visual guidance.
- ❖ Struggle to identify shared features.

Remediation Support

For learners struggling with classification:

- ❖ Group toys one category at a time.
- ❖ Use real toys or classroom objects for demonstration.

- ❖ Discuss toy features such as wheels, legs, or shape clearly.
- ❖ Encourage learners to point to matching features.

For learners struggling with counting:

- ❖ Count grouped toys together slowly.
- ❖ Use finger tracking while counting.
- ❖ Check totals by recounting the objects.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own toy-classification activity.
- ❖ Design new categories for sorting objects.
- ❖ Draw and classify classroom items independently.
- ❖ Challenge classmates with feature-based sorting games.

Level 2: Critical Thinking & Analysis

Concept 2.1: Riddle Time

(LB Pages 26–27)

⇒ Activity A: Read and Solve the Rhythmic Riddles

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Listen carefully to clues in riddles.
- ❖ Identify familiar objects or animals from descriptions.
- ❖ Read short rhyming sentences aloud.
- ❖ Recognise key words that give hints.

Observe learners who:

- ❖ Cannot understand clues clearly.
- ❖ Guess answers randomly.
- ❖ Need repeated oral explanation.
- ❖ Struggle to connect clues with answers.

Remediation Support

For learners struggling with riddles:

- ❖ Read each riddle slowly and clearly.
- ❖ Explain difficult words using pictures or actions.
- ❖ Discuss one clue at a time.
- ❖ Encourage learners to underline important hints.

For learners struggling with reasoning:

- ❖ Use simple real-life examples to explain clues.
- ❖ Ask guiding questions step by step.
- ❖ Use picture cards to support understanding.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own rhythmic riddles.
- ❖ Write clues for classmates to solve.
- ❖ Explain how they identified the correct answer.
- ❖ Perform riddle-reading activities aloud.

⇒ Activity B: Guess Who They Are

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Read riddles carefully.
- ❖ Identify hidden meanings in clues.
- ❖ Connect descriptions with familiar objects or ideas.
- ❖ Match clues with answer choices logically.

Observe learners who:

- ❖ Cannot interpret clue meanings correctly.
- ❖ Need repeated support understanding figurative clues.
- ❖ Guess answers without analysing.
- ❖ Struggle to match riddles with the correct option.

Remediation Support

For learners struggling with clue interpretation:

- ❖ Discuss one riddle at a time.
- ❖ Highlight important words in each clue.
- ❖ Use examples from everyday life.
- ❖ Encourage learners to explain their thinking aloud.

For learners needing additional support:

- ❖ Use visual pictures for each answer choice.
- ❖ Read riddles aloud together.
- ❖ Allow partner discussion before answering.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own “Guess Who” riddles.
- ❖ Write clues using descriptive language.
- ❖ Challenge classmates with riddle games.
- ❖ Explain why each answer fits the clues.

⇒ Activity A: Find Six Differences**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Compare two pictures carefully.
- ❖ Identify changes between images.
- ❖ Observe colours, shapes, and objects closely.
- ❖ Describe differences aloud.

Observe learners who:

- ❖ Miss small details while comparing.
- ❖ Guess answers randomly.
- ❖ Need repeated visual guidance.
- ❖ Focus on only one part of the image.

Remediation Support

For learners struggling with observation:

- ❖ Compare one section of the picture at a time.
- ❖ Guide learners from top to bottom slowly.
- ❖ Point to objects while discussing differences.
- ❖ Demonstrate one example difference clearly.

For learners struggling with concentration:

- ❖ Use finger tracking while comparing pictures.
- ❖ Encourage learners to observe slowly and carefully.
- ❖ Allow learners to work in pairs.
- ❖ Use enlarged image sections if needed.

Extension Activity*(Work Individually / in Groups)*

Ask fast learners to:

- ❖ Draw two pictures with hidden differences.
- ❖ Challenge classmates to find the changes.
- ❖ Explain all differences independently.
- ❖ Complete observation activities within a time limit.

⇒ Activity B: Find Six Differences in the Picture

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Observe picture details carefully.
- ❖ Compare characters, objects, and backgrounds visually.
- ❖ Identify missing or changed items.
- ❖ Describe picture differences step by step.

Observe learners who:

- ❖ Cannot identify all the differences.
- ❖ Need repeated visual support.
- ❖ Rush through the comparison activity.
- ❖ Struggle to compare systematically.

Remediation Support

For learners struggling with comparison:

- ❖ Guide learners section by section through the picture.
- ❖ Compare one object or area at a time.
- ❖ Encourage learners to describe what they observe.
- ❖ Use finger pointing while analysing images.

For learners needing additional support:

- ❖ Use simpler picture-comparison activities first.
- ❖ Provide enlarged images for observation.
- ❖ Allow learners to work collaboratively.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own spot-the-difference activity.
- ❖ Add additional hidden changes in pictures.
- ❖ Challenge classmates with comparison puzzles.
- ❖ Explain how they found each difference.

⇒ Activity A: Find the Location on the Grid**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Identify rows and columns in a grid.
- ❖ Read coordinates using letters and numbers.
- ❖ Locate simple objects on a map.
- ❖ Recognise positions such as A1 or E2.

Observe learners who:

- ❖ Confuse rows and columns.
- ❖ Cannot identify coordinates correctly.
- ❖ Need repeated visual guidance.
- ❖ Struggle to follow grid references systematically.

Remediation Support

For learners struggling with grid coordinates:

- ❖ Use enlarged classroom grids for practice.
- ❖ Show how letters represent columns and numbers represent rows.
- ❖ Trace rows and columns using fingers.
- ❖ Locate one object at a time together.

For learners needing additional support:

- ❖ Use colour-coded rows and columns.
- ❖ Start with smaller grids first.
- ❖ Allow learners to work in pairs.

Extension Activity*(Work Individually / in Groups)*

Ask fast learners to:

- ❖ Create their own coordinate grid.
- ❖ Place classroom objects using coordinates.
- ❖ Write coordinate clues for classmates.
- ❖ Challenge classmates with grid-map games.

⇒ Activity B: Locate the Landforms on the Grid

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Recognise landforms such as mountains, caves, deserts, and islands.
- ❖ Read coordinates accurately.
- ❖ Observe map details carefully.
- ❖ Match grid references with locations.

Observe learners who:

- ❖ Cannot identify landforms correctly.
- ❖ Confuse coordinate positions.
- ❖ Need repeated support while locating objects.
- ❖ Struggle to combine letters and numbers correctly.

Remediation Support

For learners struggling with map reading:

- ❖ Explain one coordinate at a time.
- ❖ Highlight rows and columns clearly.
- ❖ Use finger tracing to locate landforms.
- ❖ Compare locations visually before answering.

For learners needing additional support:

- ❖ Use simplified grids with fewer coordinates.
- ❖ Practise coordinate games regularly.
- ❖ Allow learners to discuss answers with partners.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own landform grid map.
- ❖ Write coordinate clues independently.
- ❖ Challenge classmates to locate places.
- ❖ Explain how grid references work.

⇒ Activity C: Rearrange the Objects on the Grid

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify directions such as left, right, up, and down.
- ❖ Read movement instructions carefully.
- ❖ Recognise coordinate positions on a grid.

- ❖ Track object movement step by step.

Observe learners who:

- ❖ Confuse movement directions.
- ❖ Cannot identify new positions correctly.
- ❖ Need repeated visual guidance.
- ❖ Struggle to follow movement instructions systematically.

Remediation Support

For learners struggling with movement on grids:

- ❖ Use finger tracing for movements.
- ❖ Demonstrate movement step by step.
- ❖ Use arrows to show directions clearly.
- ❖ Practise one movement instruction at a time.

For learners needing additional support:

- ❖ Use larger classroom grids.
- ❖ Provide guided examples before independent work.
- ❖ Allow learners to work in pairs.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own movement-grid activities.
- ❖ Write directional instructions for classmates.
- ❖ Challenge classmates with coordinate puzzles.
- ❖ Explain how movements change coordinates.

Concept 2.4: Symmetry

(LB Page 33)

⇒ Activity A: Draw a Line of Symmetry

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify symmetrical shapes.
- ❖ Recognise equal halves in shapes.
- ❖ Observe mirror-image patterns carefully.
- ❖ Visualise folding shapes into equal parts.

Observe learners who:

- ❖ Cannot identify equal halves correctly.
- ❖ Draw incorrect symmetry lines.

- ❖ Need repeated visual support.
- ❖ Struggle to understand mirror images.

Remediation Support

For learners struggling with symmetry:

- ❖ Fold paper shapes physically to show equal halves.
- ❖ Use mirrors to demonstrate symmetry.
- ❖ Highlight symmetrical parts using colours.
- ❖ Draw one example line of symmetry together.

For learners needing additional support:

- ❖ Use simple symmetrical shapes first.
- ❖ Compare symmetrical and non-symmetrical objects.
- ❖ Allow learners to trace symmetry lines with fingers.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Draw shapes with multiple lines of symmetry.
- ❖ Create symmetrical designs independently.
- ❖ Challenge classmates with symmetry activities.
- ❖ Explain why a shape is symmetrical.

⇒ Activity B: Complete the Symmetrical Shape

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Observe half-shapes carefully.
- ❖ Recognise mirror-image patterns.
- ❖ Visualise how the other half should appear.
- ❖ Identify lines of symmetry.

Observe learners who:

- ❖ Cannot complete the missing half correctly.
- ❖ Need repeated guidance while drawing.
- ❖ Struggle to maintain equal proportions.
- ❖ Confuse direction and placement of lines.

Remediation Support

For learners struggling with completing shapes:

- ❖ Use folded paper activities for practice.
- ❖ Draw guide dots for matching curves and lines.

- ❖ Compare both halves step by step.
- ❖ Encourage learners to draw slowly and carefully.

For learners needing additional support:

- ❖ Use simpler symmetrical shapes first.
- ❖ Provide guided tracing examples.
- ❖ Allow learners to use rulers or grids.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own symmetrical drawings.
- ❖ Design mirror-image patterns independently.
- ❖ Challenge classmates with half-shape puzzles.
- ❖ Explain how symmetry creates balance in designs.

Concept 2.5: Wonder Maze

(LB Pages 34–35)

⇒ Activity A: Help Fafa Reach the Badminton Court

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Trace simple maze paths using fingers.
- ❖ Identify starting and ending points.
- ❖ Recognise dead ends in a maze.
- ❖ Follow directional movement step by step.

Observe learners who:

- ❖ Lose track while tracing paths.
- ❖ Cross maze walls incorrectly.
- ❖ Need repeated teacher guidance.
- ❖ Struggle to identify the correct route.

Remediation Support

For learners struggling with maze solving:

- ❖ Encourage finger tracing before drawing.
- ❖ Guide learners through one path at a time.
- ❖ Highlight dead ends clearly.
- ❖ Use arrows to show movement directions.

For learners needing additional support:

- ❖ Use simpler mazes first.
- ❖ Practise movement games using directions.
- ❖ Allow learners to work with partners.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own maze puzzle.
- ❖ Design routes with multiple paths.
- ❖ Challenge classmates to solve the maze.
- ❖ Explain how they found the correct route.

Activity B: Help Bunny Find Its Home

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify maze starting and ending points.
- ❖ Observe paths carefully before tracing.
- ❖ Recognise blocked and open paths.
- ❖ Use directional thinking while solving puzzles.

Observe learners who:

- ❖ Choose incorrect paths repeatedly.
- ❖ Cross maze walls carelessly.
- ❖ Need repeated support with directions.
- ❖ Struggle to analyse the maze systematically.

Remediation Support

For learners struggling with maze navigation:

- ❖ Use finger tracing before using pencils.
- ❖ Guide learners through each section slowly.
- ❖ Discuss possible paths before tracing.
- ❖ Encourage learners to stop and check directions.

For learners needing additional support:

- ❖ Use smaller maze activities first.
- ❖ Practise simple directional games.
- ❖ Allow partner support during tracing.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Design their own bunny maze.
- ❖ Create maze challenges with dead ends.
- ❖ Explain their route step by step.
- ❖ Challenge classmates with timed maze-solving activities.

⇒ Activity: Help the Lady Reach the Terrace**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Observe puzzle paths carefully.
- ❖ Identify possible routes in a maze.
- ❖ Recognise dead ends and blocked paths.
- ❖ Follow directional instructions step by step.

Observe learners who:

- ❖ Choose paths randomly.
- ❖ Cannot identify correct routes logically.
- ❖ Need repeated teacher support.
- ❖ Struggle to analyse paths carefully.

Remediation Support

For learners struggling with logical path selection:

- ❖ Guide learners to trace possible paths mentally first.
- ❖ Use finger tracing before drawing.
- ❖ Discuss one route at a time.
- ❖ Highlight dead ends clearly.

For learners struggling with observation:

- ❖ Encourage learners to scan the puzzle slowly.
- ❖ Use arrows to show movement directions.
- ❖ Practise simpler route puzzles first.

Extension Activity*(Work Individually / in Groups)*

Ask fast learners to:

- ❖ Create their own escape-room puzzle.
- ❖ Design puzzles with multiple routes.
- ❖ Challenge classmates with path-solving activities.
- ❖ Explain how they selected the correct route logically.

Level 3: Data Handling and Representation

Concept 3.1: Representing Data

(LB Pages 38–39)

⇒ Activity A: Study the Graph and Answer the Questions

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Read simple bar graphs carefully.
- ❖ Compare heights of bars visually.
- ❖ Identify quantities represented in graphs.
- ❖ Recognise labels on horizontal and vertical axes.

Observe learners who:

- ❖ Cannot interpret graph information correctly.
- ❖ Confuse bar heights with labels.
- ❖ Need repeated visual guidance.
- ❖ Struggle to compare quantities accurately.

Remediation Support

For learners struggling with graph reading:

- ❖ Explain the axes step by step.
- ❖ Show how taller bars represent larger quantities.
- ❖ Compare one bar at a time.
- ❖ Use classroom examples to create simple graphs.

For learners needing additional support:

- ❖ Highlight bars using colours.
- ❖ Use finger tracking while reading the graph.
- ❖ Practise interpreting smaller graphs first.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own bar graph using classroom data.
- ❖ Write questions based on the graph.

- ❖ Compare the highest and lowest values independently.
- ❖ Explain graph information using complete sentences.

👉 **Activity B: Arrange the Data in Descending Order**

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Compare numbers correctly.
- ❖ Identify greatest and smallest values.
- ❖ Arrange numbers from highest to lowest.
- ❖ Read table data carefully.

Observe learners who:

- ❖ Cannot compare numbers correctly.
- ❖ Confuse ascending and descending order.
- ❖ Need repeated teacher guidance.
- ❖ Struggle to organise data logically.

Remediation Support

For learners struggling with ordering data:

- ❖ Use number cards for comparison practice.
- ❖ Highlight the greatest number first.
- ❖ Arrange numbers step by step together.
- ❖ Use place-value discussion for larger numbers.

For learners needing additional support:

- ❖ Start with smaller sets of numbers first.
- ❖ Practise ordering games regularly.
- ❖ Allow learners to work with partners.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own data table.
- ❖ Arrange larger numbers independently.
- ❖ Write questions based on ordered data.
- ❖ Challenge classmates with sorting activities.

⇒ Activity A: Identify the Symbols**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Recognise common road and safety symbols.
- ❖ Observe signs and pictures carefully.
- ❖ Match symbols with meanings.
- ❖ Identify symbols used in public places.

Observe learners who:

- ❖ Cannot identify symbols correctly.
- ❖ Confuse meanings of signs.
- ❖ Need repeated visual guidance.
- ❖ Struggle to connect symbols with instructions.

Remediation Support

For learners struggling with symbol recognition:

- ❖ Use real-life road sign pictures for demonstration.
- ❖ Discuss one symbol at a time.
- ❖ Relate symbols to familiar places and situations.
- ❖ Use flashcards with symbols and meanings.

For learners needing additional support:

- ❖ Highlight important features of each sign.
- ❖ Repeat symbol vocabulary regularly.
- ❖ Allow learners to work with partners.

Extension Activity*(Work Individually / in Groups)*

Ask fast learners to:

- ❖ Draw additional safety or road signs.
- ❖ Create symbol-meaning matching games.
- ❖ Explain where different symbols are used.
- ❖ Design classroom safety symbols independently.

⇒ Activity B: Interpret the Pictorial Table

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Count symbols in a pictograph correctly.
- ❖ Understand that one symbol may represent more than one item.
- ❖ Compare quantities visually.
- ❖ Read chart labels carefully.

Observe learners who:

- ❖ Cannot interpret the pictograph key correctly.
- ❖ Miscalculate symbols.
- ❖ Need repeated teacher support.
- ❖ Struggle to compare quantities accurately.

Remediation Support

For learners struggling with pictographs:

- ❖ Explain the pictograph key using simple examples.
- ❖ Count one row of symbols at a time.
- ❖ Use counters to represent totals physically.
- ❖ Show repeated addition step by step.

For learners needing additional support:

- ❖ Highlight one month row at a time.
- ❖ Use visual demonstrations for counting symbols.
- ❖ Practise simple pictograph-reading activities first.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own pictograph using classroom data.
- ❖ Write questions based on the pictograph.
- ❖ Compare highest and lowest values independently.
- ❖ Explain how the key changes totals.

⇒ Activity A: Decode the Treasure Box Code**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Recognise symbols and matching letters.
- ❖ Follow code keys carefully.
- ❖ Read simple hidden words aloud.
- ❖ Identify patterns in coded messages.

Observe learners who:

- ❖ Cannot match symbols with letters correctly.
- ❖ Need repeated support using the code key.
- ❖ Decode letters in the wrong order.
- ❖ Struggle to form meaningful words.

Remediation Support

For learners struggling with decoding:

- ❖ Decode one symbol at a time together.
- ❖ Use enlarged code charts for practice.
- ❖ Point to matching symbols and letters clearly.
- ❖ Encourage learners to say decoded letters aloud.

For learners needing additional support:

- ❖ Start with shorter coded words first.
- ❖ Use colour coding for matching symbols.
- ❖ Allow learners to work with partners.

Extension Activity*(Work Individually / in Groups)*

Ask fast learners to:

- ❖ Create their own coded words using symbols.
- ❖ Write secret messages for classmates.
- ❖ Decode longer coded messages independently.
- ❖ Explain how the code key works.

⇒ Activity B: Decode the Dot Code**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Observe dot patterns carefully.
- ❖ Match coded patterns with letters.

- ❖ Read simple decoded words aloud.
- ❖ Recognise hidden messages logically.

Observe learners who:

- ❖ Cannot identify matching dot patterns correctly.
- ❖ Need repeated visual guidance.
- ❖ Struggle to decode one letter at a time.
- ❖ Forget letters while forming words.

Remediation Support

For learners struggling with dot codes:

- ❖ Match one dot pattern with one letter at a time.
- ❖ Use enlarged dot-code charts.
- ❖ Encourage learners to decode slowly step by step.
- ❖ Read decoded words aloud together.

For learners needing additional support:

- ❖ Start with shorter coded words first.
- ❖ Use visual guides for matching patterns.
- ❖ Allow learners to decode collaboratively.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own dot-code messages.
- ❖ Write coded sentences for classmates.
- ❖ Decode complex messages independently.
- ❖ Explain how patterns help in decoding.

Coding Challenge – 3: Ice Bergs

(LB Page 44)

⇒ Activity: Analyse the Icebergs

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify colours and classify objects.
- ❖ Read and understand simple rules carefully.
- ❖ Compare objects based on conditions.
- ❖ Count groups of coloured objects accurately.

Observe learners who:

- ❖ Cannot follow the conditions correctly.
- ❖ Confuse iceberg colour rules.

- ❖ Need repeated teacher guidance.
- ❖ Struggle to classify icebergs accurately.

Remediation Support

For learners struggling with rule analysis:

- ❖ Read one rule at a time slowly.
- ❖ Highlight each iceberg colour clearly.
- ❖ Discuss what each colour represents.
- ❖ Use examples to compare the iceberg capacities.

For learners struggling with classification:

- ❖ Group icebergs by colour before counting.
- ❖ Use finger pointing while counting.
- ❖ Encourage learners to verify totals carefully.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own rule-based puzzle.
- ❖ Design colour-condition games independently.
- ❖ Write classification questions for classmates.
- ❖ Explain how conditions help solve the puzzle logically.

Level 4: Algorithmic Intelligence

Concept 4.1: Sequence of Steps

(LB Pages 46–48)

⇒ Activity A: Help Latif Get Ready for School

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify daily routine activities in order.
- ❖ Recognise beginning, middle, and ending steps in a process.
- ❖ Arrange actions logically.
- ❖ Read instruction sentences carefully.

Observe learners who:

- ❖ Mix up the order of activities.
- ❖ Skip important routine steps.
- ❖ Need repeated teacher guidance.
- ❖ Struggle to arrange actions logically.

Remediation Support

For learners struggling with sequencing:

- ❖ Use picture cards showing daily routines.
- ❖ Discuss one activity step at a time.
- ❖ Use words such as first, next, then, and last repeatedly.
- ❖ Encourage learners to relate the steps to their own routine.

For learners needing additional support:

- ❖ Start with fewer routine steps first.
- ❖ Practise sequencing games regularly.
- ❖ Allow learners to arrange picture cards physically.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Write their own morning routine algorithm.
- ❖ Create sequencing activities for classmates.
- ❖ Explain why order is important in routines.
- ❖ Design step-by-step charts independently.

⇒ Activity B: Arrange the Steps to Plant a Garden

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify logical steps in gardening or planting.
- ❖ Recognise actions that happen before or after others.
- ❖ Read instruction sentences carefully.
- ❖ Arrange activities in the correct sequence.

Observe learners who:

- ❖ Place steps in the wrong order.
- ❖ Need repeated support understanding sequences.
- ❖ Skip important actions.
- ❖ Struggle to explain why one step comes before another.

Remediation Support

For learners struggling with sequencing:

- ❖ Use gardening pictures to demonstrate each step.
- ❖ Discuss what must happen before planting seeds.
- ❖ Arrange steps physically before numbering them.
- ❖ Repeat sequencing vocabulary regularly.

For learners needing additional support:

- ❖ Start with shorter sequences first.
- ❖ Use classroom examples of step-by-step tasks.
- ❖ Allow learners to discuss answers with partners.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Write algorithms for other real-life activities.
- ❖ Create garden-planning flowcharts.
- ❖ Challenge classmates with sequencing puzzles.
- ❖ Explain how tasks change when the order is incorrect.

Concept 4.2: Algorithm

(LB Pages 49–51)

⇒ Activity A: Write an Algorithm to Find the Difference

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify steps in a simple mathematical process.

- ❖ Recognise input, operation, and output.
- ❖ Perform simple subtraction correctly.
- ❖ Read ordered instructions carefully.

Observe learners who:

- ❖ Cannot arrange algorithm steps logically.
- ❖ Confuse addition and subtraction operations.
- ❖ Need repeated support identifying outputs.
- ❖ Struggle to understand the sequence of instructions.

Remediation Support

For learners struggling with algorithms:

- ❖ Discuss one algorithm step at a time.
- ❖ Use simple examples of addition and subtraction.
- ❖ Highlight Start and End clearly.
- ❖ Encourage learners to verbalise each instruction.

For learners needing additional support:

- ❖ Use flowcharts or arrows to show sequence.
- ❖ Practise simple two-step algorithms first.
- ❖ Allow learners to work with partners.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Write algorithms for addition or multiplication.
- ❖ Create algorithms for classroom tasks.
- ❖ Challenge classmates with missing-step algorithms.
- ❖ Explain the role of input and output in algorithms.

Activity B: Complete the Algorithm (Brushing Routine)

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify daily brushing steps in order.
- ❖ Read simple instructions carefully.
- ❖ Recognise missing words in a sequence.
- ❖ Understand how routines follow algorithms.

Observe learners who:

- ❖ Cannot identify missing steps correctly.
- ❖ Need repeated teacher prompts.

- ❖ Struggle to connect actions logically.
- ❖ Forget the correct order of brushing activities.

Remediation Support

For learners struggling with routines:

- ❖ Demonstrate brushing steps physically.
- ❖ Discuss one step at a time.
- ❖ Use picture cards showing the brushing sequence.
- ❖ Repeat routine vocabulary regularly.

For learners needing additional support:

- ❖ Start with fewer routine steps first.
- ❖ Provide guided examples before independent work.
- ❖ Allow partner discussion during sequencing.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Write algorithms for other hygiene routines.
- ❖ Create missing-step activities for classmates.
- ❖ Explain why routines must follow a sequence.
- ❖ Design algorithm charts independently.

⇒ Activity C: Summer Camp Weekly Activity Routine

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Read tables carefully.
- ❖ Identify activities arranged by days.
- ❖ Recognise ordered sequences in schedules.
- ❖ Arrange activities step by step.

Observe learners who:

- ❖ Confuse the order of days and activities.
- ❖ Need repeated support reading tables.
- ❖ Struggle to sequence the routine correctly.
- ❖ Skip activities while arranging steps.

Remediation Support

For learners struggling with schedules:

- ❖ Read the table row by row together.
- ❖ Highlight one activity at a time.

- ❖ Use visual charts for sequencing practice.
- ❖ Encourage learners to verbalise the order aloud.

For learners needing additional support:

- ❖ Start with shorter schedules first.
- ❖ Use classroom routines as examples.
- ❖ Allow learners to work collaboratively.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own weekly activity schedule.
- ❖ Write algorithm steps from a timetable.
- ❖ Challenge classmates with sequencing tasks.
- ❖ Explain how tables organise information logically.

Concept 4.3: Understanding Programs

(LB Pages 52–53)

⇒ Activity A: Complete the Program for Arranging Books

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify positions such as above, below, left, and right.
- ❖ Observe bookshelf arrangements carefully.
- ❖ Follow sequential instructions step by step.
- ❖ Recognise relationships between objects in a layout.

Observe learners who:

- ❖ Confuse positional directions.
- ❖ Cannot identify book locations correctly.
- ❖ Need repeated visual guidance.
- ❖ Struggle to follow the program sequence logically.

Remediation Support

For learners struggling with positional understanding:

- ❖ Use real books and shelves for demonstration.
- ❖ Show one instruction at a time.
- ❖ Highlight positional words clearly.
- ❖ Encourage learners to point to locations physically.

For learners needing additional support:

- ❖ Use labelled diagrams for practice.

- ❖ Provide guided examples before independent work.
- ❖ Allow learners to work in pairs.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Write their own bookshelf-arrangement program.
- ❖ Create positional puzzles for classmates.
- ❖ Design object-arrangement activities independently.
- ❖ Explain how programs organise actions step by step.

Concept 4.4: Decision Making

(LB Pages 54–55)

⇒ Activity A: Rules for Nana

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Read condition statements carefully.
- ❖ Identify if–then–else situations.
- ❖ Recognise outcomes based on rules.
- ❖ Compare true and false conditions logically.

Observe learners who:

- ❖ Cannot understand the conditions clearly.
- ❖ Confuse the “then” and “else” outcomes.
- ❖ Need repeated teacher guidance.
- ❖ Struggle to explain why an outcome happens.

Remediation Support

For learners struggling with decision making:

- ❖ Use real-life examples of conditions and consequences.
- ❖ Discuss one rule at a time.
- ❖ Highlight important condition words clearly.
- ❖ Encourage learners to explain the result aloud.

For learners needing additional support:

- ❖ Use picture-based condition examples.
- ❖ Role-play simple if–then–else situations.
- ❖ Repeat condition-based games regularly.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own if–then–else rules.
- ❖ Write condition-based puzzles for classmates.
- ❖ Explain how different conditions change outcomes.
- ❖ Design decision-making games independently.

Concept 4.5: Loop: Programs

(LB Pages 56–57)

⇒ Activity A: Robo Climbing the Stairs

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Identify repeating movement patterns.
- ❖ Observe repeated instructions carefully.
- ❖ Count repeated actions in a sequence.
- ❖ Recognise patterns in movement routines.

Observe learners who:

- ❖ Cannot recognise repeating instructions.
- ❖ Confuse one-time and repeated actions.
- ❖ Need repeated teacher guidance.
- ❖ Struggle to count loop repetitions correctly.

Remediation Support

For learners struggling with loops:

- ❖ Demonstrate repeated movements physically.
- ❖ Use arrows and movement charts for support.
- ❖ Repeat one movement sequence slowly.
- ❖ Encourage learners to trace the robot's movement step by step.

For learners needing additional support:

- ❖ Use smaller loop examples first.
- ❖ Practise repetition games in class.
- ❖ Allow learners to count repetitions aloud together.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own movement loop program.
- ❖ Design stair-climbing patterns independently.

- ❖ Calculate repetitions for longer staircases.
- ❖ Explain how loops reduce repeated instructions.

➞ **Activity B: Alice's Weekly Classes**

Diagnostic Check

(Work in Pairs)

Before the activity, ask learners to:

- ❖ Recognise repeating schedules and patterns.
- ❖ Read weekly routines carefully.
- ❖ Identify sequences that repeat after a cycle.
- ❖ Predict future events based on patterns.

Observe learners who:

- ❖ Cannot identify the repeating sequence.
- ❖ Confuse days and activities.
- ❖ Need repeated support with prediction.
- ❖ Struggle to continue the loop pattern logically.

Remediation Support

For learners struggling with repeating schedules:

- ❖ Read the weekly chart aloud together.
- ❖ Highlight the repeating sequence using colours.
- ❖ Discuss one day and activity at a time.
- ❖ Use classroom routines as examples of repetition.

For learners needing additional support:

- ❖ Start with shorter repeating patterns first.
- ❖ Use flashcards showing days and classes.
- ❖ Allow learners to work in pairs.

Extension Activity

(Work Individually / in Groups)

Ask fast learners to:

- ❖ Create their own weekly repeating schedule.
- ❖ Predict activities for future days independently.
- ❖ Design loop-based timetable games.
- ❖ Explain how loops help identify repeated patterns.

⇒ Activity: Arrange the Wake-Up Routine**Diagnostic Check***(Work in Pairs)*

Before the activity, ask learners to:

- ❖ Read clock times correctly.
- ❖ Compare times from earliest to latest.
- ❖ Arrange events in ascending order.
- ❖ Identify daily routines logically.

Observe learners who:

- ❖ Cannot compare times correctly.
- ❖ Confuse ascending and descending order.
- ❖ Need repeated teacher guidance.
- ❖ Struggle to arrange people in the correct sequence.

Remediation Support

For learners struggling with time comparison:

- ❖ Use classroom clocks for demonstration.
- ❖ Compare two times at a time first.
- ❖ Explain earliest and latest clearly.
- ❖ Use number-line style time ordering.

For learners needing additional support:

- ❖ Highlight wake-up times using colours.
- ❖ Practise arranging simple daily schedules.
- ❖ Allow learners to discuss answers with partners.

Extension Activity*(Work Individually / in Groups)*

Ask fast learners to:

- ❖ Create their own wake-up routine chart.
- ❖ Arrange additional schedules independently.
- ❖ Write time-ordering questions for classmates.
- ❖ Explain why sequence is important in routines and programs.

Core Competencies Mapping

LEVEL 1: REASONING

Concept	Core Competencies Developed
1.1 3D Shapes	Critical Thinking and Problem Solving (CP); Digital Literacy (DL)
1.2 Patterns	Critical Thinking and Problem Solving (CP); Digital Literacy (DL)
1.3 Counting Combination	Critical Thinking and Problem Solving (CP)
1.4 Word Builders	Critical Thinking and Problem Solving (CP)
1.5 Number Pyramid	Critical Thinking and Problem Solving (CP); Digital Literacy (DL)
Coding Challenge-1: Toy Tale	Critical Thinking and Problem Solving (CP)

LEVEL 2: CRITICAL THINKING AND ANALYSIS

Concept	Core Competencies Developed
2.1 Riddle Time	Critical Thinking and Problem Solving (CP); Communication and Collaboration (CC)
2.2 Spot the Difference	Critical Thinking and Problem Solving (CP)
2.3 Grid Map	Critical Thinking and Problem Solving (CP); Digital Literacy (DL)
2.4 Symmetry	Critical Thinking and Problem Solving (CP); Creativity and Innovation (CI); Digital Literacy (DL)
2.5 Wonder Maze	Critical Thinking and Problem Solving (CP); Communication and Collaboration (CC)
Coding Challenge-2: Escape Room	Critical Thinking and Problem Solving (CP); Communication and Collaboration (CC)

LEVEL 3: DATA PROCESSING

Concept	Core Competencies Developed
3.1 Representing Data	Digital Literacy (DL); Critical Thinking and Problem Solving (CP)
3.2 Symbolic Representation	Digital Literacy (DL); Critical Thinking and Problem Solving (CP)
3.3 Deciphering	Digital Literacy (DL); Critical Thinking and Problem Solving (CP)
Coding Challenge-3: Ice Bergs	Critical Thinking and Problem Solving (CP)

LEVEL 4: ALGORITHMIC INTELLIGENCE

Concept	Core Competencies Developed
4.1 Sequence of Steps	Critical Thinking and Problem Solving (CP); Digital Literacy (DL)
4.2 Algorithm	Critical Thinking and Problem Solving (CP); Digital Literacy (DL); Creativity and Innovation (CI)
4.3 Understanding Programs	Critical Thinking and Problem Solving (CP); Digital Literacy (DL)
4.4 Decision Making	Critical Thinking and Problem Solving (CP); Personal Development and Leadership (PL); Cultural Identity and Global Citizenship (CG)
4.5 Loop: Programs	Critical Thinking and Problem Solving (CP); Digital Literacy (DL)
Coding Challenge-4 Wake Up Routine	Critical Thinking and Problem Solving (CP); Digital Literacy (DL)

Facilitator's Page-wise Teaching Instructions

This section helps learners transition from logical thinking activities to real computer-based coding.

Reasoning activities help learners develop observation, counting, pattern recognition, classification, and logical thinking skills. These abilities form the early foundation of computational thinking and prepare learners for basic coding concepts such as patterns, relationships, sequences, and problem solving.

In this level, learners engage with colourful and engaging tasks that require them to identify shapes, complete patterns, count combinations, build words, and solve number pyramids. These activities strengthen learners' ability to observe details, identify relationships, and organise information logically.

Through these activities, learners begin to understand that complex problems can be solved by observing patterns and following simple logical steps, which is a key principle in coding.

Concept 1.1: 3D Shapes

(LB Pages 8–10)

Teaching Intent

To help learners recognise different three-dimensional (3D) shapes and understand their basic properties such as faces, edges, and vertices.

Through colourful visual examples, learners observe how common objects resemble 3D shapes such as cube, cuboid, cone, cylinder, and sphere. These activities help learners relate mathematical shapes to real-world objects.

■ Concept Explanation

3D shapes are solid objects that have length, width, and height. Unlike flat 2D shapes, 3D shapes can be held or touched.

Cube

A cube is a solid shape.

- ❖ It has 6 faces.
- ❖ It has 12 edges.
- ❖ It has 8 vertices.

Cuboid

A cuboid is similar to a cube but its faces are rectangles.

- ❖ It has 6 faces.
- ❖ It has 12 edges.
- ❖ It has 8 vertices.

Cone

A cone has a circular base and a pointed top.

- ❖ It has 2 faces.
- ❖ It has 1 edge.
- ❖ It has 1 vertex.

Cylinder

A cylinder has two circular bases and one curved surface.

- ❖ It has 3 faces.
- ❖ It has 2 edges.
- ❖ It has 0 vertices.

Sphere

A sphere is a round shape like a ball.

- ❖ It has 1 curved face.
- ❖ It has 0 edges.
- ❖ It has 0 vertices.

Activity A: Identify the Shape

Teacher Instructions

- ❖ Ask learners to observe the shapes shown in the activity.
- ❖ Explain the clues written below the pictures.
- ❖ Tell learners to read each clue carefully and identify the correct shape.
- ❖ Ask learners to write the name of the shape in the blank provided.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which shape has no vertices?
- ❖ Which shape has two circular faces?
- ❖ Which shape has six square faces?
- ❖ Which shape looks like a dice?

Encourage learners to compare the clues with the shapes shown.

Teacher Guidance

Help learners understand that:

- ❖ Different shapes have different numbers of faces, edges, and vertices.
- ❖ Observing these features helps identify the correct shape.

Reinforce

Many objects around us are examples of 3D shapes.

⇒ Activity B: Match the 3D Shapes

Teacher Instructions

- ❖ Ask learners to observe the 3D shapes shown at the top of the page.
- ❖ Explain that several real-life objects are shown below.
- ❖ Tell learners to identify which objects resemble the given 3D shapes.
- ❖ Ask learners to circle the correct objects.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which object looks like a cone?
- ❖ Which object looks like a cube?
- ❖ Which object looks like a cylinder?
- ❖ Which object looks like a sphere?

Encourage learners to relate shapes to objects they see around them.

Teacher Guidance

Help learners understand that:

- ❖ Many everyday objects are based on basic geometric shapes.
- ❖ Recognising shapes helps us understand the structure of objects.

Reinforce

Geometry helps us understand the shapes of objects in the real world.

Concept 1.2: Patterns

(LB Pages 11–14)

Teaching Intent

To help learners recognise repeating patterns using colours, shapes, and numbers.

Patterns help learners develop observation skills and logical thinking by identifying rules that repeat in a sequence.

Concept Explanation

A pattern is a sequence that follows a rule and repeats in a specific order.

Example:

Red – Blue – Red – Blue

Patterns can be made using:

- ❖ colours
- ❖ shapes
- ❖ numbers
- ❖ symbols

Understanding patterns helps learners predict what comes next.

⇒ Activity A: Complete the Colour Patterns

Teacher Instructions

- ❖ Ask learners to observe the colour patterns carefully.
- ❖ Explain that the objects follow a repeating sequence.
- ❖ Tell learners to identify the pattern rule.
- ❖ Ask learners to complete the missing part of the pattern.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which colour comes after the blue teddy?
- ❖ What pattern do the tomatoes follow?
- ❖ What arrow direction comes next?

Encourage learners to say the pattern aloud.

Teacher Guidance

Help learners understand that:

- ❖ Patterns repeat according to a rule.
- ❖ Identifying the rule helps complete the sequence.

Reinforce

Patterns appear in numbers, designs, and many real-life situations.

⇒ Activity B: Identify the Next Pattern

Teacher Instructions

- ❖ Ask learners to observe each row of shapes carefully.
- ❖ Tell them to find the pattern rule in the sequence.
- ❖ Ask learners to draw the next shape that continues the pattern.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ How many bars are inside the triangle?
- ❖ What direction do the arrows follow?
- ❖ How many dots appear in the triangle?

Encourage learners to analyse the pattern before drawing.

Teacher Guidance

Help learners understand that:

- ❖ Observing carefully helps identify hidden patterns.
- ❖ Patterns may change by shape, number, or direction.

Reinforce

Patterns help us organise information logically.

⇒ Activity C: Number Patterns

Teacher Instructions

- ❖ Ask learners to read the rule written in each question carefully.
- ❖ Explain that the numbers follow a specific rule such as add or subtract.
- ❖ Tell learners to observe the first two numbers given in the sequence.
- ❖ Ask them to apply the rule repeatedly to write the next three numbers in the pattern.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What happens when we add 3 to 6?
- ❖ If the rule says subtract 10, what number comes after 40?
- ❖ What happens when we add 7 to 21?
- ❖ What number do we get when we subtract 4 from 16?

Encourage learners to perform the calculation step by step.

Teacher Guidance

Help learners understand that:

- ❖ Number patterns follow a fixed mathematical rule.
- ❖ The same rule continues throughout the sequence.
- ❖ Careful observation helps identify the pattern quickly.

Reinforce

Recognising number patterns helps learners develop logical thinking and prepares them for understanding sequences in coding.

⇒ Activity D: Identify the Pattern and Choose the Correct Option

Teacher Instructions

- ❖ Ask learners to observe each sequence carefully.
- ❖ Explain that each sequence follows a rule or pattern.
- ❖ Tell learners to identify the rule by comparing the elements in the sequence.
- ❖ Ask learners to circle the correct answer from Option A or Option B.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ How do the months progress in the first sequence?
- ❖ What change occurs in the letters of ABC, BCD, CDE, DEF?
- ❖ What number pattern do you see in 5, 9, 13, 17?
- ❖ What pattern do the days of the week follow in the sequence?

Encourage learners to analyse the sequence before choosing the answer.

Teacher Guidance

Help learners understand that:

- ❖ Patterns can appear in numbers, letters, words, or days.
- ❖ Observing the difference between consecutive elements helps identify the rule.
- ❖ Logical reasoning helps select the correct continuation of the pattern.

Reinforce

Pattern recognition is an important skill used in mathematics, coding, and problem solving.

Concept 1.3: Counting Combination

(LB Pages 15–18)

Teaching Intent

To help learners understand that a number can be formed using different combinations of smaller numbers.

Through engaging visual activities with bees and honeycombs, learners practise breaking numbers into parts and recognising number relationships. These activities strengthen early addition skills and help learners understand that numbers can be represented in more than one way.

⇒ Activity A: Write the Number Combinations

Teacher Instructions

- ❖ Ask learners to observe the number shown on each honeycomb carefully.
- ❖ Explain that the number represents the total value.
- ❖ Tell learners that the honey pieces below represent numbers that combine to form the total number.
- ❖ One example has been completed for learners.
- ❖ Ask learners to write two numbers that add up to the given total.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which two numbers make 6?
- ❖ Can you think of two numbers that add up to 9?
- ❖ What numbers can we combine to make 4?
- ❖ How can we make 10 using two numbers?

Encourage learners to count the honey pieces or use fingers to calculate combinations.

Teacher Guidance

Help learners understand that:

- ❖ A number can be made by adding two smaller numbers.
- ❖ Different combinations can form the same number.
- ❖ Breaking numbers into parts helps develop better number understanding.

Reinforce

Understanding number combinations helps learners build a strong foundation for addition and problem solving.

⇒ Activity B: Solve Using the Hints

Teacher Instructions

- ❖ Ask learners to observe the hints provided at the top of the page.
- ❖ Explain that each picture represents a specific number:
Sun = 10
Star = 5
Moon = 2
Cloud = 3
- ❖ Tell learners to use these values to solve the expressions shown in the activity.
- ❖ Ask learners to write the correct answer in the coloured box.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What number does the sun represent?
- ❖ What number does the star represent?
- ❖ If moon equals 2 and cloud equals 3, what is their sum?
- ❖ What happens when we subtract one symbol value from another?

Encourage learners to substitute the symbol values before performing the calculation.

Teacher Guidance

Help learners understand that:

- ❖ Symbols can represent numbers in puzzles and coding activities.
- ❖ Replacing symbols with their values helps solve the problem.
- ❖ Logical thinking and careful observation are important when solving symbolic problems.

Reinforce

Symbols are commonly used in mathematics and coding to represent numbers and instructions.

👉 Activity C: Colour the Picture Using the Colour Code

Teacher Instructions

- ❖ Ask learners to observe the colour code provided at the top of the page.
- ❖ Explain the meaning of each number in the colour code:
 - 1 – Brown
 - 2 – Blue
 - 3 – Red
 - 4 – Yellow
 - 5 – Green
- ❖ Tell learners that each number written in the picture represents a colour.
- ❖ Ask learners to colour the sections of the picture according to the given code.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which colour is represented by number 1?
- ❖ What colour should be used for number 3?
- ❖ Can you find all the areas marked 5?
- ❖ Which parts of the house should be coloured blue?

Encourage learners to check the colour code each time before colouring.

Teacher Guidance

Help learners understand that:

- ❖ Numbers can be used as codes for colours or instructions.
- ❖ Following instructions carefully helps complete the activity correctly.
- ❖ Coding activities often use numbers or symbols to represent actions.

Reinforce

Following coded instructions is an important step in learning how computer programs work.

⇒ Activity D: How Many Are Remaining?

Teacher Instructions

- ❖ Ask learners to observe the group of crayons in each picture.
- ❖ Explain that some crayons are coloured as instructed in each box.
- ❖ Tell learners to subtract the coloured crayons from the total number of crayons shown.
- ❖ Ask learners to count how many crayons remain and write the answer in the circle provided.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ How many crayons are shown in the picture?
- ❖ If we colour 1 crayon, how many are left?
- ❖ What happens when 4 crayons are coloured?
- ❖ If 6 crayons are coloured, how many remain?

Encourage learners to count the crayons one by one to verify their answers.

Teacher Guidance

Help learners understand that:

- ❖ Subtraction helps us find how many items are left after some are used.
- ❖ Careful counting ensures the correct answer.
- ❖ Visual counting makes subtraction easier for young learners.

Reinforce

Counting and subtraction help learners solve everyday problems involving quantities.

Teaching Intent

To help learners develop vocabulary and spelling skills by identifying and forming words through visual clues and letter patterns.

These activities encourage learners to observe letters carefully, recognise familiar words, and connect pictures with their corresponding names. Word-building activities also strengthen reading readiness and language development.

⇒ Activity A: Find the Names of the Fruits

Teacher Instructions

- ❖ Ask learners to observe the letter grid carefully.
- ❖ Explain that several fruit names are hidden inside the grid.
- ❖ Tell learners that the words may appear horizontally or vertically.
- ❖ One example has already been marked to help learners understand the task.
- ❖ Ask learners to find and mark the remaining fruit names in the grid.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Can you find the word banana in the grid?
- ❖ Which letters form the word orange?
- ❖ Can you locate watermelon in the puzzle?
- ❖ Which fruit name starts with the letter P?

Encourage learners to scan the grid slowly and check each row and column carefully.

Teacher Guidance

Help learners understand that:

- ❖ Words can be hidden in different directions in a letter grid.
- ❖ Observing carefully helps identify letter patterns that form meaningful words.
- ❖ Word puzzles help improve vocabulary and concentration.

Reinforce

Searching for words strengthens learners' reading skills and improves their ability to recognise familiar words quickly.

⇒ Activity B: Colour the Correct Letters and Write the Word

Teacher Instructions

- ❖ Ask learners to observe the picture shown in each row.
- ❖ Tell learners to say the name of the picture aloud.

- ❖ Explain that several letters are given below each picture.
- ❖ Ask learners to colour the letters that form the correct word.
- ❖ Finally, ask learners to write the complete word in the space provided.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What is the name of the first picture?
- ❖ Which letters spell the word rain?
- ❖ What object do you see in the second picture?
- ❖ Which letters will help you spell the name of the train?

Encourage learners to pronounce the word before choosing the letters.

Teacher Guidance

Help learners understand that:

- ❖ Pictures can help identify the correct word.
- ❖ Selecting the correct letters helps form the correct spelling.
- ❖ Saying the word aloud helps learners recognise the correct letter sounds.

Reinforce

Word-building activities improve learners' reading, spelling, and vocabulary skills.

Concept 1.5: Number Pyramid

(LB Pages 21–23)

Teaching Intent

To help learners understand number relationships by observing how numbers combine to form a pyramid structure.

Through number pyramid activities, learners practise addition and logical thinking while recognising patterns between numbers. This helps learners develop problem-solving skills and strengthens their understanding of how numbers are related.

Concept Explanation

A number pyramid is formed by arranging numbers in rows that form a triangular shape.

In a number pyramid:

- ❖ Each new number is formed by adding the two numbers directly below it.
- ❖ The numbers at the bottom form the base of the pyramid.
- ❖ As we move upward, each circle contains the sum of the two numbers beneath it.

Example from the pyramid shown:

$$2 + 4 = 6$$

$$4 + 6 = 10$$

$$6 + 8 = 14$$

Then the next level becomes:

$$6 + 10 = 16$$

$$10 + 14 = 24$$

Finally:

$$16 + 24 = 40$$

This shows how numbers combine step by step to reach the top of the pyramid.

Activity A: Complete the Number Pyramid

Teacher Instructions

- ❖ Ask learners to observe the numbers at the bottom row of the pyramid.
- ❖ Explain the rule that each circle above is the sum of the two circles below it. Tell learners to add the numbers carefully and fill in the missing circles.
- ❖ Ask learners to complete the pyramid step by step until they reach the top.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What two numbers are below this circle?
- ❖ What is the sum of 2 and 6?
- ❖ What number will come above 10 and 4?
- ❖ Can you find the number at the top of the pyramid?

Encourage learners to calculate slowly and verify their answers.

Teacher Guidance

Help learners understand that:

- ❖ Each number in the pyramid depends on the two numbers below it.
- ❖ Addition helps build the pyramid step by step.
- ❖ Observing number relationships makes solving the pyramid easier.

Reinforce

Number pyramids develop logical reasoning and help learners understand how numbers are connected through patterns and operations.

⇒ Activity B: Number Pyramid Block Game

Teaching Intent

To help learners strengthen their understanding of number pyramids by applying the rule of addition in a larger and more complex pyramid.

Through this activity, learners practise adding numbers step-by-step while observing how each level of the pyramid is built from the numbers below. This develops logical reasoning, number relationships, and problem-solving skills.

Teacher Instructions

- ❖ Ask learners to observe the pyramid of blocks carefully.
- ❖ Explain that each block contains the sum of the two blocks directly below it.
- ❖ Tell learners to find the missing numbers by adding the two numbers beneath each block.
- ❖ Encourage learners to complete the pyramid step by step from the bottom row to the top.
- ❖ Ask learners to check whether their answers follow the pyramid rule correctly.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What numbers are placed below this block?
- ❖ What is the sum of these two numbers?
- ❖ Which number should be written in the block above them?
- ❖ If we continue this process, what number will appear at the top?

Encourage learners to solve the pyramid gradually rather than jumping directly to the top

Teacher Guidance

Help learners understand that:

- ❖ A number pyramid is solved by adding the two numbers below each block.
- ❖ Solving from the bottom row upward makes the activity easier.
- ❖ Careful observation helps identify patterns in the pyramid.

Reinforce

Number pyramids develop logical thinking and help learners understand how numbers combine to form patterns.

Teaching Intent

To help learners apply their observation and classification skills by analysing objects and grouping them according to their characteristics. In this activity, learners observe different toys and categorise them based on features such as wheels, round shapes, and legs.

This activity strengthens learners' visual observation, logical reasoning, and classification abilities, which are important foundations for computational thinking and problem solving.

⇒ Activity: Identify and Sort the Toys

Teacher Instructions

- ❖ Ask learners to carefully observe the picture showing different toys.
- ❖ Explain that Afia's toys are mixed together and need to be sorted according to their features.
- ❖ Read each question with the learners.
- ❖ Ask learners to identify toys that match the given conditions such as having wheels, round shapes, or legs.
- ❖ Tell learners to count the toys in each category and write the correct number in the blanks provided.
- ❖ Encourage learners to check the picture again after counting to ensure they have not missed any toy.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which toys in the picture have wheels?
- ❖ Can you find toys that are round in shape?
- ❖ Which toys have legs?
- ❖ Are there any toys that do not belong to these groups?

Encourage learners to observe each toy carefully before deciding which category it belongs to.

Teacher Guidance

Encourage learners to:

- ❖ Look carefully at the features of each toy.
- ❖ Group similar toys together before counting them.

- ❖ Count slowly and carefully to avoid mistakes.
- ❖ Recheck the picture to confirm their answers.

Reinforce

Classifying objects based on their characteristics helps us organise information. In coding and computing, similar classification helps computers sort and process data efficiently.

Review Exercise

1. Why is it important to observe objects carefully before classifying them?
2. What features helped you identify toys with wheels?
3. How can grouping objects make counting easier?
4. Why is checking your answer important after counting?

Differentiated Lessons

Remedial Activity

- ❖ Provide learners with pictures of different objects.
- ❖ Ask them to group the objects according to simple categories such as shape, colour, or function.

Challenging Activity

- ❖ Ask learners to draw different toys and create their own categories.
- ❖ Let their classmates classify the toys based on the categories they choose.

Teacher Closure for Level 1

Summarise the key learning points:

Learners have learned to:

- ❖ Recognise and identify 3D shapes
- ❖ Complete and analyse patterns
- ❖ Solve number combinations
- ❖ Build and identify words
- ❖ Solve number pyramids
- ❖ Classify objects based on their features

These activities help learners develop observation, reasoning, and logical thinking skills, which form the foundation for computational thinking and early coding concepts.

2

Level

Critical Thinking & Analysis

Critical thinking activities encourage learners to analyse information, observe patterns, solve puzzles, and make logical decisions. These tasks strengthen learners' reasoning abilities and help them develop problem-solving skills that are essential for computational thinking and coding.

In this level, learners engage in activities such as solving riddles, identifying differences in pictures, understanding grid maps, observing symmetry, and solving maze puzzles. These activities train learners to analyse situations carefully, recognise patterns, and follow logical steps to reach correct answers.

Through these activities, learners learn that solving problems often requires careful observation, reasoning, and step-by-step thinking—skills that are fundamental in coding and algorithmic thinking.

Concept 2.1: Riddle Time

(LB Pages 26–27)

Teaching Intent

To develop learners' reasoning, comprehension, and problem-solving skills by interpreting clues in riddles.

Riddles encourage learners to observe hints carefully, think creatively, and connect words with meanings. By analysing clues and identifying correct answers, learners strengthen their logical thinking and language skills, which are important for computational thinking.

👉 Activity A: Read and Solve the Rhythmic Riddles

Teacher Instructions

- ❖ Ask learners to read the riddles carefully.
- ❖ Explain that each riddle contains clues that help identify the correct answer.
- ❖ Encourage learners to think about the meaning of each line in the riddle.
- ❖ Ask learners to write the correct answer in the blank provided.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What clues does the riddle give about the object?
- ❖ What animals return in spring and build nests?

- ❖ Which letters are mentioned in the second riddle?
- ❖ Can those letters form the name of a month?

Encourage learners to think about the clues before answering.

Teacher Guidance

Help learners understand that:

- ❖ Riddles require careful reading and interpretation.
- ❖ Each line in the riddle provides a clue to the answer.
- ❖ Logical thinking helps identify the correct solution.

Reinforce

Understanding clues helps learners solve puzzles and problems logically.

⇒ Activity B: Guess Who They Are

Teacher Instructions

- ❖ Ask learners to read each riddle carefully.
- ❖ Explain that each riddle describes an object, person, or idea.
- ❖ Tell learners to match the riddle with the correct answer from the given options.
- ❖ Ask learners to write the correct number beside the matching answer.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What can fly and cry but has no wings or eyes?
- ❖ What object is always on the dinner table but cannot be eaten?
- ❖ Which fruit is also the name of a bird?
- ❖ What object has two ends but no beginning?

Encourage learners to think about everyday objects that match the clues.

Teacher Guidance

Help learners understand that:

- ❖ Each riddle describes something through hints and characteristics.
- ❖ Thinking about the clues carefully helps identify the correct answer.
- ❖ Matching riddles with answers develops logical reasoning.

Reinforce

Solving riddles improves thinking, observation, and reasoning skills.

Teaching Intent

To develop learners' observation and analytical skills by identifying differences between two similar images.

Through these activities, learners practise careful observation, comparison, and attention to detail. These skills are important for logical thinking and help learners analyse information accurately, which is a key part of computational thinking.

⇒ Activity A: Find Six Differences

Teacher Instructions

- ❖ Ask learners to observe the two underwater pictures carefully.
- ❖ Explain that both pictures look similar but contain some differences.
- ❖ Tell learners to compare the pictures closely and find six differences.
- ❖ Ask learners to circle the differences they identify.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What changes do you notice between the two pictures?
- ❖ Are any fish or sea creatures missing or added?
- ❖ Do you see differences in colours, shapes, or objects?

Encourage learners to compare the pictures slowly from left to right or top to bottom.

Teacher Guidance

Help learners understand that:

- ❖ Observing carefully helps identify small changes.
- ❖ Comparing pictures step by step makes it easier to find differences.
- ❖ Paying attention to details improves analytical thinking.

Reinforce

Careful observation helps learners notice details and solve visual puzzles.

⇒ Activity B: Find Six Differences in the Picture

Teaching Intent

To strengthen learners' visual observation and comparison skills through picture analysis.

This activity encourages learners to carefully compare two similar scenes and identify the differences between them.

Teacher Instructions

- ❖ Ask learners to observe both pictures carefully.
- ❖ Explain that the pictures appear similar but have some differences.
- ❖ Tell learners to identify and mark the six differences between the two pictures.
- ❖ Encourage learners to compare different parts of the picture carefully.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What changes can you see in the background?
- ❖ Are there objects that appear in one picture but not in the other?
- ❖ Can you find differences in the characters or surrounding objects?

Encourage learners to check each part of the picture carefully.

Teacher Guidance

Help learners understand that:

- ❖ Comparing pictures helps identify changes and patterns.
- ❖ Careful observation improves concentration and attention to detail.
- ❖ These skills help learners analyse information logically.

Reinforce

Observation and comparison are important skills for solving puzzles and understanding visual information.

Concept 2.3: Grid Map

(LB Pages 30–32)

Teaching Intent

To help learners understand how locations can be identified using a grid system with letters and numbers.

Grid maps help learners develop spatial awareness and logical thinking. By using coordinates made from letters and numbers, learners can locate objects accurately on a map. This concept is widely used in maps, games, and computer programming.

Concept Explanation

A grid is a pattern made by intersecting horizontal and vertical lines that form squares.

In a grid map:

- ❖ Letters are written across the top of the grid.
- ❖ Numbers are written along the side of the grid.
- ❖ Each square is identified by combining a letter and a number.

For example:

E2 means the square located in column E and row 2.

This system helps locate objects easily and precisely.

⇒ **Activity A: Find the Location on the Grid**

Teacher Instructions

- ❖ Ask learners to observe the grid map carefully.
- ❖ Explain that each square has a letter and a number.
- ❖ Demonstrate how to find a location by first looking at the letter (column) and then the number (row).
- ❖ Ask learners to answer the questions by identifying the correct grid location.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What object is located at E2?
- ❖ Can you find the object at B4?
- ❖ Where is the girl located on the grid?
- ❖ Through which squares is the snake moving?

Encourage learners to point to the squares while identifying the coordinates.

Teacher Guidance

Help learners understand that:

- ❖ Grid coordinates help identify locations clearly.
- ❖ The letter represents the column, and the number represents the row.
- ❖ Following the correct order helps locate objects accurately.

Reinforce

Grid systems help organise information and locate objects quickly.

⇒ **Activity B: Locate the Landforms on the Grid**

Teaching Intent

To strengthen learners' ability to read grid coordinates and locate different objects or places on a map.

This activity also helps learners understand how maps represent real-world locations using grid references.

Teacher Instructions

- ❖ Ask learners to observe the grid map showing different landforms.
- ❖ Tell learners to identify where each landform is located on the grid.
- ❖ Encourage learners to write the correct coordinates (letter and number) for each landform.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Where is the canyon located on the grid?
- ❖ Which square contains the volcano?
- ❖ Can you find the location of the cave?
- ❖ Which coordinate shows the island?

Encourage learners to follow the grid from top to bottom and left to right.

Teacher Guidance

Help learners understand that:

- ❖ Grid coordinates make it easy to identify locations on maps.
- ❖ Careful observation helps find the correct square.
- ❖ Grid maps are used in geography, navigation, and computer games.

Reinforce

Using grids helps learners organise information and understand spatial relationships.

⇒ Activity C: Rearrange the Objects on the Grid

Teacher Instructions

- ❖ Ask learners to observe the grid and identify the position of each object carefully.
- ❖ Explain that each square in the grid has a letter (column) and number (row).
- ❖ Read the instructions aloud and explain what movement directions mean (left, right, upward, downward).
- ❖ Ask learners to determine the new location of each object after following the instructions.
- ❖ Instruct learners to tick (✓) the correct option.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Where is the dinosaur located at the beginning?
- ❖ If the dinosaur moves one step to the left, which block will it reach?
- ❖ Where is the airplane located? What happens if it moves two steps downwards?

- ❖ Which square will the train reach after moving two steps to the right?
- ❖ If the girl moves one step upward, which square will she reach?

Encourage learners to trace the movement with their fingers on the grid.

Teacher Guidance

Help learners understand that:

- ❖ Grid movements follow directions such as left, right, up, and down.
- ❖ Each movement changes the coordinate of the object.
- ❖ Careful observation of rows and columns helps determine the correct location.

Reinforce

Understanding directions and grid positions helps learners interpret maps and solve spatial problems logically.

Concept 2.4: Symmetry

(LB Page 33)

Teaching Intent

To introduce learners to the concept of symmetry and help them recognise shapes that can be divided into two equal halves.

Symmetry helps learners understand balance and patterns in shapes. By observing and drawing lines of symmetry, learners develop spatial awareness and visual reasoning skills, which are important for recognising patterns and structures.

Concept Explanation

Symmetry means that two halves of a shape are exactly the same and look like mirror images of each other.

A shape is symmetrical if:

- ❖ It can be divided into two equal parts.
- ❖ Both parts look the same when folded along the dividing line.
- ❖ The dividing line is called the line of symmetry.

Many objects around us show symmetry, such as flowers, butterflies, and certain geometric shapes.

⇒ Activity A: Draw a Line of Symmetry

Teacher Instructions

- ❖ Ask learners to observe each shape carefully.
- ❖ Explain that they need to find the line that divides the shape into two identical halves.

- ❖ Tell learners to draw a straight line showing the line of symmetry for each shape.
- ❖ Encourage learners to imagine folding the shape along the line to see if both halves match.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Does this shape look the same on both sides?
- ❖ Where should the line be drawn to divide the shape into equal halves?
- ❖ If you fold the shape along that line, will the two sides match?

Encourage learners to visualise folding the shapes.

Teacher Guidance

Help learners understand that:

- ❖ The line of symmetry divides a shape into two equal parts.
- ❖ Both halves must look exactly the same.
- ❖ Some shapes can have more than one line of symmetry.

Reinforce

Symmetry helps us understand balance and patterns in shapes.

⇒ Activity B: Complete the Symmetrical Shape

Teacher Instructions

- ❖ Ask learners to observe the half-shapes carefully.
- ❖ Explain that one half of the shape is already given.
- ❖ Tell learners to draw the other half so that the shape becomes symmetrical.
- ❖ Encourage learners to match the curves and lines carefully.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What shape do you see on one side?
- ❖ How should the other half look to match it?
- ❖ Can you imagine folding the shape along the dotted line?

Encourage learners to draw slowly and carefully.

Teacher Guidance

Help learners understand that:

- ❖ Both halves of a symmetrical shape must be identical.
- ❖ Drawing carefully helps maintain balance in the shape.
- ❖ Observing the existing half helps complete the missing half correctly.

Reinforce

Symmetry helps learners understand patterns, balance, and design in shapes.

Concept 2.5: Wonder Maze

(LB Pages 34–35)

Teaching Intent

To develop learners' logical thinking, problem-solving skills, and ability to analyse paths by solving maze puzzles.

Maze activities encourage learners to carefully observe different paths and choose the correct route to reach a destination. These activities help improve concentration, decision-making, and sequential thinking, which are important aspects of computational thinking.

⇒ Activity A: Help Fafa Reach the Badminton Court

Teacher Instructions

- ❖ Ask learners to observe the maze carefully.
- ❖ Explain the starting point and the destination in the maze.
- ❖ Tell learners to trace the correct path from the starting point to the badminton court.
- ❖ Encourage learners to check different paths and avoid dead ends.
- ❖ Ask learners to draw a line along the correct path.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Where does the maze start?
- ❖ Which path leads closer to the badminton court?
- ❖ Are there any paths that lead to a dead end?
- ❖ How can you check if your path is correct?

Encourage learners to follow the path slowly with their fingers before drawing the line.

Teacher Guidance

Help learners understand that:

- ❖ A maze contains many paths, but only one leads to the correct destination.
- ❖ Observing carefully helps avoid wrong paths.
- ❖ Logical thinking helps determine the correct route.

Reinforce

Planning and analysing paths helps learners solve puzzles effectively.

⇒ Activity B: Help Bunny Find Its Home

Teacher Instructions

- ❖ Ask learners to observe the maze showing Bunny and its home.
- ❖ Explain the starting point (Bunny) and the destination (home).
- ❖ Tell learners to trace the correct path that leads Bunny to its home.
- ❖ Encourage learners to check carefully before tracing the path.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Where does Bunny start in the maze?
- ❖ Which path leads toward Bunny’s home?
- ❖ Are there paths that lead to dead ends?
- ❖ How can you find the correct route?

Encourage learners to think about the directions before choosing the path.

Teacher Guidance

Help learners understand that:

- ❖ Mazes require careful observation and logical thinking.
- ❖ Trying different paths helps identify the correct route.
- ❖ Planning steps before tracing the path helps solve the maze easily.

Reinforce

Maze activities develop logical thinking and decision-making skills.

Coding Challenge – 2: Escape Room

(LB Page 36)

Teaching Intent

To help learners apply their critical thinking, logical reasoning, and problem-solving skills by analysing a situation and finding the correct path to reach a destination.

In this activity, learners must carefully observe the puzzle and determine the correct route that will allow the character to reach the terrace and collect the clothes before the rain damages them.

This task encourages learners to think step by step, analyse possible paths, and select the most suitable solution—skills that are essential for computational thinking and logical problem solving.

⇒ Activity: Help the Lady Reach the Terrace

Teacher Instructions

- ❖ Ask learners to observe the picture carefully.
- ❖ Explain that clothes are getting wet in the rain and the lady must reach the terrace quickly.
- ❖ Tell learners to analyse the puzzle and determine the correct path that will help the lady reach the terrace.
- ❖ Encourage learners to trace or mark the correct path.
- ❖ Remind learners to check their solution once they complete the activity.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Where is the starting point in the puzzle?
- ❖ Which direction should the lady move first?
- ❖ Are there any paths that lead to a dead end?
- ❖ Which path will help her reach the terrace safely?

Encourage learners to think carefully before choosing the path.

Teacher Guidance

Encourage learners to:

- ❖ Observe the puzzle carefully before making a decision.
- ❖ Trace possible paths mentally or with their finger before marking the answer.
- ❖ Avoid paths that lead to dead ends.
- ❖ Follow a step-by-step approach to reach the correct destination.

Reinforce

Problem-solving often requires analysing different possibilities and selecting the correct path. In coding, programs follow logical paths to achieve a goal.

Review Exercise

1. Why is it important to observe the puzzle carefully before choosing a path?
2. What can happen if we choose the wrong path in a maze or puzzle?
3. How can we check whether our chosen path is correct?
4. How is solving a puzzle similar to solving a problem in coding?

Differentiated Lessons

Remedial Activity

- ❖ Provide learners with a simpler maze puzzle.
- ❖ Ask them to trace the correct path from the start to the finish.

Challenging Activity

- ❖ Ask learners to design their own maze puzzle.
- ❖ Encourage classmates to solve each other's puzzles.

Teacher Closure for Level 2

Summarise the key learning points:

Learners have learned to:

- ❖ Solve riddles using logical thinking
- ❖ Observe and compare images to identify differences
- ❖ Understand grid maps and spatial locations
- ❖ Recognise symmetry in shapes
- ❖ Solve maze puzzles by selecting correct paths

These activities strengthen learners' critical thinking, observation, and analytical skills, which are essential for developing computational thinking and problem-solving abilities in coding.

Data Handling and Representation

In this level, learners are introduced to the concept of data and how it can be represented using pictures, symbols, and simple tables. Data refers to information that can be collected, organised, and analysed.

Through engaging activities, learners practise observing images, counting objects, and organising information into simple tables or pictorial charts. These activities help learners understand how information can be arranged and interpreted logically.

Learning how to represent data helps learners develop analytical thinking and problem-solving skills. These abilities form an important foundation for computational thinking and coding, where information is often organised and analysed in structured ways.

Concept 3.1: Representing Data

(LB Pages 38–39)

Teaching Intent

To help learners understand how information can be organised and represented using graphs and tables.

Representing data visually makes it easier to read, compare, and analyse information. Through graphs and tables, learners develop the ability to interpret quantities and understand relationships between different pieces of data.

Concept Explanation

Data is information that we collect and organise.

Data can be represented in different ways such as:

- ❖ Tables
- ❖ Charts
- ❖ Graphs
- ❖ Pictures or symbols

Graphs and tables help us compare quantities easily and understand information quickly.

For example, a bar graph can show how many children like different types of food.

⇒ Activity A: Study the Graph and Answer the Questions

Teacher Instructions

- ❖ Ask learners to observe the bar graph carefully.
- ❖ Explain that the graph shows the number of children who like different types of food.

- ❖ Show learners how the vertical axis represents the number of children and the horizontal axis shows the food items.
- ❖ Ask learners to read the height of each bar and answer the questions.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which food item has the tallest bar in the graph?
- ❖ Which food item has the smallest bar?
- ❖ How many children like fruits?
- ❖ Which food is liked by five children?
- ❖ How many more children like pizza than burgers?

Encourage learners to compare the heights of the bars carefully.

Teacher Guidance

Help learners understand that:

- ❖ The height of each bar represents a number
- ❖ Graphs help compare quantities easily.
- ❖ Careful observation helps answer questions correctly.

Reinforce

Graphs make it easier to understand and analyse information.

⇒ Activity B: Arrange the Data in Descending Order

Teacher Instructions

- ❖ Ask learners to observe the table showing the number of students visiting different places.
- ❖ Explain that the numbers represent how many students visited each place.
- ❖ Tell learners to arrange the places in descending order, starting from the highest number of students to the lowest.
- ❖ Ask learners to complete the second table with the correct order.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which place was visited by the most students?
- ❖ Which place was visited by the least students?
- ❖ What number comes after 16 when arranging in descending order?
- ❖ How should the places be arranged from highest to lowest?

Encourage learners to compare the numbers carefully before arranging them.

Teacher Guidance

Help learners understand that:

- ❖ Descending order means arranging numbers from largest to smallest.
- ❖ Tables help organise and analyse data easily.
- ❖ Comparing numbers helps determine the correct order.

Reinforce

Organising data helps us understand and analyse information clearly.

Concept 3.2: Symbolic Representation

(LB Pages 40–41)

Teaching Intent

To help learners understand how symbols and signs are used to represent information quickly and clearly.

Symbols are used in everyday life to communicate messages without using words. By recognising and interpreting symbols, learners develop observation and interpretation skills. Understanding symbols also helps learners read signs and interpret information efficiently.

Concept Explanation

A symbol is a picture or sign that represents information or instructions.

Symbols are commonly used in:

- ❖ Road signs
- ❖ Buildings and facilities
- ❖ Public places
- ❖ Safety instructions

Symbols help people understand important messages quickly without reading long instructions.

For example:

- ❖ A crossed “P” sign means No Parking.
- ❖ A red octagon with a hand means Stop.
- ❖ A sign showing children crossing indicates a School Zone.

⇒ Activity A: Identify the Symbols

Teacher Instructions

- ❖ Ask learners to observe each symbol carefully.
- ❖ Explain that each symbol represents a specific instruction or message.
- ❖ Provide the help box and ask learners to match each symbol with its correct name.
- ❖ Tell learners to write the correct name below each symbol.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What does this arrow pointing right indicate?
- ❖ Which symbol shows that parking is not allowed?
- ❖ Which sign tells vehicles to stop?
- ❖ Which sign shows a school zone?
- ❖ Where have you seen these symbols in real life?

Encourage learners to relate the symbols to places they have seen them.

Teacher Guidance

Help learners understand that:

- ❖ Symbols convey messages quickly and clearly.
- ❖ Recognising symbols helps people follow rules and instructions.
- ❖ Many signs use pictures so that everyone can understand them.

Reinforce

Symbols help communicate information without using words.

⇒ Activity B: Interpret the Pictorial Table

Teacher Instructions

- ❖ Ask learners to observe the pictorial table carefully.
- ❖ Explain that each sun symbol represents two sunny days.
- ❖ Tell learners to count the symbols for each month.
- ❖ Ask learners to calculate the total number of sunny days for each month and answer the questions.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ How many sun symbols are shown for May?
- ❖ If one sun represents two days, how many sunny days are there in July?
- ❖ Which month has the highest number of sunny days?
- ❖ Which month has the lowest number of sunny days?
- ❖ Do any two months have the same number of sunny days?

Encourage learners to multiply the number of symbols by two to find the total days.

Teacher Guidance

Help learners understand that:

- ❖ Pictographs use symbols to represent numbers.
- ❖ Each symbol may represent more than one item or quantity.
- ❖ Careful counting helps interpret data correctly.

Reinforce

Pictographs make it easier to represent and understand data visually.

Concept 3.3: Deciphering

(LB Pages 42–43)

Teaching Intent

To introduce learners to the idea of decoding messages using symbols and clues.

Deciphering helps learners understand that information can be hidden or coded using symbols, numbers, or patterns. By decoding these symbols, learners practise logical thinking, pattern recognition, and problem-solving skills that are important in coding and cryptography.

Concept Explanation

Sometimes messages are written in codes so that only certain people can understand them.

To understand these messages, we need to decipher or decode the symbols using a given clue or key.

A code key tells us what each symbol represents.

By matching the symbols with the correct letters, we can discover the hidden message.

Decoding messages helps learners develop:

- ❖ Pattern recognition
- ❖ Logical reasoning
- ❖ Analytical thinking

These skills are important in computer science and coding.

⇒ Activity A: Decode the Treasure Box Code

Teacher Instructions

- ❖ Ask learners to observe the clue table carefully.
- ❖ Explain that each symbol represents a specific letter.
- ❖ Tell learners to match each symbol in the code with the corresponding letter in the clue table.
- ❖ Ask learners to write the decoded letters in the blanks to form the secret word.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which letter does the symbol ^ represent?
- ❖ What letter matches the symbol #?
- ❖ What word is formed when we decode all the symbols?
- ❖ Does the decoded word make sense?

Encourage learners to decode one symbol at a time.

Teacher Guidance

Help learners understand that:

- ❖ Codes can hide messages using symbols.
- ❖ A clue or key helps decode the message correctly.
- ❖ Solving codes improves logical thinking and observation skills.

Reinforce

Decoding messages helps learners recognise patterns and solve problems logically.

⇒ Activity B: Decode the Dot Code

Teacher Instructions

- ❖ Ask learners to observe the dot patterns carefully.
- ❖ Explain that each dot pattern represents a letter shown in the code box.
- ❖ Tell learners to match each pattern with its corresponding letter.
- ❖ Ask learners to write the letters above the spaces to form meaningful words.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which letter matches this dot pattern?
- ❖ Can you identify the first word in the sentence?
- ❖ Does the decoded message form a meaningful sentence?

Encourage learners to decode one letter at a time.

Teacher Guidance

Help learners understand that:

- ❖ Dot patterns can represent letters in a coded system.
- ❖ Careful observation helps identify the correct letter.
- ❖ Decoding messages requires patience and logical thinking.

Reinforce

Coding and decoding are important concepts used in communication and computer systems.

Teaching Intent

To help learners apply their logical reasoning, observation, and analytical skills by interpreting conditions and classifying objects according to given rules. In this activity, learners observe icebergs of different colours and determine which ones can support a man or penguins based on the rules provided.

This task strengthens learners' ability to interpret information, analyse conditions, and solve logical problems, which are essential skills for computational thinking.

⇒ Activity: Analyse the Icebergs

Teacher Instructions

- ❖ Ask learners to carefully observe the picture showing the different coloured icebergs.
- ❖ Explain the rules given in the activity:
- ❖ Green icebergs can hold one man or two penguins.
- ❖ Yellow icebergs can hold two penguins only.
- ❖ Pink icebergs are weak and can hold only one penguin.
- ❖ Ask learners to count the number of icebergs of each colour.
- ❖ Tell learners to answer the questions by analysing the rules and the picture.
- ❖ Encourage learners to check their counting before writing the final answers.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which coloured icebergs can hold the man?
- ❖ Which icebergs can hold only one penguin?
- ❖ Which icebergs can carry two penguins?
- ❖ How can we count the icebergs correctly without missing any?

Encourage learners to look carefully at each iceberg before classifying it.

Teacher Guidance

Encourage learners to:

- ❖ Observe the colour of each iceberg carefully.
- ❖ Understand the rule before answering the questions.
- ❖ Count the icebergs systematically to avoid mistakes.
- ❖ Check their answers by reviewing the picture again.

Reinforce

Analysing rules and classifying objects based on conditions is similar to how computers process information and make decisions.

Review Exercise

- ❖ Why is it important to read the rules carefully before solving the activity?
- ❖ Which iceberg colour can hold the man?
- ❖ Why can some icebergs hold two penguins while others cannot?
- ❖ How does classification help us solve problems more easily?

Differentiated Lessons

Remedial Activity

- ❖ Provide learners with simple pictures of objects with different properties.
- ❖ Ask them to group the objects based on given conditions such as colour, size, or type.

Challenging Activity

- ❖ Ask learners to create their own rule-based puzzle using coloured objects.
- ❖ Encourage their classmates to analyse the rules and solve the puzzle.

Teacher Closure for Level 3

Summarise the key learning points:

Learners have learned to:

- ❖ Represent and interpret information using tables and graphs
- ❖ Understand symbols and signs used to convey information
- ❖ Decode simple coded messages
- ❖ Analyse rules and classify objects logically

These activities help learners develop data interpretation, logical reasoning, and analytical thinking skills, which are important foundations for computational thinking and coding.

In this level, learners begin to understand the idea of algorithmic thinking, which involves solving problems by following a clear sequence of steps. Learners explore how tasks can be broken down into smaller steps and arranged in a logical order.

Through everyday examples such as getting ready for school, completing classroom work, and planting a garden, learners understand that many activities require a specific order of actions. These activities introduce learners to the concept of sequencing, step-by-step instructions, and algorithms, which are fundamental ideas in coding and programming.

By engaging in these activities, learners develop logical thinking, planning skills, and the ability to organise actions in the correct order, preparing them for more advanced computational thinking concepts.

Concept 4.1: Sequence of Steps

(LB Pages 46–48)

Teaching Intent

To help learners understand that every task is completed by following a sequence of steps arranged in a logical order.

Many activities in daily life require us to perform actions step by step. When these steps are followed in the correct sequence, the task can be completed successfully. This concept introduces learners to the idea of dividing a task into main steps and smaller detailed steps, which helps them understand the basic structure of algorithms used in coding.

Concept Explanation

A sequence of steps means performing actions one after another in the correct order to complete a task.

For example, in the illustration, the teacher asks Abena to bring her notebook after finishing her work.

Main Steps

1. Complete the work in the notebook.
2. Move towards the teacher's table.
3. Give the notebook to the teacher.

Each of these main steps can be broken down into **smaller steps** to make the task clearer.

Smaller Steps Example

Step 1: Complete the work in the notebook

- Open the notebook
- Copy the work from the blackboard
- Close the notebook

Step 2: Move towards the teacher's table

- Stand up from your seat
- Turn right
- Walk towards the teacher's table

Breaking tasks into smaller steps helps learners perform activities more easily and understand how instructions work in programming.

⇒ Activity A: Help Latif Get Ready for School

Teacher Instructions

- ❖ Ask learners to observe the steps shown in the activity.
- ❖ Draw learners' attention to the Help Box.
- ❖ Explain that the words in the help box should be used to complete the steps.
- ❖ Ask learners to fill in the blanks so that the routine forms a logical sequence.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What do you usually do first when you wake up in the morning?
- ❖ When do you brush your teeth?
- ❖ When do you wear your school uniform?
- ❖ What should you do before leaving for school?

Encourage learners to relate the activity to their own daily routine.

Teacher Guidance

Help learners understand that:

- ❖ Daily activities follow a natural order.
- ❖ Completing steps in the correct sequence helps us perform tasks efficiently.

Reinforce

Following steps in the correct order helps us complete tasks smoothly.

⇒ Activity B: Arrange the Steps to Plant a Garden

Teacher Instructions

- ❖ Ask learners to read each instruction carefully.
- ❖ Explain that the steps are not arranged in the correct order.
- ❖ Ask learners to think about how planting a garden is usually done.
- ❖ Instruct learners to number the steps according to the correct sequence.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What should we do before planting seeds?
- ❖ Should we prepare the soil before planting?
- ❖ When should we water the plants?
- ❖ Why is choosing the right place for the garden important?

Encourage learners to think logically about the order of actions.

Teacher Guidance

Help learners understand that:

- ❖ Complex tasks can be completed by dividing them into smaller steps.
- ❖ Arranging steps in the correct order ensures the task is completed properly.

Reinforce

Planning and sequencing steps help solve problems efficiently.

Concept 4.2: Algorithm

(LB Pages 49–51)

Teaching Intent

To introduce learners to the concept of an algorithm as a set of step-by-step instructions used to solve a problem or complete a task.

Algorithms help organise actions in a logical sequence. By learning how to write and follow algorithms, learners begin to understand how computers perform tasks and solve problems.

Concept Explanation

An algorithm is a sequence of clear steps used to solve a problem.

For example, to find the sum of two numbers, we follow these steps:

Step 1 – Start

Step 2 – Read two numbers (input)

Step 3 – Add the numbers

Step 4 – Print the sum (output)

Step 5 – End

These instructions form an algorithm because they explain the task step by step.

Algorithms are widely used in computer programs because they help computers understand what to do and in what order to do it.

⇒ Activity A: Write an Algorithm to Find the Difference

Teacher Instructions

- ❖ Ask learners to observe the example algorithm carefully.
- ❖ Explain that the example shows the steps used to find the sum of two numbers.
- ❖ Ask learners to complete the algorithm that finds the difference between two numbers.
- ❖ Encourage learners to think about the operation needed to find the difference.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ How many numbers are needed to find a difference?
- ❖ Which mathematical operation is used to find a difference?
- ❖ What should be printed at the end of the algorithm?

Encourage learners to think about each step logically.

Teacher Guidance

Help learners understand that:

- ❖ Every algorithm begins with Start and ends with End.
- ❖ Each step must follow the correct order.
- ❖ Algorithms describe both the input and the output of a task.

Reinforce

Algorithms help us solve problems step by step.

⇒ Activity B: Complete the Algorithm (Brushing Routine)

Teacher Instructions

- ❖ Ask learners to read the instructions in the activity carefully.
- ❖ Direct their attention to the Help Box provided.
- ❖ Explain that the words in the help box must be used to complete the steps.
- ❖ Encourage learners to think about their own daily routine while filling the blanks.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What do you do first when brushing your teeth?
- ❖ Do you apply toothpaste before brushing?
- ❖ What do you do after brushing your teeth?

Encourage learners to describe their morning routine in steps.

Teacher Guidance

Help learners understand that:

- ❖ Daily activities can also be written as algorithms.
- ❖ Algorithms help explain tasks clearly and logically.

Reinforce

Even simple daily routines can be written as algorithms.

Concept 4.3: Understanding Programs

(LB Pages 52–53)

Teaching Intent

To help learners understand that a program is a set of instructions arranged in a specific order to complete a task.

This lesson introduces learners to the idea that computers perform tasks by following instructions called programs. By observing simple step-by-step actions, learners begin to understand how programs guide actions and produce results.

Concept Explanation

A program is a sequence of instructions that tells a computer or a person how to perform a task.

In the example shown, Rafiat is playing a block-colouring game by following specific steps.

Steps of the Program

Step 1 – Start and fill red colour in A1.

Step 2 – Move one square up and then one square right.

Step 3 – Fill blue colour in B2.

Step 4 – Move one square up and then one square right.

Step 5 – Fill green colour in C3.

Each step gives a clear instruction. By following these instructions in the correct order, the task is completed successfully.

This shows how a program works by guiding actions step by step.

⇒ **Activity A: Complete the Program for Arranging Books**

Teacher Instructions

- ❖ Ask learners to observe the picture of the bookshelf carefully.
- ❖ Explain that the books are arranged according to a program.
- ❖ Ask learners to read each step of the program.
- ❖ Tell learners to fill in the missing blanks by observing the arrangement of books in the shelf.
- ❖ Encourage learners to compare each step with the picture before writing the answer.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which book is placed in the middle shelf?
- ❖ Which book is placed above the Mathematics book?
- ❖ Which book is placed below the Mathematics book?
- ❖ Which book is located to the left of the Grammar book?

Encourage learners to carefully observe the arrangement before answering.

Teacher Guidance

Help learners understand that:

- ❖ Programs provide clear instructions for arranging or completing tasks.
- ❖ Each instruction must be followed in the correct order.
- ❖ Observing details carefully helps in understanding and completing a program.

Reinforce

Programs guide actions by giving step-by-step instructions.

Concept 4.4: Decision Making

(LB Pages 54–55)

Teaching Intent

To help learners understand the concept of decision-making using conditions and rules.

This lesson introduces learners to the idea that different actions may occur depending on whether a condition is true or false. It helps learners understand how programs use if–then–else statements to make decisions.

Concept Explanation

Decision making is the process of choosing an action based on given information or conditions.

In programming, decisions are often written using an if–then–else structure.

Example:

If the work is submitted, then go to the picnic.

Else complete the work.

This means:

- ❖ If the condition is true, we follow the then instruction.
- ❖ If the condition is false, we follow the else instruction.

This structure helps programs decide what action should be performed.

Key Rules of Decision Making

1. When the if condition is true, we follow the then statement.
2. When the if condition is false, we follow the else statement.

These rules help computers and people choose the correct action based on a situation.

⇒ Activity A: Rules for Nana

Teacher Instructions

- ❖ Ask learners to observe the rules given by Nana's father carefully.
- ❖ Explain the conditions written in the rule box.
- ❖ Tell learners that the decision depends on whether Nana finishes his chores and homework.
- ❖ Ask learners to observe the table showing the activities for each day.
- ❖ Instruct learners to circle the correct answer for the time Nana can play the video game.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What happens if Nana finishes both chores and homework?
- ❖ What happens if Nana finishes only his homework?
- ❖ What happens if Nana does not complete both tasks?

Encourage learners to think about the conditions carefully before selecting the answer.

Teacher Guidance

Help learners understand that:

- ❖ Decisions depend on conditions.
- ❖ Different results occur depending on whether the condition is true or false.
- ❖ Decision-making is an important concept used in programming.

Reinforce

Programs use conditions to choose the correct action.

Concept 4.5: Loop: Programs

(LB Pages 56–57)

Teaching Intent

To help learners understand the concept of a loop, where a set of instructions is repeated multiple times to create a pattern or complete a task.

Loops are an important concept in programming because they allow instructions to be repeated automatically. This helps in performing tasks efficiently without rewriting the same steps again and again.

Concept Explanation

A loop is a way to repeat a set of instructions several times in a program.

In the example shown, a pattern is created by repeating the following instructions:

- ❖ Make a thumbs up
- ❖ Make a thumbs down
- ❖ Make a thumbs up
- ❖ Make a thumbs down

When this program is repeated several times, a pattern is formed. Repetition of instructions like this is called a loop.

Loops are commonly used in programming to perform repetitive tasks easily.

⇒ Activity A: Robo Climbing the Stairs

Teacher Instructions

- ❖ Ask learners to observe the image of the robot climbing the stairs carefully.
- ❖ Explain the program steps written in the instruction box.
- ❖ Tell learners that the robot repeats the same set of steps to move upward.
- ❖ Ask learners to determine how many times the program pattern must be repeated for the robot to reach the top of the staircase.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ What is the first instruction in the program?
- ❖ Which steps are repeated in the pattern?
- ❖ How many steps does the robot need to reach the top?
- ❖ How many times must the instructions repeat?

Encourage learners to trace the robot's movement visually.

Teacher Guidance

Help learners understand that:

- ❖ Repeating instructions creates a loop.
- ❖ Loops help perform repetitive tasks efficiently.
- ❖ Recognising patterns helps understand looping in programming.

Reinforce

Loops allow a program to repeat instructions automatically

⇒ Activity B: Alice's Weekly Classes

Teacher Instructions

- ❖ Ask learners to observe the weekly class schedule carefully.
- ❖ Explain that Alice attends different classes from Sunday to Thursday.
- ❖ Tell learners that the same sequence repeats after Thursday.
- ❖ Ask learners to answer the questions by identifying the repeating pattern.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which class does Alice attend on Sunday?
- ❖ What class does she attend on Wednesday?
- ❖ After Thursday, which day comes next in the pattern?
- ❖ If the sequence repeats, what class will she attend on Friday?

Encourage learners to identify the repeating cycle.

Teacher Guidance

Help learners understand that:

- ❖ Patterns that repeat form loops.
- ❖ Recognising repeating sequences helps predict future outcomes.

Reinforce

Loops help repeat actions and patterns in programming.

Coding Challenge - 4: Wake Up Routine

(LB Page 59)

Teaching Intent

To help learners apply their understanding of sequencing, logical reasoning, and time comparison by arranging events in the correct order. In this activity, learners observe the wake-up times of different family members and arrange them in ascending order, starting from the person who wakes up first.

This task strengthens learners' ability to analyse information, compare values, and organise data logically, which are important elements of algorithmic thinking in coding.

⇒ Activity: Arrange the Wake-Up Routine

Teacher Instructions

- ❖ Ask learners to carefully observe the illustration showing different family members and their wake-up times.
- ❖ Explain that the learners must arrange the people in ascending order of time, beginning with the person who wakes up first.
- ❖ Tell learners to write numbers 1 to 5 beside each person according to the correct order.
- ❖ Remind learners to compare the times carefully before writing the answers.
- ❖ Encourage learners to check their answers once they finish the activity.

Teacher–Learner Interaction

Ask guiding questions such as:

- ❖ Which person wakes up the earliest?
- ❖ Who wakes up after the grandmother?
- ❖ Which person wakes up last in the morning?
- ❖ How can we compare the times correctly?

Encourage learners to read each time carefully before arranging the sequence.

Teacher Guidance

Encourage learners to:

- ❖ Observe the times written for each person carefully.
- ❖ Compare the times to determine which comes earlier or later.
- ❖ Arrange the people step by step from earliest to latest.
- ❖ Check their final sequence to ensure the order is correct.

Reinforce

Arranging events in the correct order is similar to writing instructions in a program. Computers also follow instructions in a specific sequence to complete tasks correctly.

Review Exercise

1. Why is it important to compare times carefully before arranging them?
2. What does ascending order mean?
3. Who wakes up first in the routine?
4. How is arranging events in order similar to writing a program?

Differentiated Lessons

Remedial Activity

- ❖ Provide learners with simple daily routine cards (wake up, brush teeth, eat breakfast, go to school).
- ❖ Ask them to arrange the cards in the correct order.

Challenging Activity

- ❖ Ask learners to write their own morning routine in step-by-step order.
- ❖ Encourage them to compare routines with classmates.

Teacher Closure for Level 4

Summarise the key learning points:

Learners have learned to:

- ❖ Arrange steps in the correct sequence
- ❖ Understand the concept of algorithms
- ❖ Follow and interpret simple programs
- ❖ Make decisions based on conditions
- ❖ Recognise repeating patterns through loops

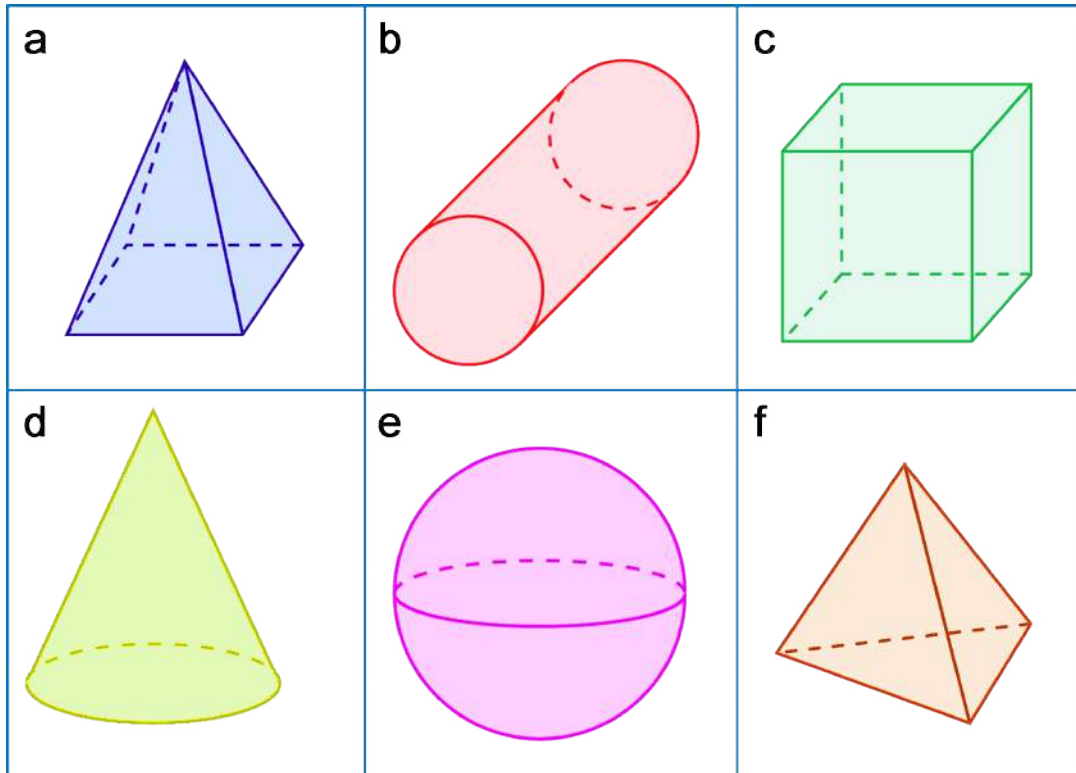
These activities help learners develop algorithmic thinking, logical reasoning, and structured problem-solving skills, which form the foundation for learning programming and coding concepts.

Answer Key

1.1

3D Shapes

A. Look at the given shapes and answer the two questions given below.



I think I can solve this.

I do not have any vertices.
I have 3 faces.
Two of my faces are circle.
Which shape am I?

b

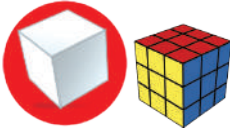


I think I know the answer.

I have 6 faces.
All my faces are square.
I have 8 vertices and 12 edges.
Which shape am I?

c

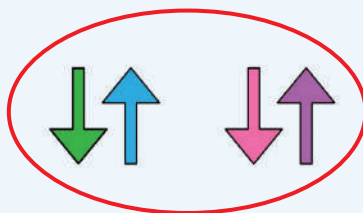
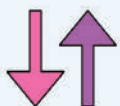
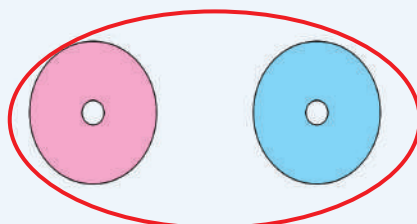
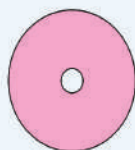
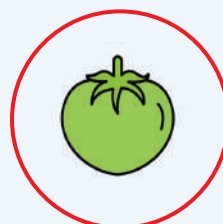
B. Circle the shapes that match the 3D shape on top.

 These 3D shapes are called CONES.	 These 3D shapes are called CUBES.	 These 3D shapes are called CYLINDERS.	 These 3D shapes are called SPHERES.
			
			
			
			

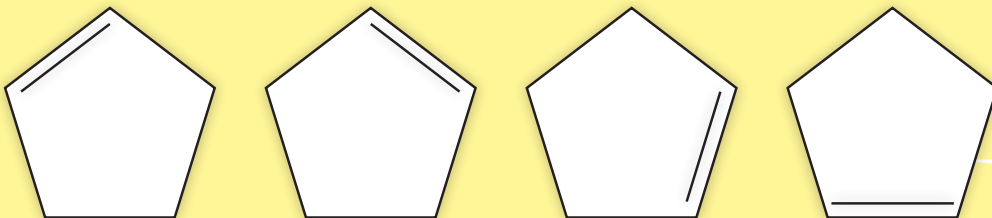
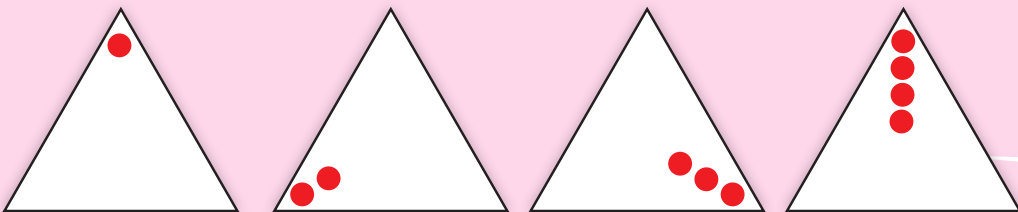
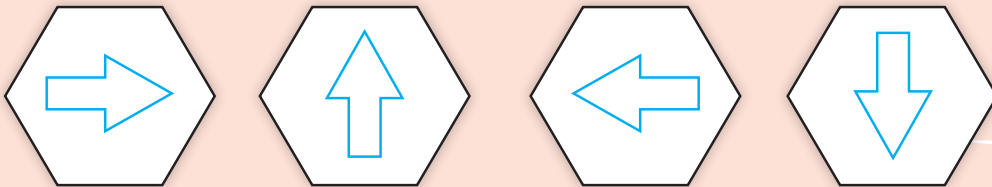
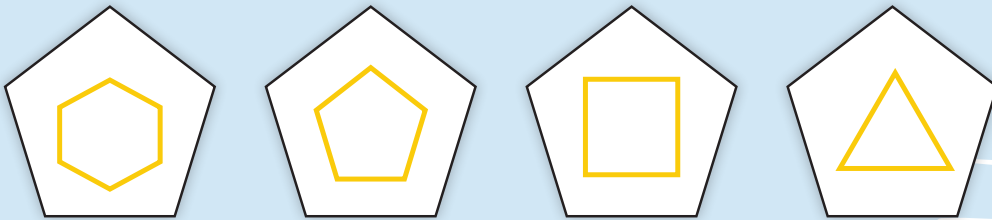
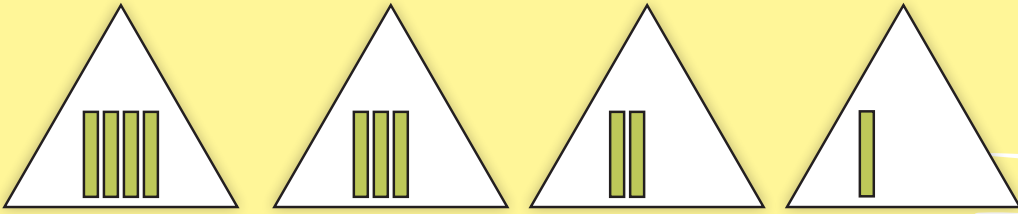
1.2

Patterns

A. Complete the colour patterns given below.



B. Identify and draw what comes next in the given series of pattern.



C. Observe the rule and write next three numbers.

1.

Rule: Add 3

6, 9

12

15

18

2.

Rule: Subtract 10

50, 40

30

20

10

3.

Rule: Add 7

14, 21

28

35

42

4.

Rule: Subtract 4

20, 16

12

8

4

5.

Rule: Add 15

0, 15

30

45

60

6.

Rule: Add 11

10, 21

32

43

54

7.

Rule: Subtract 8

40, 32

24

16

8

8.

Rule: Subtract 5

55, 50

45

40

35

- D.** Observe the following pattern and circle the correct option. One is done for you.

Option A

Option B

1. January April July ____ August October

2. ABC BCD CDE DEF ____ EFG FEG

3. 5 9 13 17 ____ 18 21

4. 1Z9 2Y8 3X7 4W6 ____ 5U5 5V5

5. Wednesday Friday Sunday ____ Monday Tuesday

6. 119 128 137 146 ____ 155 147

7. Az9 By8 Cx7 ____ Dw6 Dv6

8. 7 12 17 22 ____ 27 25

1.3

Counting Combination

- A.** Write the combinations of the total number given. One is done for you.

 4 4 5 3	 3 3 4 2
 5 4 6 3	 2 1 0 3
 2 2 3 1	 5 5 6 4

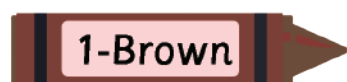


B. Use the provided hints to solve the following problems.

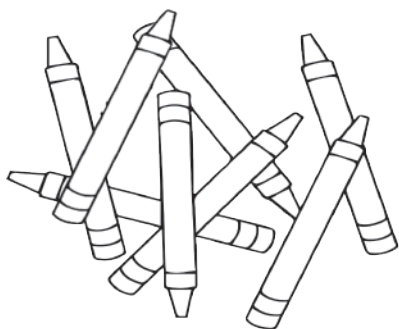
 = 10	 = 5	 = 2	 = 3
--	---	---	---

C. Use the colour code provided to colour the picture accordingly.

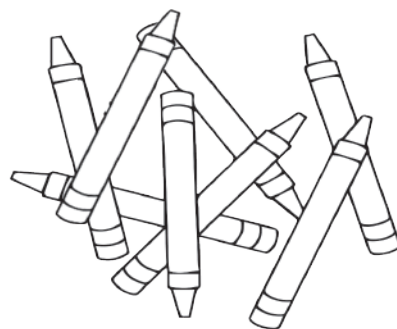


D. How many are remaining?



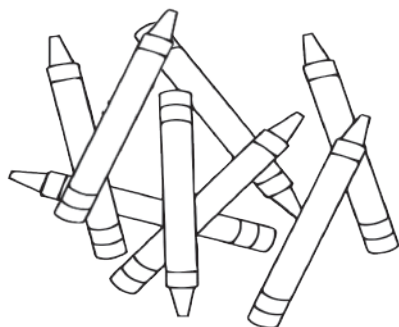
Colour 1 crayon.
How many
are left?

7



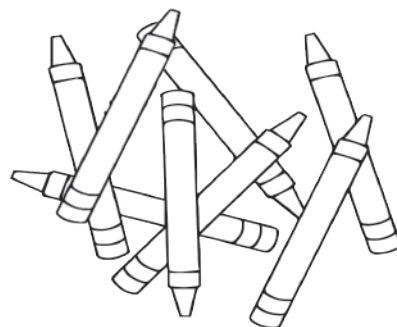
Colour 4 crayons.
How many
are left?

4



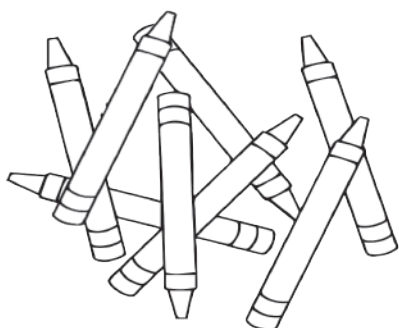
Colour 3 crayons.
How many
are left?

5



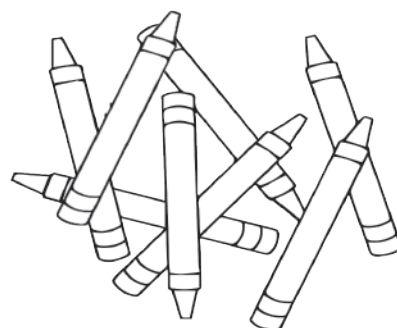
Colour 6 crayons.
How many
are left?

2



Colour 2 crayons.
How many
are left?

6



Colour 7 crayons.
How many
are left?

1

- Colour it yourself.

1.4

Word Builders

- A.** Find and mark the names of the fruits in the box. One has been done for you.

R	O	R	A	N	G	E	C	H	R	B
G	W	A	D	I	B	A	N	A	N	A
A	W	A	T	E	R	M	E	L	O	N
V	M	A	G	O	M	A	P	P	O	B
O	Q	L	R	E	A	O	M	P	E	A
C	Y	E	A	T	P	E	A	E	P	A
A	B	M	P	I	P	G	R	A	M	M
D	P	O	E	P	L	R	K	R	A	A
O	R	N	S	A	E	N	A	R	E	N
V	P	I	N	E	A	P	P	L	E	G
C	H	E	R	R	Y	X	Z	A	E	O













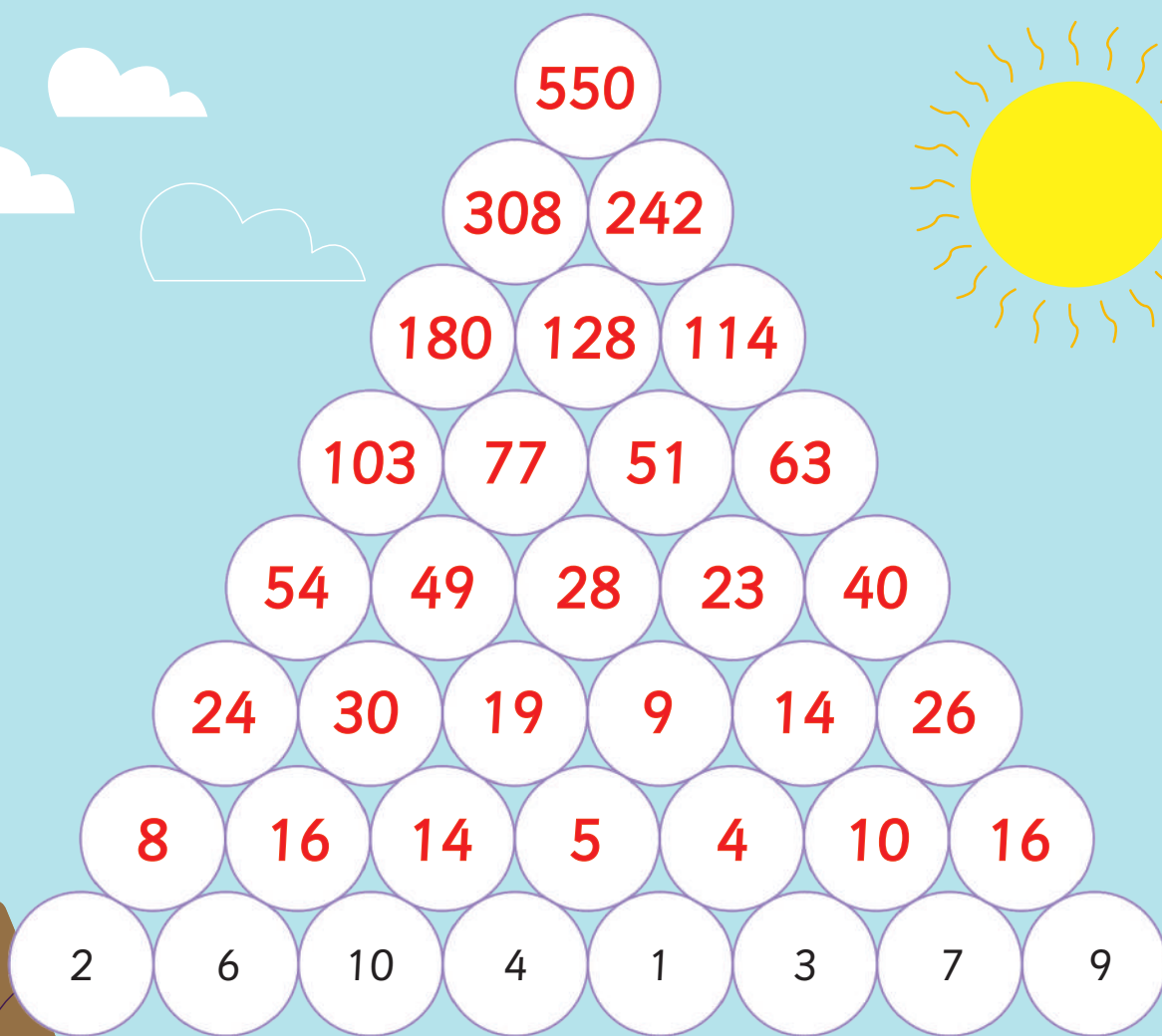
- B.** Say the name of each picture. Colour the correct letters and write the word. One has been done for you.

Picture	Colour	Write
	r a i p c t m n	rain
	k a e m v s l h	vase
	c m a o g i t e	cage
	p l f a t m l e	plate
	t y r a e o i n	train

1.5

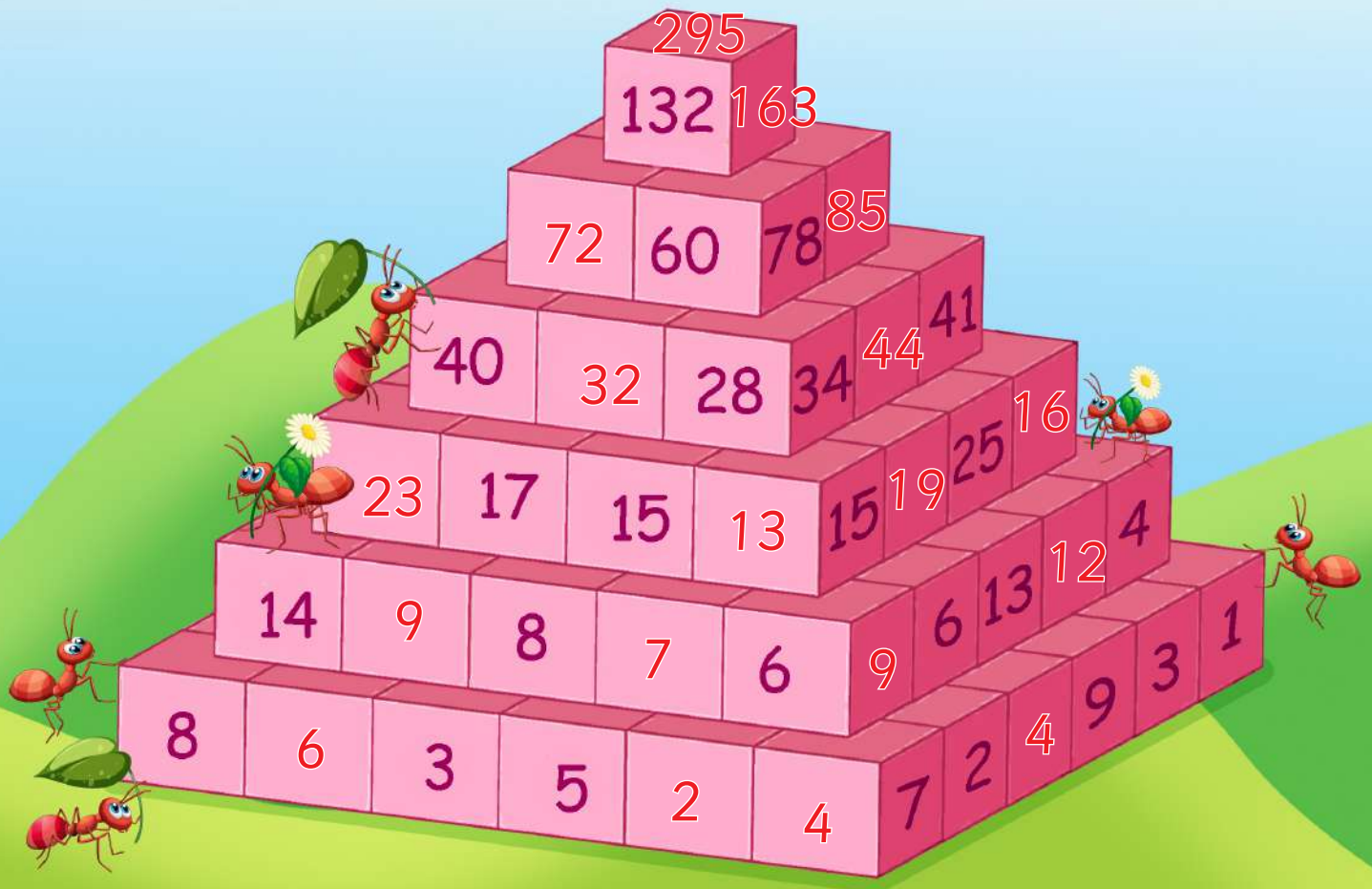
Number Pyramid

- A.** Follow the rule and help Sophie to complete the number pyramid by filling the numbers.



- B.** Help the army of ants in hopping up to the top of the blocks by completing the number pyramid block game given below.

Each number in the pyramid is the result of adding the two numbers just below it.



Coding Challenge-1

Toy Tale

Afia's toys are all messed up. Help her sort the toys according to the categories mentioned below.



1. How many toys have wheels? 4
2. How many toys are round? 2
3. How many toys have legs? 5
4. Other toys. 5

2.1

Riddle Time

A. Read the given rhythmic riddles below and answer the following.

You can tell we're back
when you hear us sing.
We build our nests
as soon as it's spring.
Who's back? **Birds**



I'm first in 'me'
And also in 'my'
I'm second in 'ear'
But not in 'eye'
I'm last in 'play'
It's easy, my dear.
These three letters
Spell a month of a year.

May

B. Solve the following riddles by guessing who they are. Write the correct number in front of the answers given below.

1. I can fly, but I have no wings.

I can cry, but I have no eyes. Who am I?

2. What's bright orange with green on top and sounds like a parrot?

3. I am always on the dinner table, but you don't get to eat me. Who am I?

4. I am the star; I am big and bright; I shine in the sky; and I heat the earth. Who am I?

5. What letter of the alphabet has lots of water?

6. We are two brothers on opposite sides of the road, but we never see each other. Who are we?

7. I am a fruit and also a bird. Guess who I am?

8. What has two ends but no beginning?

Plate

3

Cloud

1

Sun

4

C

5

Rope

8

Eyes

6

Carrot

2

Kiwi

7

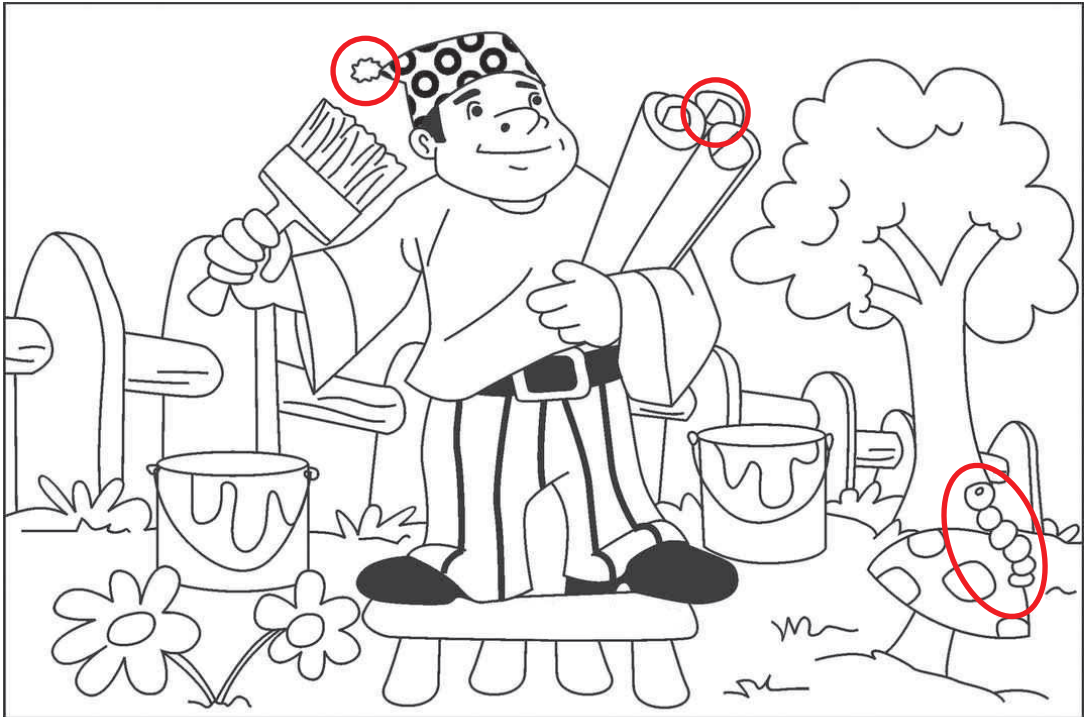
2.2

Spot the Difference

- A.** Find six differences between the two images given below and circle them.



B. Find six differences between the two images given below.



2.3

Gird Map

A grid is a collection of square-shaped lines.

- A.** Here, each square on the grid has a number and a letter. Numbers are located on one side of the grid. Letters are located at the top of the grid.

	A	B	C	D	E	
1						 Hut
2						 Ball
3						 Snake
4						 Camera
5						 Tree
						 Girl

Now, answer the following questions by using the grid.

1. What is located at E2?

Ball

2. What is located at B4?

Camera

3. Where is the girl located?

D2

4. Through which squares is the snake coming out?

A4, B3

B. Write the location of each landform by observing the following map.



Canyon



Cave



Mountain



Desert



Island



Volcano

5					
4					
3					
2					
1					
	A	B	C	D	E

Canyon **A1**

Cave **B3**

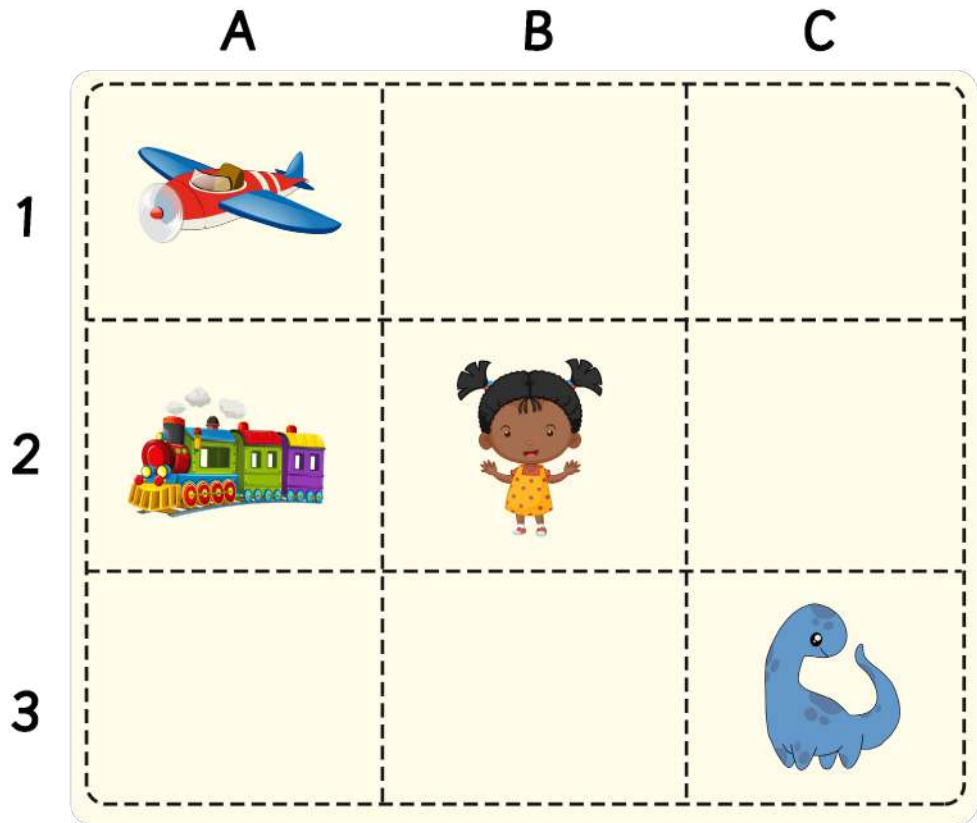
Mountain **A5**

Desert **C2**

Island **E3**

Volcano **C4**

- C. Look at the grid given below and re-arrange the things as per the instructions.



Follow the instructions and tick (✓) the correct answer.

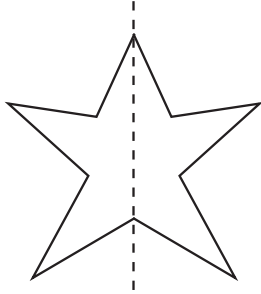
1. "Move  1 step to the left."
Dinosaur will be in block (~~B3~~ / **A3**).
2. "Move  2 steps downwards."
Airplane will be in block (~~A3~~ / **B3**).
3. "Move  2 steps to the right."
Train will be in block (**B2** / ~~C2~~).
4. "Move  1 step upwards."
Girl will be in block (**A1** / ~~B1~~).

2.4

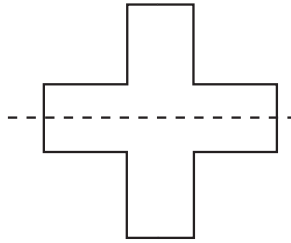
Symmetry

A. Draw a line of symmetry on each shape.

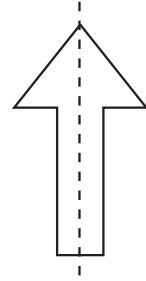
1.



2.

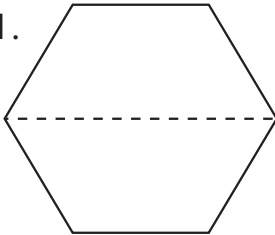


3.

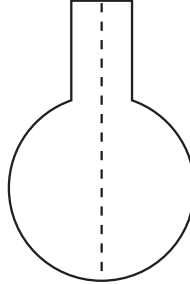


B. Draw the other half of each symmetric shape.

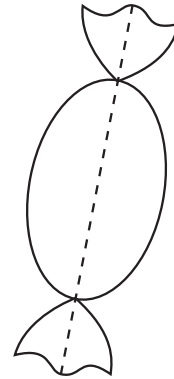
1.



2.



3.



2.5

Wonder Maze

- A. Fafa wants to play badminton. Help her reach the badminton court.



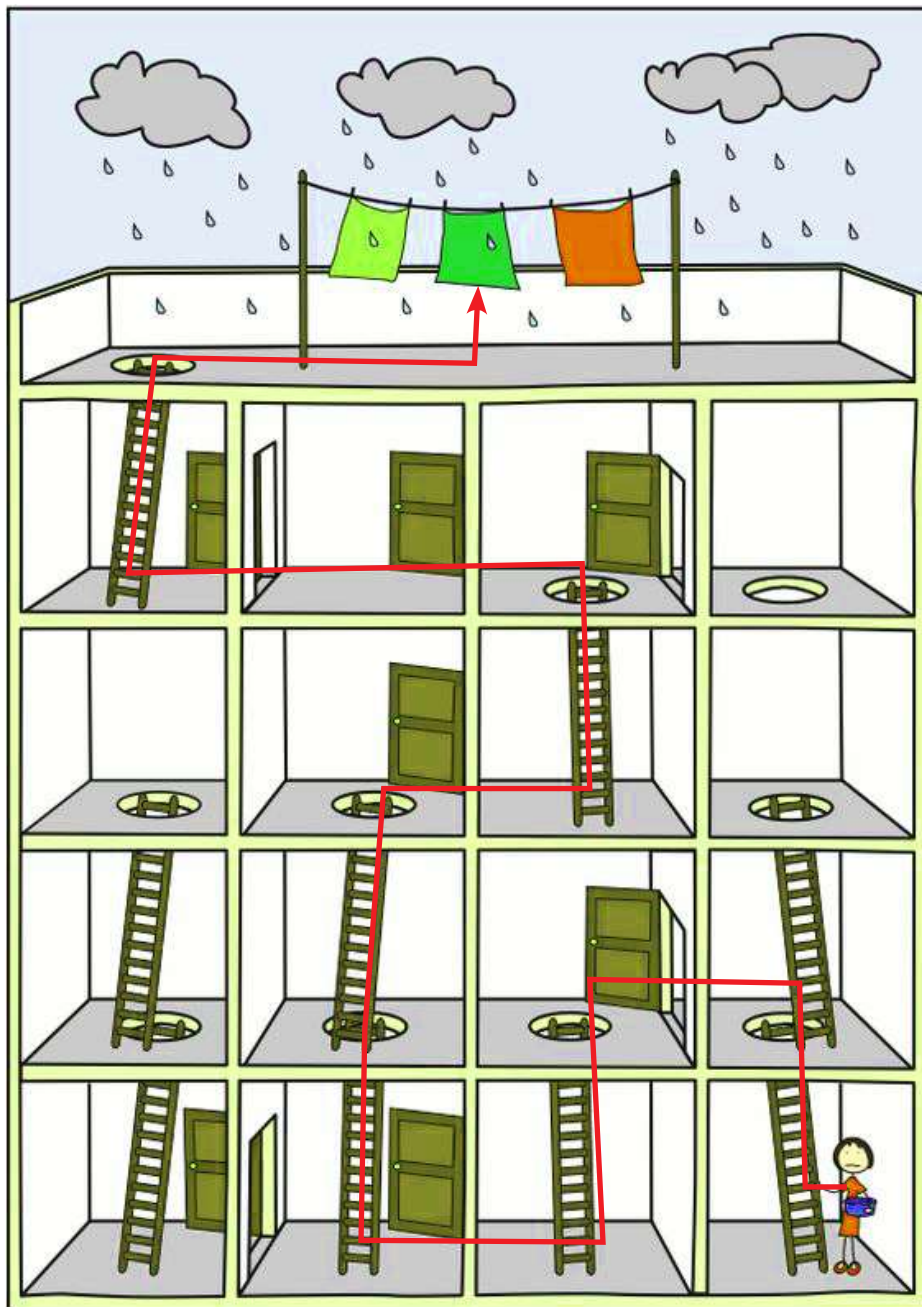
B. Help Bunny find its home.



Coding Challenge-2

Escape Room

Clothes are getting wet in the rain. Help the lady climb up to the terrace to collect all the clothes.

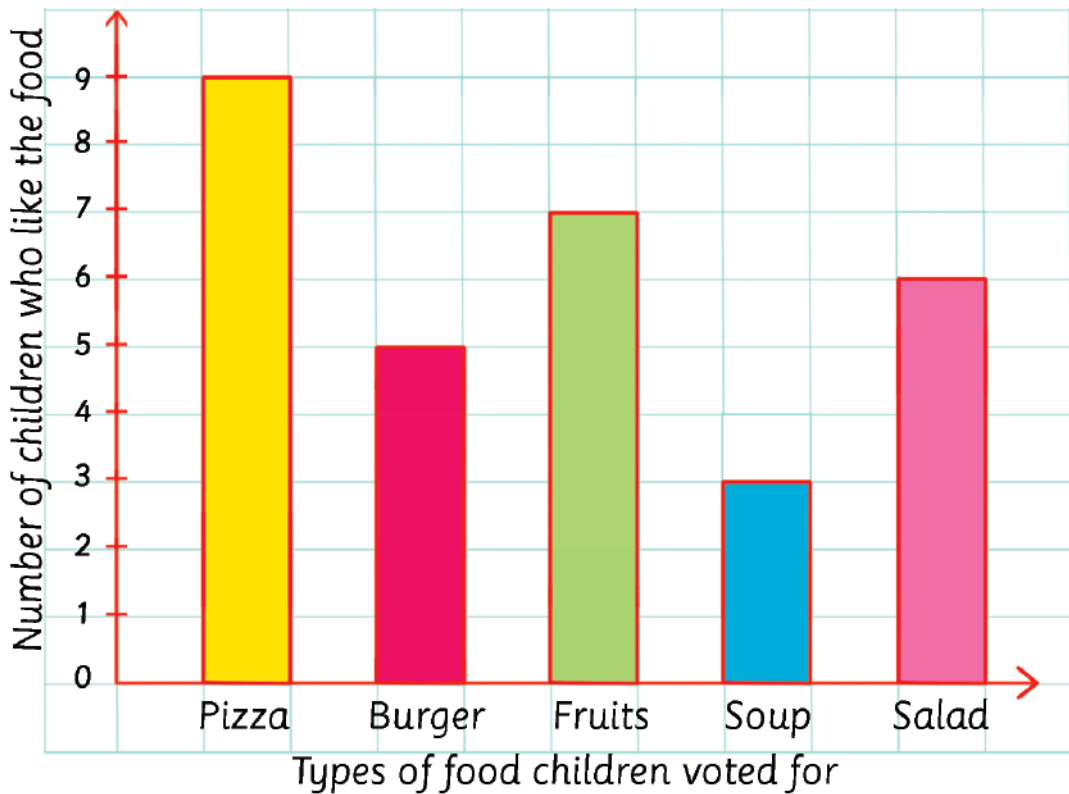


3.1

Representing Data

There are various ways to represent data.
Let us learn how to represent data using graphs and tables.

- A.** Study the data on the graph and answer the following questions.



- How many children like fruits?
- The number of children who voted for pizza.
- Which food is liked the least?
- Which food do five children like?
- How many more children like pizza than burger?

7

9

Soup

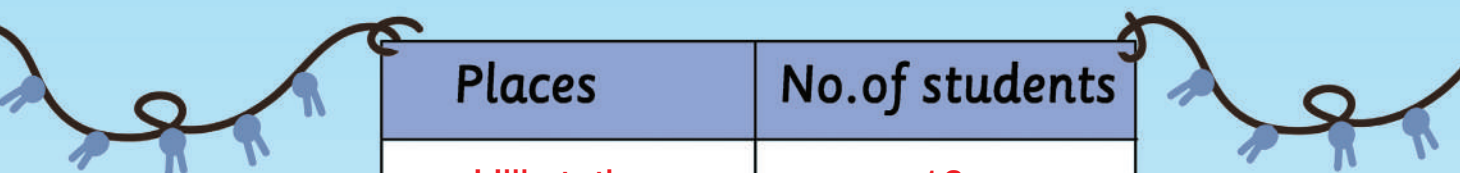
Burger

4

- B.** The table represents the students' visits to different places during the summer vacation. Arrange the given data in descending order.



Places	No.of students
Hill station	16
Village	7
Water park	12
Zoo	6
Nowhere	9



Places	No.of students
Hill station	16
Water park	12
Nowhere	9
Village	7
Zoo	6



3.2

Symbolic Representation

Using symbols is an intelligent way of providing any type of information.

A. Look at the symbol/sign boards and write their correct names using the help box given below.

No Parking School Zone U-turn
Right turn Toilet Stop



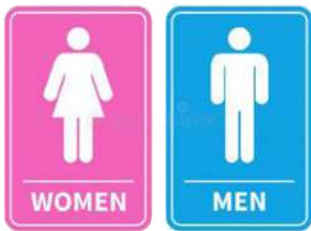
Right turn



U-turn



No Parking



Toilet



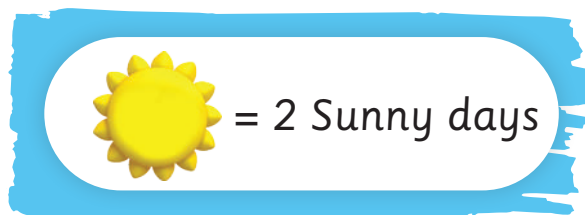
Stop



School Zone

- B.** Look at the table given below and answer the following questions.

Month	Sunny Days
April	  
May	    
June	      
July	     
August	    
September	   



- How many days were sunny in May?
Ans. 10
- How many days were sunny in July?
Ans. 12
- Which month had the MOST sunny days?
Ans. June
- Which month had the LEAST sunny days?
Ans. April
- Which two months had the same number of sunny days?
Ans. May and August

3.3

Deciphering

- A.** Ama stumbled upon a treasure box, but she must decode a specific code to open it. Join in and assist her by using the provided clue.



Look at the given clue:

&	!	#	...	@	%	^	*	\$
A	C	P	J	R	I	S	F	K

What is the code word to unlock the treasure box?

S

P

A

R

K



The code is:

^

#

&

@

\$

- B.** Use the code box to write the letters above the numbered spaces below:



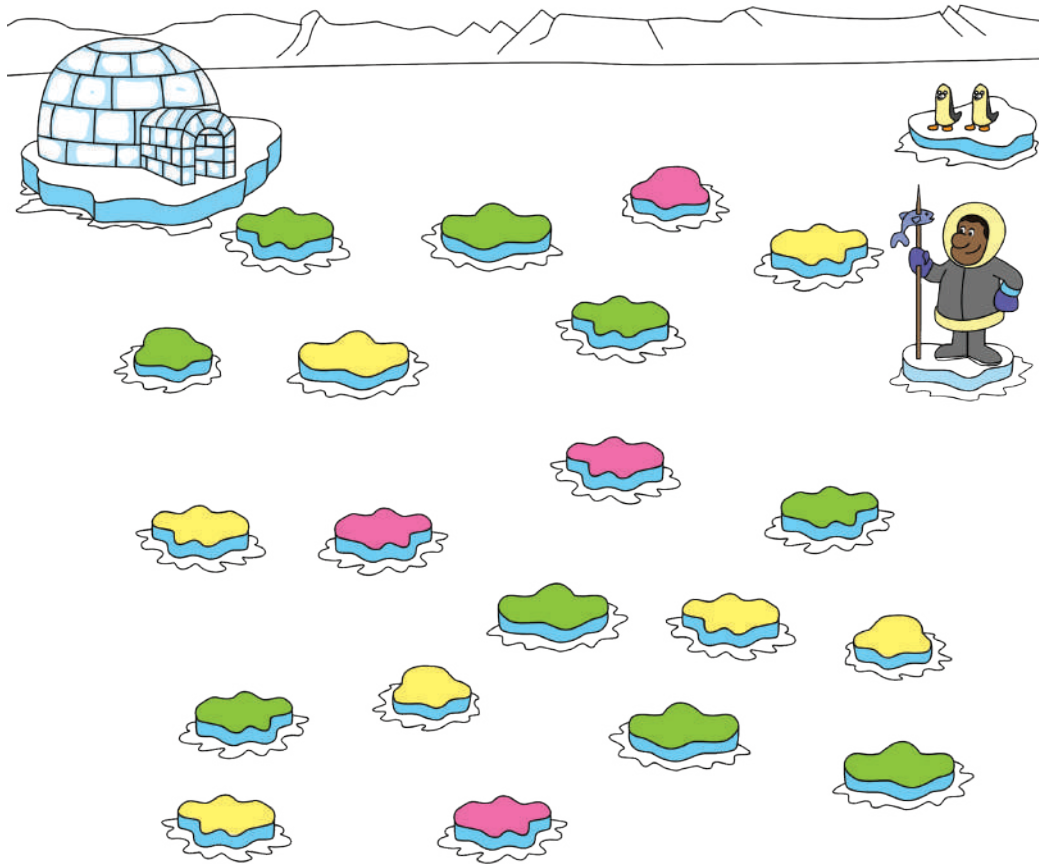
A	D	E	F	H	I	L	M	N	O	R	S	T	U	W	Y
⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠

1.	<u>F</u>	<u>R</u>	<u>I</u>	<u>D</u>	<u>A</u>	<u>Y</u>			
	⠠	⠠	⠠	⠠	⠠	⠠			
2.	<u>T</u>	<u>U</u>	<u>E</u>	<u>S</u>	<u>D</u>	<u>A</u>	<u>Y</u>		
	⠠	⠠	⠠	⠠	⠠	⠠	⠠		
3.	<u>S</u>	<u>U</u>	<u>N</u>	<u>D</u>	<u>A</u>	<u>Y</u>			
	⠠	⠠	⠠	⠠	⠠	⠠			
4.	<u>M</u>	<u>O</u>	<u>N</u>	<u>D</u>	<u>A</u>	<u>Y</u>			
	⠠	⠠	⠠	⠠	⠠	⠠			
5.	<u>W</u>	<u>E</u>	<u>D</u>	<u>N</u>	<u>E</u>	<u>S</u>	<u>D</u>	<u>A</u>	<u>Y</u>
	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠
6.	<u>S</u>	<u>A</u>	<u>T</u>	<u>U</u>	<u>R</u>	<u>D</u>	<u>A</u>	<u>Y</u>	
	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	
7.	<u>T</u>	<u>H</u>	<u>U</u>	<u>R</u>	<u>S</u>	<u>D</u>	<u>A</u>	<u>Y</u>	
	⠠	⠠	⠠	⠠	⠠	⠠	⠠	⠠	

Coding Challenge-3

Ice Bergs

The ice bergs with green colour can hold 1 man or 2 penguins.
The ice bergs with yellow colour can hold 2 penguins only. The
ice bergs with pink colour are very weak and can take only 1
penguin.



1. On how many ice bergs can the man stand?

Ans. 9

2. How many ice bergs can hold only 1 penguin?

Ans. 4

3. How many ice bergs can take the weight of 2 penguins?

Ans. 16

4.1

Sequence of Steps

A. Help Latif get ready for the school. Complete the steps taking hints using the help box given below.

Step: 1

Wake up early in the morning.

Step: 2

Brush your teeth and take a bath.

Step: 3

Put on your uniform neatly.

Step: 4

Have your breakfast properly.

Step: 5

Set your bag.

Step: 6

Leave for the school.



Help Box

set, teeth, wake up, breakfast, bath, school, uniform



- B.** The teacher wants the learners to plant a garden in the school. Look at the following steps and number them according to a logical sequence which the learners must follow in order to complete the task.

Dig small holes in the soil and put the seeds or seedlings inside.

Step: 5

Cover them with soil and water gently.

Step: 6

Choose a good spot for the garden with sunlight and good soil.

Step: 1

Prepare the soil by removing weeds and rocks.

Step: 3

Decide which plants or seeds to grow based on the weather and season.

Step: 2

Get the seeds or seedlings from a store or garden center.

Step: 4

Note

By following these 6 steps, you can plant a garden and enjoy watching it grow! Remember to take care of your garden by watering it regularly and removing any weeds that grow.



4.2

Algorithm

- A.** Write an algorithm by completing the steps to find the difference between two numbers.

Step 1 Start

Step 2 Read two numbers (input)

Step 3 Subtract two numbers

Step 4 Print the difference (output)

Step 5 End

- B.** Fill in the blanks by taking hints from the box to complete the given algorithm.



Help Box

back
mouth
brush
finish
toothpaste
wash

Step: 1 Start

Step: 2 Wake up

Step: 3 Wash mouth

Step: 4 Wash brush, apply toothpaste

Step: 5 Brush your teeth

Step: 6 Wash mouth and brush

Step: 7 Put brush back to holder

Step: 8 Finish

- C. Given below is the summer camp weekly activity routine for the learners. Read the table carefully.

Days	Activities
Day 1	Painting
Day 2	Swimming
Day 3	Dancing
Day 4	Sports
Day 5	Singing
Day 6	Reading
Day 7	Cooking

Now, arrange the steps of algorithm according to the given table.



4.3

Understanding Programs

- A.** Jantua arranges his books in the bookshelf according to the steps written in the given program. Fill in the missing blanks by looking at his bookshelf arrangement to complete the program.

- Step 1** Put Mathematics book in the middle shelf.
- Step 2** Put Grammar book **above** Mathematics book.
- Step 3** Put **Dictionary** below Mathematics book.
- Step 4** Put Art & Craft book to the **right** of Dictionary.
- Step 5** Put Bedtime Story book above **Art & Craft** book.
- Step 6** Put **Science** book above Bedtime Story book.
- Step 7** Put **English** book to the left of Grammar book.
- Step 8** Put **Atlas** below English book.
- Step 9** Put **Drawing** book to the left of Dictionary.



4.4

Decision Making

- A. Nana's father has set the following rules for him to play video games.

Rules for Nana

if (he finishes his chores and homework)
then
play video game for 45 minutes
else (if he finishes his homework)
play video game for 25 minutes
else
no playtime for him!



Help Nana's father circle the correct answers.

	Monday	Tuesday	Wednesday	Thursday
Homework	✓	✓	x	x
Chores	✓	x	✓	x
Play Video Game	25 Min / 45 Min	25 Min / 45 Min	25 Min / No Video Game	45 Min / No Video Game

4.5

Loop: Programs

- A. Observe the image of the Robo climbing up the staircase. Read the given program pattern to help him climb up the stairs.

PROGRAM

Right leg up

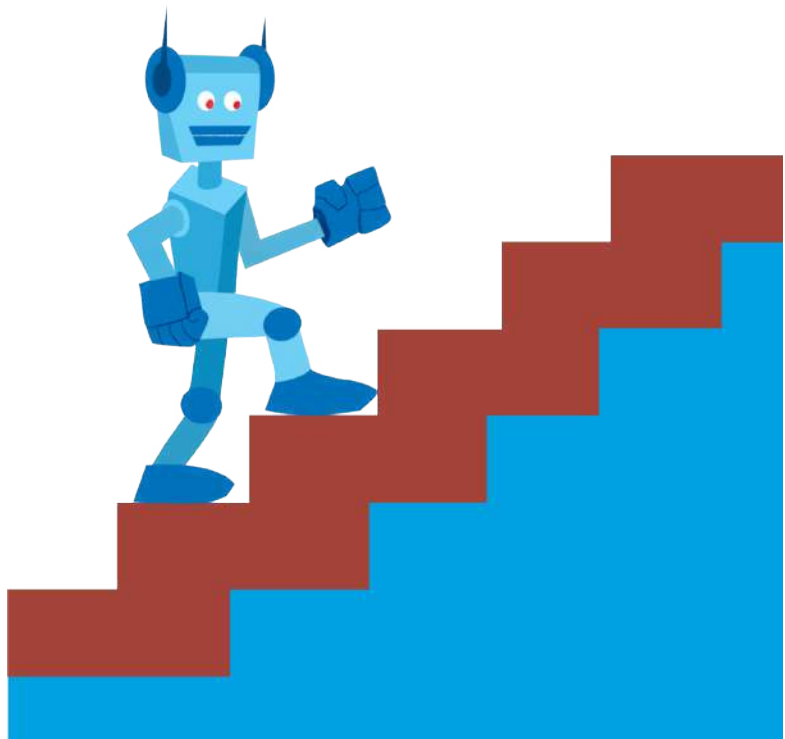
Forward

Down

Left leg up

Forward

Down



He is currently positioned on the second step. How many times must the pattern be repeated for him to reach the top?

The pattern must be repeated 2 times for the robot to reach the top.

- B.** Alice attends various extracurricular classes each day of the week. The chart below displays her class sequence from Sunday to Thursday, and the entire sequence repeats after Thursday.



Observe the chart and answer the following questions:

1. Which class did she attend on Wednesday this week?

Golf class

2. Which class will she attend on Friday?

Tennis class

3. Which class will she attend next Sunday?

Golf class

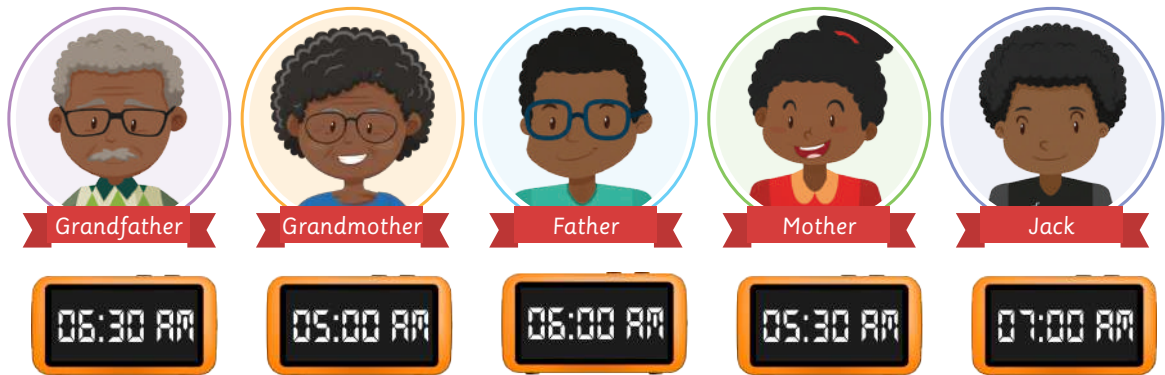
4. Which class will she attend next Tuesday?

Tennis class

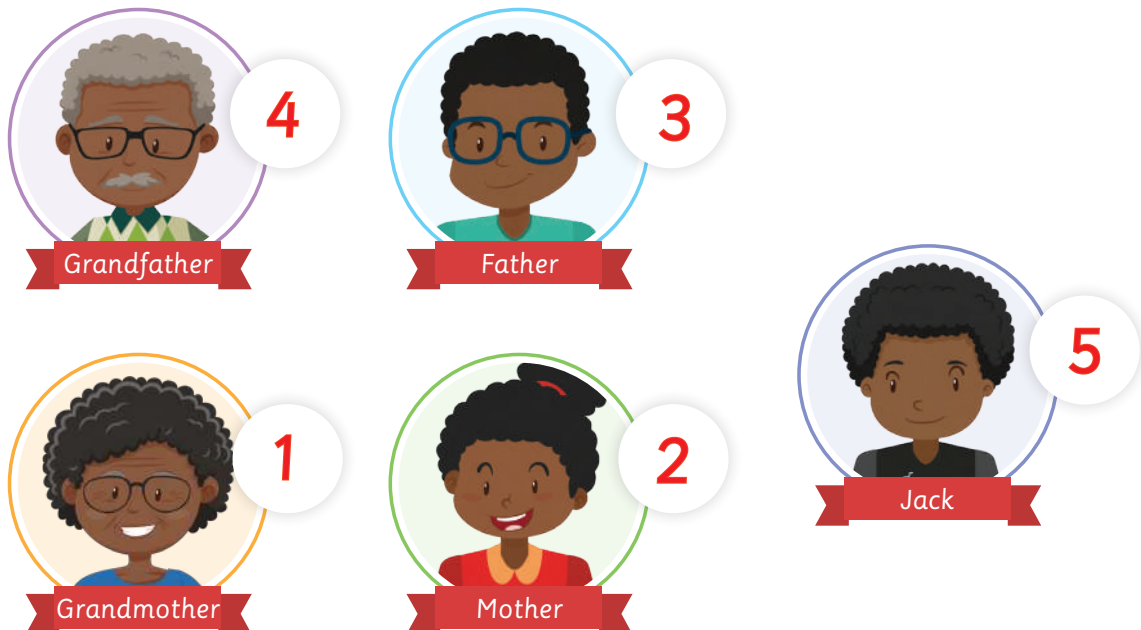
Coding Challenge-4

Wake up routine

Look at the illustration given below:



Observe their wake up routine and write numbers 1 to 5 in ascending order considering 1 for the person who wakes up first.



ESSENTIAL CODING

Basic 4

Facilitator's Guide

In today's fast-changing digital world, coding is more than just using computers — it is about **thinking, reasoning, and problem-solving**.

The **ESSENTIAL Coding Basic 4 Facilitator's Guide** is designed to support teachers in delivering coding concepts effectively, even before learners begin programming on computers.

The **ESSENTIAL Coding Basic 4 Facilitator's Guide** provides:

- Clear, step-by-step teaching support for every lesson
- Structured lesson delivery with guided teacher–learner interaction
- **Coding Link** sections that explain how each activity connects to real coding
- Strong focus on computational thinking and problem-solving
- Classroom-ready strategies for engaging young learners
- Progress tracking and assessment support

This guide helps teachers understand that:

- Coding starts with thinking, not typing
- Every activity builds coding skills
- Learners are already “coding” when they count, follow steps, recognise patterns, and make decisions

Through this approach, teachers confidently guide learners to **think like programmers from an early stage**.

With clear instructions, reinforcement strategies, and practical examples, this guide transforms lessons into:

- Interactive learning experiences
- Logical thinking development
- Structured problem-solving sessions

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They are building **future coders and critical thinkers**.



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