

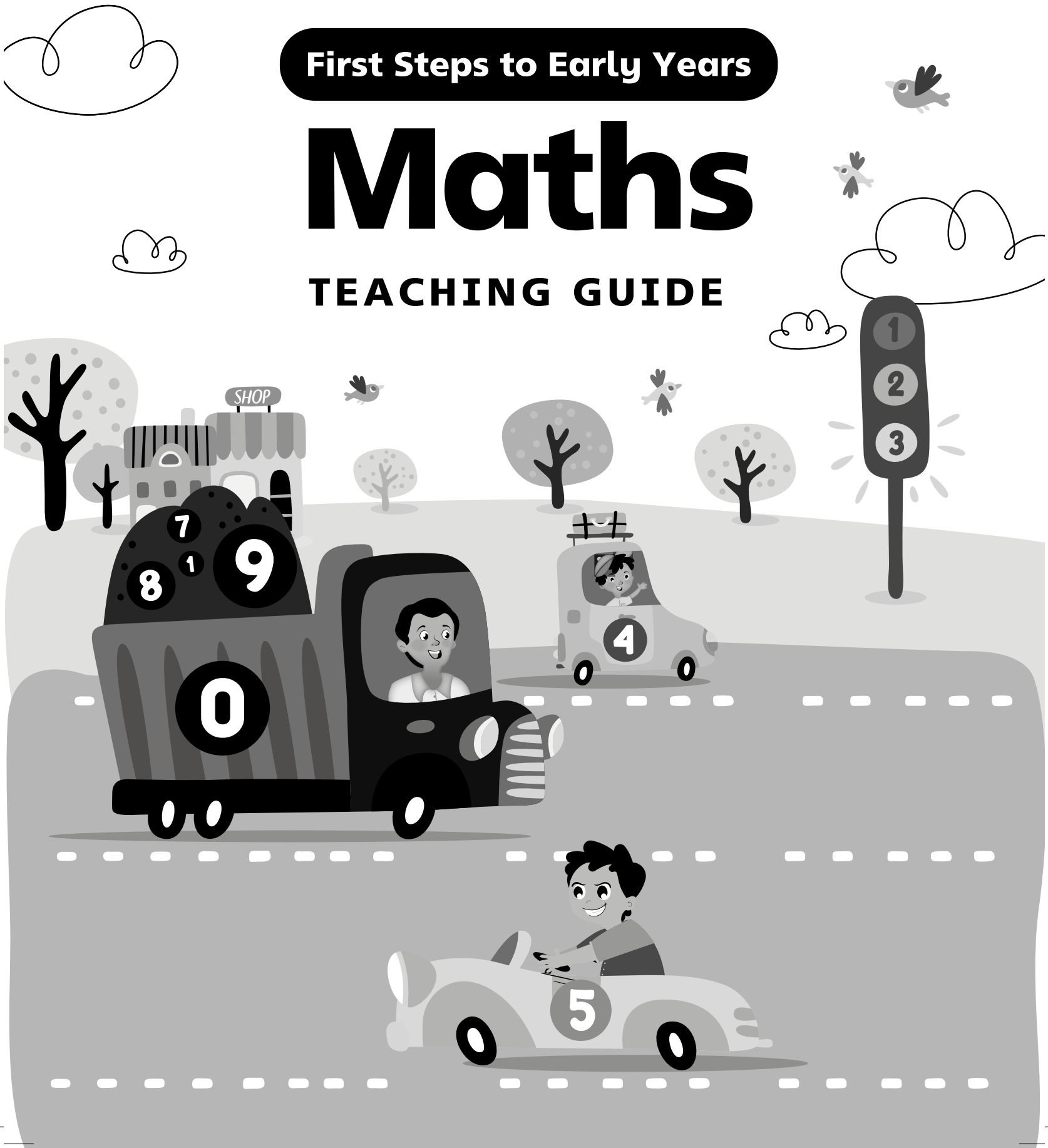
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Level 2

First Steps to Early Years

# Maths

TEACHING GUIDE



**Title Verso**

# Introduction

## Introduction to the Series

First Steps to Early Years (FSEY) series covers the fundamental aspects of early years learning driven progressively by a range of learning outcomes for young children according to their diverse interests and learning styles. The books in this series follow a holistic learning approach focusing on Key Learning Areas (KLA) such as language development, key mathematical concepts, personal, social and emotional development, creative arts, physical development, health, hygiene and safety, and the world around us. They emphasise on the development of the children's knowledge and understanding of the environment, along with their imagination, helping them effectively engage and communicate by using language in creative ways. The books aim to help make the transition to the primary levels easy for the young learners.

## Introduction to the Book

First Steps to Early Years Maths contains a wide variety of activities suitable for early years teaching. The book primarily focuses on developing basic mathematical concepts to enable children to think logically and make them life-long learners. The book houses several thought-provoking tasks, in a fun, enjoyable experience. Tasks are designed keeping in mind the age and cognitive development of the young learners.

## Structure of the Teaching Guide

First Steps to Early Years Teaching Guide serves as a holistic guide by providing wide-ranging planning of each Unit. The aim of the teaching guides is to make the job of teachers easier. The Teaching Guide also helps the teachers in setting up their classrooms, maintaining vocabulary walls/soft boards, creating and maintaining resources (such as flash cards). Teaching guides also contain explanation for concepts so the teachers will not have to spend time coming up with different ideas. The Guide contains exercises which can be used for the introduction and reinforcement of concepts.

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# Health, Nutrition, and Safety Checklist

This checklist provides a guidance for teachers and school administrators to set up an ideal environment for young learners. Following the checklist at the beginning of the year can make one well prepared for the entire academic session as well as keep the educators well-informed about their students. The checklist can be adapted as per the need and requirements of the school/individual.

## Health

- Ask ahead about any specific allergy that any child may have.
- Check students' record files for any medical issues or history mentioned.
- Develop a students' profile for all children to observe their needs and requirements.
- Classroom is well-lit, however, there should be some source of natural light coming in.
- Classroom is properly ventilated or has adequate sources of air.
- Classroom's temperature is suited for toddlers—not too warm or too cold.
- Classroom is cleaned every day; and ensure that it is dust and germ-free.
- Classroom is not located in or around a noisy area.
- Classroom is situated at the ground floor, to avoid any hazards.
- Fixed dispensers of hand sanitizers should be accessible to the children.
- No hot beverages to be allowed in class.
- Waste paper baskets are covered, and garbage bags changed every day.
- Children wash their hands after eating, playing outside, and after using the washroom, etc.
- Teachers and staff who spend time with the children must maintain a healthy and clean attire.
- Ensure toilets and washrooms are always clean and equipped with all cleaning materials, for example, hand wash and disposable wipes.
- Liquid soaps to be used instead of soap bars.
- Paper towels are present in the washrooms at all times.

- Classes are insect-free—ensure that pest control is carried out before the session begins.
- A sick room with a trained nurse and nanny is present on the premises.
- The sick room is clean and equipped with a bed, spare sets of clothes, separate washroom, medical first aid equipment, etc.
- Immunization records are taken from the parents.
- Sand pits (if present) are regularly cleaned.
- Adequate physical activities are part of the school routine.
- Create awareness of good touch and bad touch regularly.
- Nails are trimmed and clean, hair is free of lice, the clothes and undergarments are clean.
- Children are getting proper amount of sleep.
- Children have healthy relationships with their parents.
- Grab bars in washrooms.

## **Nutrition**

- Awareness sessions for parents on healthy nutrition for their children.
- Weekly meal plan is shared with parents—the prescribed food items should be easily available.
- Children’s preferences and cultural backgrounds are also included in the meal plans.
- Weekly meal plan has a balanced diet—fruit, vegetable, milk, protein, and carbs are present.
- Junk/fried and processed food are not allowed.
- Portion size of food is according to the child’s needs.
- Food is cut up into pieces to avoid choking.
- Lunch/snack time is scheduled at a suitable time.
- Appropriate snacks and water are available in case any child gets hungry or if they do not prefer the lunch they have.
- Water breaks during class to ensure proper water intake.
- Drinking water is at an adequate temperature, so the children are not drinking cold water.
- Discourage excess sugar/salt intake and sugary drinks.

- Children do not bring or eat betel nuts (*chalia*), etc.
- Emphasise on the importance of having breakfast regularly.
- The food that the children have is in edible condition (not expired).

## **Safety**

- First aid kit is present in class and the smoke/fire alarm is in working condition.
- Low-rise furniture with rounded corners is present in class.
- No nails are protruding out of the furniture.
- Classroom's floor is carpeted.
- Power sockets are out of reach of the children.
- Electricity cables are secured properly and are covered.
- Windows have childproof locks and are out of reach of the children.
- Lunch area is separate from class area and is covered with plastic spread.
- Children have aprons on while eating and during art activities.
- Children use round-tip safety scissors with adult supervision.
- Adults (support/cleaning staff) are present in the bathrooms for cleaning, assistance, and monitoring the children.
- Parents' contact information is up-to-date in case of emergencies.
- Exit plans are pasted on the classroom door.
- Safe practices are displayed as a poster and discussed in class.
- Dispersal time is well organised and teachers are on duty.
- Fire drills and evacuation drills are carried out on a regular basis.
- Playground is child-friendly, safe, and garbage free.
- The child feels safe to approach you, talk about incidents, and share their feelings.

# Setting Up The Classroom

## Maths Vocabulary Wall

Words and terminology related to mathematical concepts should be chosen from within the book. The teacher may write words and terminology for each topic on pieces of construction paper and pin them on a soft board. The teacher is requested to update the maths vocabulary wall for each Unit. The piece of paper should be big enough to contain words in big letters. Teachers are requested to ensure that the height of the vocabulary/terminology pasted should be as per the average height of the children in class. The words must be visible and readable to every student.

**Note:** Teachers may use masking tape/paper tape for pasting purposes.

- **Soft Board**

If teachers do not want to paste vocabulary words on the wall, then they may use a soft board and pin up the words and pictorial references on it. They may update the soft board weekly or as per the current topic.

- **Seating Plan**

If you have circular tables for children to sit, then make sure that each table has four to five children seated. If you have squared tables, then place four tables together, forming a square. This will encourage the children to bond together and work in groups.

- **Creating Learning Corners (Goshay)**

As per the Single National Curriculum, children need opportunities to explore their surroundings. Designated areas or learning corners can be used for specific activities and storage of classroom equipment for an effective learning environment. This also inculcates the habit of organisation and establishes discipline in the child from a young age. Learning corners encourage children to work independently and in a natural manner.

Learning corners need to be separated from each other. It is also advised to place low shelves or big cartons (so a toddler may reach its contents). The corners may store: books, toys, flashcards, etc.



- **Language Corner:** This corner should be equipped with material related to increasing vocabulary and learning reading skills.
- **Library Corner:** This corner should be set up to promote the reading habit and to learn how to care for and value books.
- **Art Corner:** This corner provides children with opportunities for creative expression.
- **Math Corner:** Appropriate materials for the Math corner include objects that will help children grasp the basic Math concepts of size, shape, width, classification and number, through direct experimentation.
- **General Knowledge (Science) Corner:** This corner should provide children with opportunities for observation and experimentation to understand the world around them.
- **Home Corner:** The home corner should reflect the cultural background of the children with items such as various kitchen utensils, clothes, small furniture, and dolls. It can also later be transformed from a kitchen into a shop, clinic, or an office.

The Learning Corners should be organised with Key Learning Areas and Expected learning outcomes, so that the children can experiment with concepts and skills that have been introduced by the teacher.

## Daily Routine

Young children need the comfort and security of a daily routine. A daily routine provides a consistent, predictable sequence of events that gives the children a sense of control over what they will be doing during the day. To make the best use of the time, create and maintain a schedule. Daily routine helps the children learn about sequence, discipline, organisation, and time limit.

# Lesson Plans

There is no rigidity in terms of time limit for the following instructions. Teachers should observe and work with the flow and speed of the children. Children must be able to work independently with ease and confidence, only then is the teacher advised to move forward with the lesson. The following notes are provided as a resource material.

## Making Teaching Resources

How to maintain flash cards

Suggestions for teachers as to how they can preserve and save their flash cards (resources) for any future use. For example:

- Hard laminations: Alphabets and their pictures (for example: A a with an apple or an ant) can be laminated at the start of term and may be used throughout the academic year. If kept properly, they can be used in the next academic year as well.
- Soft laminations: Teacher may cover seating arrangement charts or vocabulary words so that they may be used for a longer period of time, with a plain plastic sheet. They can tape it with paper tape or pin it with a stapler at the back of the classroom.
- How to make a mini whiteboard (DIY) ? If you do not have mini whiteboards available, you may cut white card sheets and get them hard laminated at the beginning of the school year. They will serve as mini whiteboards. One card sheet may result in at least six mini whiteboards. In this manner, you may have as many mini-whiteboards as the number of children in your class.

# **Unit 1 : Patterns and Tracing**

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- complete pre-writing exercises by following the arrows and drawing different types of patterns
- show a competency in drawing patterns by following the dotted lines
- show an understanding of the purpose of arrows and starting dot while drawing patterns
- have improved hand/eye coordination and fine motor skills

Lesson 1 (pages 2-3)

Tracing Dotted Lines (in Zigzag Patterns)

## **Materials required**

- large A4 sheets and colour pencils
- crayons/pencils
- chart paper and display board/chalk board
- board marker/chalk
- clean dry sand
- sand trays (old shoe box, cake pans, or plastic trays can be used to make sand trays)

## **Pre-activity preparation**

On the board present in the class or on any other large surface (such as on chart paper on the display board) which is clearly visible to all the children, draw the zigzag patterns given on the page with dotted lines. Draw sufficiently large patterns that the children can easily view them from a distance. Make sure to add the arrows to indicate direction of the pattern, and the red dot (can be shown as a large circular dot) to indicate starting point.

## **Introduction**

Draw the attention of the children to the patterns drawn on the board/display. Explain to them how the children will use pencils to trace the dotted line upon the patterns given within their student's book. Use a finger to first trace over the

pattern drawn on the board, and then use a board marker on top to trace the pattern again for the children's revision.

This is a good opportunity to introduce the words 'left' and 'right' as well as 'up' and 'down' in the vocabulary of the children, while tracing the zigzag patterns on the board. Say the words out loud, and allow the children to repeat each word.

It is necessary to explain to children not only the concept of tracing a pattern, but also the importance of the red dot as a starting point, and the arrows to indicate the direction in which the pattern must be made. If possible, allow the children to come up to the board and indicate where they think each pattern should start from, and in which direction (left or right, up or down) it should go.

**Sandbox activity:** Introduce the sand trays filled with clean dry sand to the children. Demonstrate to the children how they can imitate the patterns that they write on the page on the sandbox using their fingers. Encourage children to trace patterns on the sand box with their forefinger first. Pay attention that the children are designing the pattern correctly. Make large grooves in the sand (as a replacement for the red dot) and then ask the children to identify where they think the pattern should start from.

**Pre-writing activity:** Before beginning work on the page with the children, allow them to spend time with large A4 sheets and colour pencils to check whether they are able to grip a pencil correctly. The children are welcome to draw freely whatever they want, in order that the teacher can check and correct their grip, and help them grip the pencil correctly for smooth writing.

### **Student's book activity**

Seat each child with a copy of his/her student's book and a crayon, once the pre-writing activities have been completed.

Before they begin the activity, ask them whether they can find the red dot before each dotted line. Demonstrate where the red dots are on the patterns drawn on the chalk board/display board. Next, ask them where the arrows are, and what they indicate.

Once all the children are able to comprehend what they have to do, allow them to trace the dotted lines on the page in the patterns drawn.

In case children are not able to trace the straight lines properly, allow them to go back to the pre-writing exercise for further practice before they move on with working on the student's book.

## Recapitulation

Ask the children the purpose of the red dot and the arrows. Draw random patterns on the board with arrows pointing in different directions and see if children can indicate the correct direction in which they should be tracing.

Use the colourful illustration given on the page as a discussion starter with the children. Ask the children to think of other things that they could draw in straight lines. Allow the children to think of as many things as possible.

Lesson 2 (page 4)

Tracing Curves (Help the Rabbit Reach the Carrots)

## Materials required

- chart paper and display board/chalk board
- board marker/chalk
- large open ground area/empty classroom space
- old boxes/tyres
- crayons/pencils

## Pre-activity preparation

On the board or on any other large surface (such as on chart paper on the display board) which is clearly visible to all the children, draw the curved dotted lines given on the page. Make sure to add the arrows to indicate direction of the pattern, and the red dot (can be shown as a large circular dot) to indicate starting point.

Within the classroom, create some empty space by pushing the tables and chairs to the corners. A large open area outside can also be used if available where it is easier to write on the ground.

With a chalk, draw a lot of lines going in different directions so that children can walk on them. Try to create a curved route from one end to the other, also creating more than one possible route (with a few dead ends also present). Place old boxes and tyres at a distance from each other over the traced path to create obstacles that the children must jump over to complete the course. Make sure all safety precautions are taken into consideration so that the children do not hurt themselves while walking upon the drawn lines.

A starting and ending point must be marked clearly to help the children to understand which direction to walk in, as well as to clarify the concept of beginning and end points.

## Introduction

Give the children some time to observe the contents of page 4 before starting the discussion. Talk about the curved path present on the page. If possible, construct a narrative around the main character (rabbit) to help increase the interest of the children in the activity.

Once the children have studied the curved line, draw their attention to the pattern drawn on the board/display. Explain to them how the children will use pencils to trace the dotted line upon the pattern given in the book. Use a finger to first trace over the pattern, and then use a board marker on top to trace the pattern again.

**Tracing in the air:** Introduce the concept of curves to the children by bringing their attention to the path drawn on the ground. Give children the time to understand the difference between a straight line and a curve. Trace the pattern with a finger first in the air to demonstrate the difference. Then ask the children to raise their fingers in the air and follow the pattern themselves.

**Pre-writing activity:** Before beginning work on the page with the children, allow them to come up to the board and trace the patterns drawn. Encourage them to use their forefinger for this activity.

**Obstacle course:** With the lines drawn on the ground, ask the children to move from a starting point to an end point, giving instructions for how to navigate over the obstacles placed on the path. Let the children take turns to complete the course, and encourage them to work in harmony and cooperation. Ensure that an adult is always present to assist the children if they are having troubles with passing over an obstacle.

## Student's book activity

Seat each child with a copy of his/her student's book and a pencil, once the pre-writing activities have been completed.

Before they begin the activity, ask them whether they can find the red dot before the dotted line. Next, ask them where the arrows are, and what they indicate.

Once all the children are able to comprehend what they have to do, allow them to trace the dotted lines on the page in the pattern drawn.

In case children are not able to trace the curve properly, allow them to go back to the pre-writing exercise for further practice before they move on with working on the student's book.

## Recapitulation

Show children the patterns drawn on the board and ask them whether they can understand the significance of the red dot and the arrows. An option is also to ask the children to raise their forefinger and trace curves in the air again.



## **Unit 2: Classification**

### **Expected learning outcomes**

By the end of the unit, children will be able to:

- identify different colours, and be able to locate things of that colour in their environment
- connect certain colours to certain numbers and fill in a black and white illustration per number
- classify different objects according to their size, length, and quantity

Lesson 1 (pages 5–9)	Colours
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### **Materials required**

- fruits, vegetables, toys, blocks, clothes, stationery, buttons, beads, etc. (of the basic colours taught in this chapter)
- baskets/shoe boxes
- colour pencils/crayons
- chart paper and scissors
- chalk board and chalk OR board and board marker

### **Pre-activity preparation**

Ask children to bring objects of different colours (specifically orange, purple, brown, and pink) to class with their parents' permission. You can share a written note explaining exactly what topic is being taught in class. These items can include toys (like cars, blocks, etc.), clothing items, eatables (like fruits and vegetables) stationery items (pencils, crayons), or household items (buttons, beads, etc. of a sufficiently large enough size to not be a danger to young children in terms of accidentally swallowing any of them). Ensure that each item is tagged with the child's name to prevent them from getting lost and/or exchanged with another child's belongings.

Write the name of each colour on the class board and each time there is a reference to an object of a particular colour, point to the name repeatedly to help children retain the name of the noun.

If you have the resources available, you can also draw and colour the objects given in the student's book from pages 5 to 8 and paste them on the display board in the



class in order to be able to refer to each one of them while you are teaching these pages.

## Introduction

Draw the attention of the children to the things they have brought to class and help them recognise that there is one major characteristic that can be used to group the different objects together. Introduce the concept of colours, pointing towards the names written on the board for maximum clarity. It is also possible to use the following activities one by one to introduce each colour:

**Find the colour orange in your class:** Ask the children to look around the class and name a few objects. Once children start naming the objects they can see, ask them to identify their colours, and specifically see if they can find some things that are orange. The children can be further aided by bringing their attention to some obvious orange-coloured objects in their environment, such as an orange ball, shirt, basket, toys, blocks, etc.

**Find the colour purple in the basket:** Give a basket/shoe box full of different things to the children, which will include a number of purple objects as well as objects of different colours. The children will be asked to sort out all the purple objects and put them in a separate basket/shoe box. This activity can be repeated for all the other basic colours as well.

**Find the colour brown in your environment:** Take the children on a trip in the school grounds. Before going on the walk, tell the children to stay attentive and identify all the things they see around them which are brown in colour. After coming back to the classroom, the children can be asked to recall all the brown coloured objects that they had seen during the school walk. A further discussion can also be conducted to ask the children what things they did not see that are also brown in colour, e.g. cookies, monkeys, horses, etc.

**Find the colour pink in your bag:** Ask the children to put their bags in front of them on the desk. Then ask them to find things in their bag which are pink in colour e.g. if they have a book with a pink cover, or a stationery item which is pink. This activity can be repeated for all the other basic colours as well.

**I-Spy:** Play the 'I-Spy' game with the children. The following steps can be followed to play this game:

Step 1: Place different coloured objects in the classroom where they are clearly visible to the children, and make sure that the children can reach them as well.

Step 2: The teacher is nominated as the spy. Divide your class equally in half, making two teams.

Step 3: Pick out an object of a certain colour, e.g. red. Select an object that everyone can see, but do not reveal the object yet.

Step 4: Ask the children, 'I spy with my little eye, something that is red'.

Step 5: Further hints can be announced if it is believed that they will be helpful to the children, such as the shape of an object. For example, if the object picked is circular, say 'I spy with my little eye something that is circular and orange'.

Tip: Do not look at the object when you are announcing its colour. That would be a giveaway.

Step 6: Allow the children to take turns guessing. Have the other players take turns guessing the object.

Step 7: Encourage the children to look for the object and bring it to the teacher.

Step 8: Encourage children to guess at a much faster pace if the game is moving too slowly. Declare the team which correctly guesses the answer first the winner.

**Show and Tell Activity:** Ask children to bring objects from home of a specific colour for a 'show and tell' activity in class. A note can be sent to the parents explaining exactly why the children are being asked to bring the objects to class. The resource list given under the heading 'Materials Required' will be helpful for clarifying what kind of things children can bring.

**Colour day:** In continuation of the 'show and tell' activity, a 'Colour Day' can be organised where children can be asked to wear colours of any of the four colours taught in this chapter.

### **Student's book activity**

Seat each child with a copy of his/her student's book and a pencil. Before they begin the activity, you can discuss the colours taught again and allow them to look at the objects present in the class as reference. For pages 5-8 allow the children to name the objects they can see on the page.

Allow children to take their time with the exercise on page 9. They may need some guidance in connecting the right colour to the number mentioned, or in locating the numbers on the butterfly. The children should be allowed to select the crayons they need for the exercise themselves to ensure that they can select the right colour easily. You may have a discussion with the children before starting the exercise to

discuss what they see on the page, and what colour they think these objects should be.

### Recapitulation

Pick up each item that the children have brought one by one and allow them to identify what the colour of each object is independently. You can conduct this activity by grouping the children or seating them in pairs.

Lesson 2 (page 10)

Big and Small

### Materials required

- pairs of pebbles, twigs, leaves, pencils, balls, books, bottles, bags, etc.
- colour pencils/crayons
- loose sheets of paper

### Pre-activity preparation:

Make pairs of objects (mentioned in 'Materials required') of different sizes and place them side by side on a table so that they are available for easy reference while teaching this unit.

### Introduction

Explain to children the concept of sizes by showing them things that are big and things that are small. At this stage, it is easier for children to grasp the concept if they can see two identical things of different sizes. Children can be encouraged to suggest their own ideas of what thing is big and what is small, and to elaborate upon why they believe something is big or small.

**Teaching by comparison:** Display a pair of objects (different in sizes) in front of the children and ask them to identify the bigger/smaller object. Continue to do this with different objects until the children have grasped the concept and can answer with relative confidence.

**Drawing big and small objects:** After doing this, give loose sheets of paper to the children and ask them to draw a big and a small ball, a big and a small fish, etc. Children should be encouraged to be as imaginative as they want, as long as the concept of big and small is clearly understood and visible in their drawings.

## Student's book activity

Before beginning work on the pages in the student's book, allow the children to look at each object and discuss it. They can try to name it, identify its usage, or talk about any other distinguishing characteristic. Once a detailed discussion has occurred, try to get the children to pinpoint the difference in the size of each pair, and reiterate the concept of big and small.

Once all children have a confident grasp of the concept, seat them with their student's books, and an orange and a purple crayon. Explain to them that for this exercise, the bigger object will be circled with the orange crayon, and the smaller object with the purple crayon.

## Recapitulation

At the end of the unit, show the children other pairs of objects present in the classroom such as books, and ask them to guess which one is bigger and which is smaller.

Lesson 3 (pages 11–12)	Sizes
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## Materials required

- school bags/lunch boxes
- fruits and vegetables, etc.
- coloured sheets
- colour pencils/crayons
- scissors

## Pre-activity preparation

You can use the lunch boxes and school bags of the children in the class for this activity. Make sure you check that there is a discernible difference between the sizes of these items before allowing the children to judge which one is bigger.

Place fruits and vegetables of three different sizes side by side on a table so that they are available for easy reference while teaching this Unit.

Using the coloured sheets, cut out hearts, stars, and diamonds in three degrees of sizes. Paste these on the display board so that the children can easily see them.

## Introduction

Explain to children the concept of sizes by showing them things that are big, and then two more similar things of a slightly bigger size. Allow them to hold each object in their hands for a practical demonstration. At this stage, it is easier for children to grasp the concept if they can see identical things of different sizes. They can be encouraged to suggest their own ideas of which thing is bigger and which is smaller, and to elaborate upon their statements.

**Demonstrations in class:** Encourage the children to look at the shapes of three different sizes posted on the display board. Allow the children to name the shapes (heart, star, and diamond) before beginning to introduce words such as 'big, bigger, biggest' and 'small, smaller, smallest'. The children should be encouraged to repeat once each word is pronounced to check for correct pronunciation. After that, the biggest shape in each row should be highlighted while the word 'biggest' is said out loud. Carry on the activity for the other two objects in the row.

**How big is my bag?** Another activity that the children can conduct together is to measure school bags together to see which one is bigger. This activity will be easier for the children to conduct since the school bag is a familiar object that they use every day. For clarity, it is possible to add a few more books in any one of the bags so that there is a discernible difference between the bags used for measurement. You can also use three lunch boxes for this activity.

**Fruits and vegetables:** Ensure before you begin this exercise that all the three fruits that you have placed in front of the children for comparison are distinctly different in size. Conduct this activity by splitting the children into groups of three. Allow each group to pass one by one in front of the table, giving the task of identifying the biggest/smallest fruit to the first child, the bigger/smaller fruit to the second child, and the big/small fruit to the third child.

## Student's book activity

The activity on page 11 requires tracing before the colouring can begin, thus ensure that children are able to grip their colouring pencils correctly for this part of the activity. Before beginning work on the pages in the student's book, ask the children to look at the illustrations given on pages 11 and 12 and try to identify the sizes that have been taught in class.

**Teamwork:** Children can also be tasked with finding similar objects of varying sizes in the classroom (which have previously been placed by the teacher in the classroom in places where the children can easily locate them, e.g. similar books of

different sizes). Make groups of 4 in the class and allow the children to take their time to locate as many objects as possible. Elaborate on the rules of sharing and peaceful cooperation to explain that no fighting will be allowed, and that children should work in a diplomatic and supportive manner.

### **Recapitulation**

Summarize the findings of the children at the end of the lesson in order to ensure that they have all clearly understood the concept.

Lesson 4 (pages 13–14)

Tall and Short

### **Materials required**

- pairs of pencils of similar colour and shape but differing sizes
- sand trays (old shoe box, cake pans, or plastic trays can be used to make sand trays)
- clean dry sand
- chart paper and scissors with display board
- Images of flowers cut from magazines/newspapers
- sticks of small sizes (which children can grip easily)

### **Pre-activity preparation**

Sharpen each pair of pencils until one of them is shorter than the other. Place these pencils on a table from where they can easily be picked for a live demonstration.

Using the chart paper, cut out straight lines of different sizes, and paste them below the images of flowers cut from magazines/newspapers. Paste these on the display board in a row so the children can easily make comparisons of length during the class exercise. You can make these of different colours if you have the resources in order to make the exercise interesting and vibrant.

### **Introduction**

Explain to the children the concept of length by showing them pairs of pencils and asking them to spot any differences. Allow the children to use whatever words they want to describe the length. Once each child has had a turn with the

description, introduce the words short and long, using the pencils in hand for a live demonstration. Ensure that children understand not only the two basic defining characteristics of length but also that they are able to make a comparison and correctly guess which pencil is shorter and which one is longer.

Keep changing the pencils used so that children can see different forms of pencils which represent long and short length. This will allow them to understand that different pairs of objects can exhibit differences in length as well.

**Study the flowers:** Draw the attention of the children to the flowers and the length of their stems pasted on the board/display. Explain to them how the stems all differ in length. Break the children up into groups of 4 and ask each group which stem they think is the longest. You can ask the next group which one is the shortest. Next ask children to compare two stems, locating the taller and shorter one. Keep alternating between groups until each group is able to answer correctly.

**Sandbox activity:** Introduce the sand trays filled with clean dry sand to the children. Demonstrate to the children how they can draw lines in the sand using their fingers. Encourage them to trace with their forefinger first. Once children are able to draw straight lines, encourage them to draw long lines, and then short lines. Children can work in pairs to draw lines, and then identify which one is longer and which one is shorter. They can also use sticks for this activity.

### **Student's book Activity**

Seat each child with a copy of his/her student's book as well as pink and brown crayons to complete page 13. Explain to the children that they first need to identify the taller item in each pair, and colour it using the brown crayon. Next, identify the shorter item and colour it using the pink crayon.

For page 14, allow the children to take some time trying to guess the correct answer before asking them to circle the shortest object in each row.

### **Recapitulation**

Sharpen the pencils a bit more so that they look different from the size originally used during the demonstration. Display the new sizes of the pencils to the children and ask if they can identify the shorter/taller one.

**Materials required**

- a selection of sets of 5 items, e.g. beads, pebbles, etc.
- cut-outs of images shown on the page (jugs, airplanes, cars) from newspapers/magazines
- chart paper

**Pre-activity preparation**

Place the five items on the table where the children can easily see them.

Paste the cut-outs on the chart paper, drawing a thick black line in the middle to allow the children to easily separate the two sides. Paste the chart paper on the display board, with an uneven distribution on both sides so children can spend some time counting the objects and trying to identify which side has less (for example, two airplanes on one side and six on the other).

**Introduction**

Introduce the concept to children by first showing them easy examples present in the classroom, such as chairs on one side of the room compared to chairs on the other side. Ensure that there is a clear difference between the things being compared and allow children to become familiar with the terms 'more' and 'less'. Encourage them to say the words out loud as they give their replies.

**Count the number of objects:** Bring the attention of the children to the chart paper on the display board. Ask them to first identify the objects pasted on the chart paper. Once the children can name them, with a pointer or a ruler, place the tip on each image and count out loud with the children.

First count the total number of images of each object. Once the children can easily count along, bring attention to the dividing line. Split the class into pairs and ask different pairs to count the number of images on each side of the line. Explain how the group with more objects should raise their hands. See if the children can count and guess the answer correctly.

**Which group has more objects?** Place the sets of 5 items on the table, and split them into groups, e.g. place one bead on one side, and the remaining four beads on the other side. Split the children into small groups and ask them to guess which



side has more beads. As a next step, move one bead to the other side to make two groups: one with two beads, and the other with three beads. Ask children to continue guessing until all groups can guess correctly.

### **Student's book activity**

You can turn this into a pair activity by allowing children to count the number of boxes in each row. Encourage the children to work in coordination, since once the objects are counted they will need to compare the two sets. Explain to the children that they need to colour the group that has more objects.

### **Recapitulation**

Return the attention of the children to the items and allow them to make different groups of items which represent more and less on their own.

# Unit 3: Patterns and Sequences

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- colour an empty shape by following a colour sequence
- draw and colour a shape by following a shape and colour sequence
- identify the odd one out in a row/set of items

Lesson 1 (pages 16–17)

Colour and Shape Sequences

## **Materials required**

- chart paper
- colouring pencils/crayons
- scissors
- baskets

## **Pre-activity preparation**

Using the colouring pencils/crayons, draw squares, circles, triangles and pentagams on the chart paper in different colours. Use the scissors to cut them out and place them in different baskets. Ensure that there are enough baskets for small groups of children in the class. Keep one set for the teacher to demonstrate.

## **Introduction**

The topic can be introduced to the children by displaying the shapes in different colours in various patterns. This is a good opportunity to also revise the colours taught previously to the children, as well as check whether children can recognise different shapes easily.

Begin the lesson by holding up the cut-outs and asking the children what features they can recognise. Children can either reply in terms of shapes, or in terms of colours. Allow the children to keep guessing until you are certain that all children can confidently recognise all the shapes and colours of the shapes that are part of this lesson.

**Pattern recognition in terms of shape:** Seat the children in pairs for this activity. On your board, start drawing two shapes alternatively (for example, a square and a

circle, then another square and circle, and so on...). Stop after you have drawn five shapes, and allow the children to guess what the next shape will be.

It is a good practice to start from the first shape, and allow any one child from a pair in the class to name the shape out loud. Then the other child in the same pair should be asked to name the next shape, and the first child asked to name the third. This way children will be able to recognise that shapes are being repeated in a consistent pattern.

**Pattern recognition in terms of colour:** Using the cut-outs made during the pre-activity preparation, hold up shapes of two varying colours and let the children state which one will come next. For example, red and yellow squares can be held up alternatively, and then the children can be asked to identify which square they believe will come next. Try to recreate the patterns visible in the student's book on page 16 so that children have a basis for reference once they begin working on the page themselves.

Allow the children to keep answering until everyone in the class can correctly guess the colour of the next shape in the sequence.

**Identifying sequences:** Seat the children in small groups and place the baskets with the cut-outs in front of them. Give each child in the group a representative number or letter, so that it is easy to identify which child will be expected to do what. Ask the children to take out the cut-outs and spread them in front of themselves.

Call out the number/letter used as a representation for the first child (for example, Child 1 or Child A in each group), and ask them to hold up a shape of a particular colour (for example, green circle). Then call out the name/letter of the second child (Child 2/Child B) and ask them to hold out a cut-out which is not only of a different shape but of a different colour too (for example, blue square).

At this stage, it is the teacher's discretion to check whether children are able to identify sequences in groups of twos or threes. If they can easily sequence in larger patterns then continue on with another shape of a different colour, or else ask the third child to continue the pattern (i.e. at this stage, to continue the pattern Child 3/Child C should pick up another green circle).

This activity can continue until all children have had a chance to recognise which shape/colour will come in a sequence next.

### **Student's book activity**

Ensure that all children have the correct colours required for this activity before

beginning. Each child should be asked to open their student's book and attempt to colour and draw the next shape. The teacher should be present to provide assistance in case of any confusion. Children are likely to not draw an exact copy in terms of size; the important thing is to ascertain whether the shape and the colour of the missing item have been correctly identified by each child.

### **Recapitulation**

Paste the cut-outs on the display board and tell the children that they are welcome to draw further patterns of their own in their copies if they wish to do so. It is a fun activity which helps to increase colour and shape recognition as well as allows children to express their artistic side.

Lesson 2 (pages 18–19)

Odd One Out

### **Materials required**

- stationery material (pencils, sharpeners, rubbers, etc.)
- fruits and vegetables, two different types of baskets
- illustrations/images of various things cut from newspapers/magazines

### **Pre-activity preparation:**

Place the stationery objects in a straight line on a table, ensuring that there is enough space on either side of the table so that children can file past easily.

With the baskets, stack similar fruits and vegetables in two identical baskets, and in the third basket (distinctly different from the first two baskets) place different fruits and vegetables (try to choose fruits and vegetables of a completely different colour and size so that it is easy for children to grasp the concept).

Cut out illustrations/images from newspapers/magazines and paste them on the display board/walls. Make sure that in a row of three or four illustrations, there is only one that is different and the rest are the same so that children can easily spot the odd one out.

### **Introduction**

There are various ways to help the children differentiate between different objects, but the basics of differentiation remain the same, i.e. colour, shape, size, etc. Once

the children have a grasp on the concept of things differing from each other based on these characteristics, they will easily be available to identify one singular item which is different from all the rest in a list of different items.

**Using stationery in class:** For the first introductory activity, call the attention of the children to the table with the stationery objects. Tell them to form a straight line and allow them to walk past the table one by one. Explain to them that they have to identify the object that is different amongst the similar ones. You can encourage them to notice colour, shape, and size of the objects to understand and recognise the difference. (Make sure the stationery objects are placed in a straight line on a table, ensuring that there is enough space on either side of the table so that children can file past easily.)

**Objects in comparison:** On the display board, ask the children to first look at the objects pasted there and see if they can name them. Don't start by asking them to immediately spot the odd one out: rather, give them the time to look at the pictures and see if they can individually recognise which object is present on the board. Children can be encouraged to identify the distinct characteristics of each object (for example, an apple's red colour, the shape of a balloon, etc.) to help make it easier to spot the differences.

Once the children have spent an adequate amount of time discussing the objects, you can then help them count the number of similar objects in each row and figure out which one is different. Allow the children to make guesses and ask them to explain why they think a certain way.

**Comparing fruit baskets:** Fruit baskets give the teacher more space to work since different combinations of fruits and vegetables can be placed in the baskets, to allow the children to pick the odd one out multiple times.

Tell the children that there are two identical baskets (containing the same fruits and vegetables arranged in the same manner) next to a third basket with different fruits and vegetables. Allow them to guess which one is the odd one out. Have a conversation with the children regarding the fruits and vegetables present before the activity starts. This will also help them see that two baskets have the same food items.

### **Student's book activity**

Seat each child with the student's book open to pages 18 and 19. Tell them that they have to make a circle around the image in each row or set that is different from the

other images in the row/set. Encourage them to take help on the demonstrations that have taken place in class to help them answer the questions.

### **Recapitulation**

At the end of the unit, allow the children to make different combinations of fruits and vegetables, with two identical arrangements and one different, so that there is an obvious difference between the three. Reiterate the concept taught and see if children can easily grasp the task they have to complete. Allow them to work in pairs or groups.

# **Unit 4: Measurement**

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- identify which object covers the most area
- draw similar objects in smaller sizes
- understand the concept of capacity
- be able to count objects drawn
- be able to match objects to the correct number
- identify short and long objects and be able to colour them
- identify thick and thin objects and be able to colour them

Lesson 1 (pages 20–21)

Finding the Larger Area

## **Materials required**

- equipment present in class: table, book, etc.
- A4 sheets with two handprints drawn on them, one big and one small
- colouring pencils
- cut-outs of objects of differing sizes (for example, big and small stars)

## **Pre-activity preparation:**

On a table, place a big book right in the very centre, in a spot that is clearly visible to all the children.

Paste the cut-outs on the display board where children can easily see them.

## **Introduction**

Reintroduce the concepts taught to the children in Lesson 2 of Unit 2 of 'Big and Small'.

Bring the attention of the children to the table in the class with the book placed on top of it. Ask the children which object is bigger. Help the children to recall the concept of big and small taught earlier. Once children are able to establish the respective size, the concept of area can be introduced. Explain that things that are

bigger take more space. Encourage the children to identify more things in the class that are bigger, and thus take up more space.

Introduce the word 'area' to the children in order to help the children become familiar with the word. Since there are quite a number of vocabulary terms that can be introduced when studying area, try to ensure that children are able to comprehend and relate to the words that are used. Be careful that too many complicated or similar words are not used which might confuse them.

**How big is my hand?** Divide the class into pairs. Share the sheets with the children and allow them to spend some time looking at the handprints.

Once the children are ready to begin the activity, explain to them that one of the handprints belongs to an older person (their teacher, mother, father) and the other one belongs to a younger person (the child themselves, their younger brother or sister, their friend). Ask them which handprint covers more area. Children can be encouraged to place their own hands over the prints as well in order to see which print belongs to the older person and which one belongs to a younger person.

**Which star is bigger?** In the same manner, bring the attention of the children to the display board, and show them the cut-outs of the stars pasted there. Allow the children to guess which star is bigger. Ask them to explain why.

### **Student's book activity**

Seat the children with their books open to pages 20 and 21, and colouring pencils. Explain that on the first page they only need to identify and circle the picture which covers the larger area in each row, whereas for the second page they also need to draw the object (an outline is given, so children need to only trace) before colouring it.

### **Recapitulation**

Bring the attention of the children to different things in the classroom and ask them to compare two things to guess which one is big and which one is small. Ensure that there is an obvious difference between the two objects so that they can figure out the answer. Also ensure that the term 'area' is used so that they attain a sense of familiarity with the term.



**Materials required**

- two jugs of the same size
- water
- a glass and a cup

**Pre-activity preparation**

Place two jugs on a table. Next to these, place the tea cup and the glass, each filled with water.

**Introduction**

Introduce the children to the concept by allowing them to pass in a single file past the glass/ cup and jugs that have been placed on the table. Make sure that the glass/cup and jugs are placed in a stable manner so that the water doesn't spill over.

**Experiment:** Once all the children have passed by, allow them to sit back down on their seats and then begin the conversation. Show them the empty jugs, and then in the first one, pour a tea cup full of water. In the second jug, pour a glass full of water.

Ask the children in pairs what difference they could notice between the two jugs. Allow the children to reach the conclusion themselves. Help them along if children are unable to spot the difference. Explain to them that different containers have different capacities, and that is why the glass has filled the jug to a higher level than the tea cup.

Once all children have seen the live demonstration, allow them to carry out the experiment themselves. Ensure that all safety measurements are taken so that no child accidentally slips on a wet floor or spills water anywhere.

Using the same two jugs, the glass and the small cup, split the class into two groups. Tell each group that the teacher will be filling their smaller utensil (glass or cup) with water using a water bottle. Children in each group have to then pour it into the jug. Allow them to conduct the experiment and go back to their seats, and then ask which group finished first. Explain that as demonstrated earlier, since the glass had a greater capacity to hold water, the group using the glass to pour water finished filling the jug first.

## Student's book activity

Seat the children with their books open to page 22 and ask them to circle the jug which shows more water. Only ask them to do this page once you have conducted the activities in class, so that children have clarity on the requirements of the page.

## Recapitulation

Transfer all the water from one jug to the next. Ask the children which jug is empty then.

Lesson 3 (pages 23–24)

Counting and Matching Objects

## Materials required

- newspapers/magazines
- markers
- chart paper
- scissors
- stick
- glue

## Pre-activity preparation

Using the newspapers/magazines, cut out various similar objects so you have an adequate number of objects to represent numbers from 1 to 20. Paste these on the display board.

Using the scissors, cut out circles from the chart papers and write the numbers from 1 to 20 on the circles. Paste these circles on the display board as well so that the children can easily see them during the activity.

Also cut a square from the chart paper and write the word 'Simon' on it. Using the glue, paste the stick vertically at the bottom so that the teacher can hold up the sign during the activity 'Simon Says'.

## Introduction

Children should already have a clear grasp of numbers, as well as the ability to count objects when they are presented in groups. In this activity, they are required to do

both of these activities simultaneously, and then match the group of objects to the correct number.

**Number value recognition through pictures:** Aid the children in number value recognition by first bringing their attention to the numbers pasted on the display board. Once all children have read the numbers, ask them to then look at the various objects pasted next to the numbers. At this stage, children can do this activity in pairs or small groups if required.

Once all children have counted the objects, ask a child from each pair/group to come up and identify the number of a certain object (for example, how many pictures boxes/toffees/coins are present on the display board). Another child from the same pair/group can then be asked to point to the number which represents that object.

**Simon says:** Simon Says is a very simple and very entertaining game that can be played both inside the classroom as well as outside in the open ground. It requires at least 3 people (1 teacher to act as Simon, and 2 children minimum), and is adaptable to large groups as well.

In this game, one person is given the designation of 'Simon', who is responsible for giving directions. The rest of the people in the game are players. Standing in front of the group or in a location from where they can easily be seen, the teacher as Simon tells players (the children) what they must do. However, the players must only obey commands that begin with the words 'Simon Says'.

Explain to the children that they must listen closely as the teacher, in the role of 'Simon', gives directions. If 'Simon' says to do something, the children should quickly do it. But, if 'Simon' does not and the children do it anyway, they're out. For example, if the teacher says 'Simon says hold up three pencils', then the children must hold up three pencils. But if the teacher simply says, 'Hold up three pencils,' without first saying 'Simon Says,' the children must not hold up any pencils at all. Those that do hold up three pencils are out of the game.

Ensure that the teacher is holding the sign created during the pre-activity preparation so that children have a clear idea of who is the leader in this activity.

Encourage the children to follow the directions closely so that they can stay in the game for as long as possible. Tell them that the last player standing becomes the winner. The teacher can continue giving similar instructions in terms of numbers to encourage children to develop number value recognition.

### Student's book activity

Seat each child with a copy of the student's book and allow them to first attempt to solve the questions given on the pages themselves. The children might require some help in understanding exactly what is required of them in the activities given. Tell the children that they should first count the number of objects on both pages 23 and 24. Then, for page 23, they should read the number, and connect the objects using their colouring pencils to the correct number in a straight line.

The teacher should be present to help the children count on page 24, since children might get confused with the double rows of similar objects.

### Recapitulation

Bring the attention of the children back to the objects and numbers pasted on the display board. Allow children to call out the number of each object out loud (either in groups or in pairs, depending upon the size of the class and the number of objects pasted on the display board).

Lesson 4 (page 25)	Colour the Pencils
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### Material required

- books of different thickness (preferably same size)
- a bag (in which children can collect sticks)
- pairs of pencils of similar colour and shape but differing sizes
- colouring pencils

### Pre-activity preparation:

Ensure that the books you use for comparison have a significant degree of difference in terms of their thickness. Place both books on the table where children can see them clearly.

Sharpen each pair of pencils until one of them is shorter than the other. Place these pencils on the table next to the books from where they can easily be picked up for a live demonstration.

For the nature walk, make adequate preparations beforehand, which include sending a note to the parents if you will be taking the children out of the school boundaries, creating name pins that children can wear on top of their uniform, and sharing lists of safety precautions that children are expected to take during the walk.

## Introduction

Explain to the children the concept by allowing them to first look at the two books placed on the table. If the children want, they can come up in pairs and pick up each book in order to be able to feel the difference in thickness. Do the same with the pencils and ask the children if they can tell which one is shorter, and one which is longer. Tell the children that some things around us are very thin while others are very thick, and some are short while others are long. Use this conversation as the basis on the concept of nature walk while telling the children that they themselves will be looking for thick and thin objects, as well as short and long objects.

**Nature walk:** Take the children for a walk in the school grounds or a nearby park and will show them different trunks of the trees present in the area. Ask them to look at the thinner stems of little plants. Encourage them to notice the difference and see if they can identify it themselves without being explicitly told by the teacher. It is useful if there are lots of really old trees (with very thick tree trunks) as well as smaller bushes, which will allow the children to make easier distinctions between the thickness as well as the size of the two.

Also ask the children to collect twigs to be used for comparison. Once they have collected the material and brought it to the class, display all the collection on the table and ask the children to predict which things are thinner and which ones are thicker, or which ones are shorter and which ones are longer.

Once the children have predicted, allow them to perform an experiment by holding the objects in their grips and trying to identify the difference between the objects. Children can select any 2 objects at a time to perform this experiment.

## Student's book activity

Ensure that children have grasped the concept completely before introducing the page in class. Once the children are able to differentiate between the length and thickness of objects with a degree of confidence, seat each child with page 25 as well as blue, green, red, and yellow colour pencils. Allow the children to guess the correct answer themselves before the teacher can provide help in the corrections.

## Recapitulation

At the end of the lesson, allow the children to go back to the books as well as the branches and pencils placed on the table. See if they can guess which item is thicker/thinner/shorter/longer without holding it in their hands.

# Unit 5: Tens and Units

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- recognise items in groups of ten
- understand the concept of tens and units
- be able to count in terms of tens and units until 20

Lesson 1 (page 26)

Making Groups of 10

## **Materials required**

- green and red colouring pencils
- white chart paper
- scissors

## **Pre-activity preparation**

From the chart paper, cut out triangles of the same size which can be distributed in the whole class (number of triangles cut per group/pair of children must be more than 10).

## **Introduction**

This activity involves the introduction of the concept of groups of ten before children can be made to understand tens and units. Since the numbers up till 20 have already been introduced to the children earlier, they should have some familiarity with the numbers themselves. However, since grouping is a new concept, thus the teacher should go slowly, at a pace which ensures that all the children present in the class understand the concept.

**Using fingers to count:** Ask all the children to sit in pairs so that one child can hold up all of his/her fingers, and the other child can then be asked to hold up one more. Once all the children are sitting in pairs, the teacher should first hold up her own fingers and ask the children to count how many fingers she has. She/He should also count out loud along with the children. Then, ask the children to hold up their own fingers and count them.

Tell the children that the 10 fingers give us a group of 10, and no extras.

Then, in each pair, ask the children sitting on the right to hold up their fingers. The children sitting next to them should hold up one finger. Tell the children that each pair then has 1 group of 10 and 1 extra.

**Colouring triangles:** Allow the children to keep sitting in pairs (or split them into small groups). Share the cut-outs of the triangles with them, and tell them they must colour 10 triangles green. The remaining triangles must be coloured red. Encourage the children to keep placing the triangles they have coloured in a line on the table so it is easy to see how many have been coloured already.

### **Student's book activity**

Allow the children to spend some time looking at the page. The teacher should help read out the explanation given on the page for further reiteration.

At the end, allow the children to colour the triangles in the required shades. Ensure that children are able to count the correct number of triangles. One helpful hint can be to encourage the children to write the numbers (from 1 to 10) within or below the triangles so that children already know which one the last triangle is before they begin colouring. This will help prevent mistakes.

### **Recapitulation**

Once all the children have finished colouring, the teacher should hold up her/his fingers again to ask if children can tell it's a group of ten. Ask the children to hold up enough fingers so that there are two extra fingers. Check to see if all the children only hold up two fingers.

Lesson 2 (pages 27–28)

Introducing Tens and Units

### **Materials required**

- beads
- strings
- colouring pencils
- white chart paper
- scissors
- marker

### **Pre-activity preparation**

Ensure that there are enough beads for children if they are divided into groups of 4, as well as a string for each group. Be careful that the beads are not too small and do not pose a choking hazard for them.

From the chart paper, cut out squares of similar size which can be used to represent numbers. Colour ten of them using the green colouring pencil, and further extra ones using different colour pencils (you can also use the triangles made for Lesson 1, Unit 5, if necessary). Paste these on the display board.

Using the marker, write the numbers from 1 to 20 on the chart paper and paste them on the display board next to the squares.

### **Introduction**

Allow the children to first look at the numbers pasted on the display board and read them out aloud with the teacher. They can be encouraged to hold up their fingers as they count. Once they reach the tenth finger, the concept of tens and units can be explained.

Then, bring the attention of the children to the squares pasted next to each number. Count the number of squares in each row. Once the number eleven is reached, point out how the red colour of the square marks it out as different. Reiterate the concepts of tens and units.

**Using beads to count:** Seat the children in groups of four. For each group, give them 20 beads as well as a string. First, do a live demonstration of how the children are supposed to thread the beads on a string (they might require further help when they begin this activity themselves, so the teacher should be present at all times to provide further assistance). Then, standing at the front of the class, start holding up beads and counting them along with the children. Once they reach ten, ask each group to thread them on a string.

Explain that now they have a group of ten beads. This group constitutes a 'ten', and the remaining beads are what constitute a 'unit'.

Encourage the children to ask as many questions as required at this stage to ensure that they understand the concept correctly.

### **Student's book activity**

Allow the children some time to look at the page and understand what is being



represented. The teacher should then begin counting the number of boxes in each row, as well as reading the number giving at the end of each row.

Children can be split into pairs/small groups and asked to count the objects/read the number in each row as well. Keep asking questions to see whether children can recognise when 1 group of ten is formed, and what are the tens and units in numbers 11 till 20.

### **Recapitulation**

Bring the attention of the children back to the string with the beads. Give the children more beads, and ask them to create a string of different numbers, for example 13, 15, etc.

# Unit 6: Numbers

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- trace the numbers in words from 1 to 25
- trace the numbers from 21 to 30
- write the numbers from 21 to 30
- recognise and write the numbers in order from 1 to 20
- count and circle/write the correct number of objects
- fill in missing numbers by counting in 2s
- write the numbers in figures 0-59

**Note:** The following lessons (presented in the book in strategically placed intervals to allow the children to work in a naturally progressive manner, with the first exercise on page 29 related to numbers 1 to 10, and the second exercise on pages 41-42 related to numbers 11 to 25) can be used to teach how to write numbers in words from 1 to 25. The lessons have been numbered according to their order within the book itself. The activities mentioned correspond to the following lessons and page numbers.

Lesson 1 (page 29)	Numbers in Words
Lesson 8 (pages 41–42)	Numbers in Words

## **Materials required**

- chart paper
- rulers
- blue and red colouring pencils
- marker
- clean dry sand
- sand trays (old shoe box, cake pans, or plastic trays can be used to make sand trays)

## Pre-activity preparation

On the chart paper, with a ruler draw red and blue lines similar to the ones given on the pages of the student's book. Write the numbers to be taught (1-25) as well as in words in a clear manner so that the children can easily view them from every angle. Paste this chart paper on the display board.

## Introduction

Draw the attention of the children to the numbers written in words on the display board. This is a good opportunity to introduce the concept of representing numbers using words as well. Allow the children to attempt to read the words themselves, and then, placing a finger on each number, read it out loud. Encourage the children to repeat after each word is pronounced to check if they are showing confidence with saying it out loud and with correct pronunciation. Also check that children connect each word to the correct number.

With the children watching, use a finger to first trace over the dotted words drawn on the board, and then use a board marker on top to trace the words again for the children's revision.

**Sandbox activity:** Introduce the sand trays filled with clean dry sand to the children. Demonstrate to them how they can try to trace the words that they see up on the display board on the sand box using their fingers. Encourage children to trace different patterns on the sand box with their forefinger first, to allow them to enjoy the activity and gain confidence in drawing straight and curved lines.

**Pre-writing activity:** Before beginning work on the pages with the children, allow them to spend time with large A4 sheets and colour pencils to check whether they are able to grip a pencil correctly. The children are welcome to draw freely whatever they want, in order that the teacher can check and correct their grip and help them grip the pencil correctly for smooth writing.

## Student's book activity

Seat each child with the student's book open to the relevant pages and encourage the children to trace the given words. Ensure that they have the help they require.

## Recapitulation

At the end of the lesson, point to random objects within the classroom and ask children to identify which word written on the display board represents the number of objects being pointed at.

**Materials required**

- chart paper (blue, red, green, purple, yellow)
- markers
- scissors
- blank A4 sheets

**Pre-activity preparation**

Use the blue chart paper to cut 20 circles. Write the numbers 2, 7, 10, 16, and 19 within the circles. Paste these up on the display board, leaving empty circles for the missing numbers.

Use the red chart paper to cut out stars and balloons. Use the green chart paper to cut out triangles to represent party hats. Use the remaining chart paper (purple, green, red, yellow) to cut out squares of equal size.

Paste all of these in rows of different numbers up on the display board. Write three options of numbers (1 correct number representing the total number of images in each row, and 2 wrong numbers) and paste them next to each row of items.

**Introduction**

Before beginning the exercise, ensure that children can clearly see the display board. This activity can be used to discuss colours and shapes, and to revise concepts taught earlier to check whether children have understood concepts clearly until this point in the course.

**Counting in sequence:** Raise a finger and ask the children to say out loud how many fingers are being held up. Once all children can correctly answer 'one', raise another finger. Keep going until all ten digits are raised.

At this point, ask a child to come as a volunteer to the front of the class. Ask this child to raise the finger. Now ask the rest of the class how many total fingers are up. Tell the child to keep raising more fingers, and check if children can remember the numbers in sequence.

Once this is done, bring the attention of the children to the cut-outs pasted on the wall with the missing number. The concepts of 'before, after, and in between' taught to children in *Maths Level 1* of this series should help the children in filling

the empty circles as well. Split the class into small groups and allow each group to call out the correct answer to each empty circle.

**Counting the correct number:** Still working in groups, allow the children to count the items pasted on the display board. Each group should then be asked which number they think correctly represents the items present in each row.

### Student's book activity

Open the student's book to the relevant pages and seat each child with their copy. Allow everyone to attempt the answers themselves before the teacher is required to provide assistance. Some children might have trouble with counting so many items: help should be provided in this case. Encourage children to use their fingers to count, or to ask a friend to count with them.

### Recapitulation

Change the number of items up on the display board so that another number from the options present in each row is then correct. Ask each group to then count and call out the correct answer.

**Note:** The following lessons (presented in the book in strategically placed intervals to allow the children to work in a naturally progressive manner) can be used to teach the numbers from 21 to 30. The lessons have been numbered according to their order within the book itself. Numerous activities have been presented and can be adapted according to the number being taught. The activities mentioned correspond to the following lessons and page numbers.

Lessons 3-7 (pages 31-40)	Let's Learn Numbers 21-25
Lessons 9-13 (pages 43-54)	Let's Learn Numbers 26-30

### Materials required

- blank A4 sheets or card paper sheets
- colour pencils/crayons
- chart papers
- chalk board and chalk OR white board and white board marker
- classroom resources, e.g. pens, pencils, books, rulers, rubbers, etc.
- markers

- newspapers/magazines
- scissors
- square cut-outs

### Pre-activity preparation

Using the blank A4 sheets (or card paper sheets, if available, since they are more durable and will last longer), draw the following table, creating one complete sheet that you can use during class. If resources permit, laminate the sheet with clear plastic. Create at least four copies (more if possible) so that they can be used in the class for group activity. It is useful to number the sets as Set 1, Set 2, Set 3, and Set 4 (best done before laminating) so that it is easier to keep track of each set individually. Cut up the sheet so that you can use each number individually.

Gather all the cards after each lesson is completed and store them within a single envelope, held together securely with a rubber band or clip. Ensure that the envelope is properly labelled (class, section, subject) so that it is easy to identify and use in the future.

Only the numbers written in words from 1 to 25 are taught at this level, hence numbers 26-30 are only represented in number format (and not in words) in this table.

1	one	11	eleven
2	two	12	twelve
3	three	13	thirteen
4	four	14	fourteen
5	five	15	fifteen
6	six	16	sixteen
7	seven	17	seventeen
8	eight	18	eighteen
9	nine	19	nineteen
10	ten	20	twenty
21	twenty one	26	
22	twenty two	27	
23	twenty three	28	
24	twenty four	29	
25	twenty five	30	

## Introduction

Introducing children to numbers can be done through a variety of methods. A number of those methods are given below. Teachers are welcome to mix and match these methods to the best of their abilities, keeping in mind the comprehension ability and interest level of the class.

**Tens and Units:** It is important to consider that at this level children have been introduced to the concept of tens and units. From numbers 21-30, the concept should be reinforced using the squares present on the board, as well as the exercises mentioned below, which can be adapted to teach multiple concepts in one.

**Air tracing:** Write the number/word as large as possible on a chart paper. Ask the children to trace the number/word in the air. It is important that this is done using the whole arm, moving from the shoulder.

**Sand tracing:** Bring a sand tray to the class. Ask the children to come one by one and trace the target number/word on the surface of the sand.

**Writing on the hand:** Ask the children to use their right forefinger (if right-handed) to write the number/word being taught in the palm of their left hand (for left-handed children, adapt the instructions accordingly).

**Using drawings:** The drawings/cut-outs mentioned in the resource list should be pasted on the display board where children can easily use them.

Use these resources to daily ask the children the number of objects present. This activity can be done in two ways: either name the object and ask the children to count the number, or else mention a number and ask the children to find an object of that number. Conduct this idea in the form of small groups.

Divide the board into two columns. Display squares on one side of the board and two number cards on the other side, one of which should match the number of items (for example, if there are 4 squares on one side, then the other side should have the cards for numbers 4 and 6). Ask the children to look at the drawing and count the objects. Ask a volunteer to come to the board and point to the correct number and then draw a circle around it. Repeat this using other pictures and numbers.

**Using card sets:** Use the card sets developed during the pre-activity preparation in group activities for each number. They can be used for tracing, identification of correct number from a group of numbers, learning numbers in words, etc.

**Note:** The teacher should, before each of these activities, select the cards that are necessary, since the whole set may not be required for each activity. The class should be split into groups of four (or five/six, depending upon the number of card sets available) and each set handed to each group. Children should understand that this is a group exercise, and resources need to be shared in a collaborative manner. It is the teacher's responsibility to ensure that each child gets an opportunity to participate in the activity.

- **Tracing:** Before attempting the tracing activity in the student's book, the children can trace over the numbers and words with their finger when learning to write the numbers and words. Encourage them to use their forefinger.
- **Matching:** Write a list of numbers on the board. Point to one of the numbers and ask each group to hold up the matching card. As the children progress through the lessons, they can be asked to hold up the corresponding word (from 1 to 30).
- **Counting items:** Hold up a number of classroom items, e.g. pencils, books, rulers. Ask the children to count them silently and show you the correct number or word by holding up the correct card.
- **Memory games:** The children can play memory matching in groups. Place two sets of number cards face down in regular rows and columns. The first child turns over one card to display it clearly, and then does it again with a second card; both cards should be laid flat on the table in their places.

If the numbers on the cards are the same, the child gets to keep the two cards. If they show different numbers, the cards must be turned back face down on the table, and it is then the turn of the second child.

It is very important that the cards are kept in the same places throughout the game (even when gaps are created by matching pairs being removed) since the game relies on remembering the positions of the cards.

The game can be varied by using the word cards, or combinations of the word cards with the number cards, so that a match could be made between, for example, a word and the corresponding number card.

- **Guessing games:** Children can try to guess a number selected by another group. A child from one group selects a number card, which he/she shows to the rest of the class except for the members of the group who have to guess the correct card.



The child then has to help the group guess the number he/she has chosen in the following manner:

Child 1 selects the number '7'. Child from group which has to figure out the correct answer (Child 2) guesses '10'. Then child 1 will say 'smaller'. Child 2 guesses '5'. Child 1 says 'bigger'. The game continues in this manner until the right number is found.

(This activity can be played with the teacher and children initially, with the teacher taking the part of Child A and asking individual children to guess. Children will need to pay attention to the numbers mentioned earlier in order to get to the correct number.)

### **Student's book activity**

The student's activity should be conducted simultaneously along with the introductory activities. Allow the children to take their time with each page. For tracing, explain to the children that it is clearly indicated exactly where they have to start tracing from. Once the children are able to trace with confidence, they can begin writing the numbers in the boxes given on each page.

The teacher might be required to aid the children in finding and circling the number from the box on each page. Provide helpful hints about the exact number of times a number has been mentioned so that children know exactly how many numbers to look for.

### **Recapitulation**

Give each child a blank sheet of paper and coloured pencils or crayons. Explain that in the top left hand section they are going to write a number, and then in the top right hand section they are going to draw squares which are equal to that number. It is important that children identify the tens and units being represented. Allow the children to start from number 1.

Make sure each child writes his/her name on the back of the sheet. Collect the sheets after the lesson so that they can be completed with drawings of further items after subsequent lessons.

Lesson 14 (page 55)

Counting in 2's

### **Materials required**

- chart paper (yellow)

- markers
- scissors
- blank A4 sheets

### **Pre-activity preparation**

Use the yellow chart paper to cut 30 circles. Write the numbers starting from 1 till 30, skipping all the even numbers, within the circles. Paste these up on the display board, leaving empty circles for the missing numbers.

### **Introduction**

Before beginning the exercise, ensure that children can clearly see the display board. At this stage, children have already understood the concept of identifying numbers in order, thus they should be able to fill the empty spaces themselves. It is important to call attention to the fact that counting is being done in 2s.

**Counting in sequence:** Raise a finger and ask the children to say out loud how many fingers are being held up. Once all children can correctly answer 'one', raise another finger. Keep going until all ten digits are raised.

At this point, ask a child to come as a volunteer to the front of the class. Ask this child to raise the finger. Now ask the rest of the class how many total fingers are up. Tell the child to keep raising more fingers and check if children can remember the numbers in sequence.

Once this is done, bring the attention of the children to the cut-outs pasted on the wall with the missing number. The concepts of 'before, after, and in between' taught to children in *Maths Level 1* of this series should help the children in filling the empty circles as well. Split the class into small groups and allow each group to call out the correct answer to each empty circle.

### **Student's book activity**

Open the student's book to page 55 and seat each child with their copy. Allow everyone to attempt the answers themselves before the teacher is required to provide assistance. Explain to the children that they are counting by 2s, which means that the missing number can be found by adding 2 to the previous missing number.

## Recapitulation

You can change the numbers present on the board so that all the even numbers are present and odd numbers are missing. Explain to the children that, in the same manner, adding 2 to the previous number will give the next correct number.

Lesson 15 (pages 56-57)

Writing Numbers in Figures

## Materials required

- chart paper
- rulers
- marker
- clean dry sand
- sand trays (old shoe box, cake pans, or plastic trays can be used to make sand trays)

## Pre-activity preparation

On the chart paper, with a ruler draw columns similar to the ones given on the pages of the student's book. Write the numbers to be taught (1-60) as well as the headings (tens, units) in a clear manner so that the children can easily view them from every angle. Paste this chart paper on the display board.

## Introduction:

Draw the attention of the children to the numbers written on chart paper on the display board. Most children will already have a ready grasp of these numbers from previous lessons (although some might face a problem with numbers after 30). Allow the children to attempt to read out the numbers themselves, and then, placing a finger on each number, read it out loud.

**Tens and Units:** Since the majority of children have already been introduced to these numbers, this exercise can be both a good revision for strengthening their skills and memory related to numbers (in sequence, filling missing numbers, etc.) as well as in reinforcing the concept of tens and units introduced earlier. Allow the children to first look at the chart paper and encourage them to ask questions related to things they don't understand. The teacher might have to reiterate exactly what tens and units are. Give children the time to clearly understand the concept before moving forward.

**Sandbox activity:** Introduce sand trays filled with clean dry sand to the children. Demonstrate to them how they can try to trace the numbers that they see up on the display board on the sandbox using their fingers.

### **Student's book activity**

Seat each child with the student's book open to the relevant pages and encourage the children to write the given words. Ensure that they have the help they require.

### **Recapitulation**

At the end of the lesson, remove other numbers from the chart paper (either by rubbing it out, or by placing a strip of paper on top of the numbers using tape at the edges of the strip), and ask children to fill in the missing numbers.

# Unit 7: Shapes

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- name and colour the shapes taught (square, triangle, rectangle, circle)
- understand the concept of 3d shapes
- be able to compare and match 3d shapes with 2d shapes
- identify the next shape (and its colour) in a sequence

Lesson 1 (page 58)

Colour the Shapes Accordingly

## **Materials required**

- A4 sheets/chart paper
- colours pencils/crayons
- scissors
- chalkboard and chalk

## **Pre-activity preparation**

On the board or on any other large surface (such as on chart paper on the display board) which is clearly visible to all the children, draw the four shapes given on the page. Make sure you write in capital letters the names of each shape right next to the shape itself, so that the children can easily read the words from their own seats without needing to get up and approach the display board.

Using large A4 sheets or chart paper, fold the sheet into smaller pieces and draw each shape on the sheets. Cut out each shape so that children can hold them in their hands. Depending upon the amount of resources available, you can conduct this activity in small groups as well.

Use the following colours per shape, so that you can use these cut-outs in the activities for lessons in the future as well:

Green and/or brown: circle

Yellow and/or orange: square

Pink and/or purple: rectangle

Blue and/or red: triangle

## Introduction

Draw the attention of children to the shapes drawn on the board/display. As you introduce each shape, read the name out loud, and encourage the children to repeat the name after you. Allow children to take their time with the pronunciation. Explain to the children how they will use colouring pencils to colour the shapes given in their student's books accordingly. This lesson can work as an excellent revision of the children's basic comprehension of colours, as well as ability to grip pencils and colour within the lines.

It is necessary to confirm that the children are pronouncing the names correctly. Encourage them to read the word aloud, and to ask for help if required. At this stage, children should be able to relate the name and the shape correctly with ease.

**Group activity with cut-outs:** Seat the children in small groups and hand them the cut-outs of the four shapes. Allow them to feel the sides and the corners.

Once all the children in each group have had a chance to hold the cut-outs in their hands, bring their attention to the words written on the board. Name each shape out loud and ask the children to hold up the cut-out of that shape. Repeat the names until each group can correctly identify which shape needs to be held up according to each name.

## Student's book activity

Seat each child with a copy of his/her student's book and colouring pencils. Before they begin the activity, ask them whether they can identify each shape by name. Once all the children are able to comprehend what they have to do, allow them to colour within the lines.

## Recapitulation

Since this lesson is a basic revision exercise to prompt the children to recall the basics of shapes, the teacher should spend as much time as possible on this page to ensure that all children present in the class have revised appropriately and know the concepts before moving forward. Leave the cut-outs up where they can easily see them for a visual reminder through the remainder of the unit.

**Materials required**

- cut-outs of shapes (can re-use from lesson 1)
- 3d objects which can be used to teach shapes (e.g. round ball, square box, cylindrical water bottle, etc.)
- blank A4 sheets
- marker
- chart paper
- colour pencils/crayons

**Pre-activity preparation**

Ensure that cut-outs used earlier are in good condition and can easily be re-used. If the quality is not good enough to be used again, discard and make a new set if resources allow.

Place the objects to be used for demonstration on a table in front of the class where all the children can easily see and from where the teacher can easily pick them up for presentation and display.

On the same chart paper/board used in Lesson 1, draw the four 3D shapes given on page 59 of the student's book, in a row next to each corresponding 2D shape (for example, draw a cone next to a triangle, a cube next to a square, and so on). Make sure you write in capital letters the names of each shape right next to the shape itself, so that the children can easily read the words from their own seats without needing to get up and approach the display board.

**Introduction**

Once the children have grasped the concept of 2D shapes, they can move on to the concept of 3D shapes, which are present all around them. Bring the attention of the children to the new shapes present on the board/display, and introduce the concept of 3D shapes. You may at this stage use the objects you have placed on the table for demonstrations. As you pick up each item, bring special attention to the side that best represents the shape being taught, and trace it with your finger. Count the number of sides, and then encourage children to count the sides with you.

**Shapes all around:** To reinforce the idea of 3D shapes, show children things

present in the class which are of the shapes being taught. The easiest example is that of the books that the children use themselves. Books can be used to teach the concept of square and rectangular shapes.

Hold up these books in front of the children and ask them to count the sides with you. After that, use the other objects you have set out for this activity (refer to resource list) and allow children to guess the shape of each object themselves.

Children should also be encouraged to think of things that they can identify in the class which are of a particular shape. Objects that children may point out include the shape of the windows, display board, door, etc. Allow children to name as many things as they can think of.

**Cut-outs:** Seat the children in small groups. Show the cut-outs used in Lesson 1 to them and ask them to name each one. Once each group has had a chance, ask them to find another shape that has many square faces (bring their attention the shapes present on the board/display). Tell them that the shape is a cube. Do this activity with all the four basic shapes before beginning work on the pages of the student's book.

### **Student's book activity**

Once the children have understood the concept, seat them in pairs and give them pencils to work on page 60. Provide assistance where required, since this is a new concept that has been introduced, and they might need some extra help.

### **Recapitulation**

Point to things present in the classroom and ask children if they can remember which shape they are. Allow children to keep looking at the shapes present on the board/display during this exercise to reinforce the concepts.

Lesson 3 (page 61)

Draw and Colour the Correct Shape

### **Materials required**

- chart paper
- colouring pencils/crayons
- scissors
- baskets



## Pre-activity preparation

Using the colouring pencils/crayons, draw rectangles, squares, circles, triangles, pentagrams, stars, and heart shapes on the chart paper in different colours. Use the scissors to cut them out and place them in different baskets. Ensure that there are enough baskets for small groups of children in the class. Keep one set for the teacher to demonstrate.

## Introduction

The lesson is a revision of Lesson 1, Unit 3, and can be taught in the same manner. Introduce it again to the children by displaying the shapes in different colours in various patterns. This is a good opportunity to also revise the colours taught previously to the children, as well as check whether children can recognise different shapes easily.

Begin the lesson by holding up the cut-outs and asking the children what features they can recognise. Children can either reply in terms of shapes, or in terms of colours. Allow the children to keep guessing until you are certain that all children can confidently recognise all the shapes and colours of the shapes that are part of this lesson.

**Pattern recognition in terms of shape:** Seat the children in pairs for this activity. On your board, start drawing two shapes alternatively (for example, a square and a triangle, then another square and triangle, and so on...). Stop after you have drawn five shapes and allow the children to guess what the next shape will be.

It is a good practice to start from the first shape and allow any one child from a pair in the class to name the shape out loud. Then the other child in the same pair should be asked to name the next shape, and the first child asked to name the third. This way children will be able to recognise that shapes are being repeated in a consistent pattern.

**Pattern recognition in terms of colour:** Using the cut-outs made during the pre-activity preparation, hold up shapes of two varying colours and let the children state which one will come next. For example, green and yellow squares can be held up alternatively, and then the children can be asked to identify which square they believe will come next.

Allow the children to keep answering until everyone in the class can correctly guess the colour of the next shape in the sequence.

**Identifying sequences:** Seat the children in small groups and place the baskets

with the cut-outs in front of them. Give each child in the group a representative number or letter, so that it is easy to identify which child will be expected to do what. Ask the children to take out the cut-outs and spread them in front of themselves.

Call out the number/letter used as a representation for the first child (for example, Child 1 or Child A in each group), and ask them to hold up a shape of a particular colour (for example, green square). Then call out the name/letter of the second child (Child 2/Child B) and ask them to hold out a cut-out which is not only of a different shape but of a different colour too (for example, purple triangle).

At this stage, it is the teacher's discretion to check whether children are able to identify sequences in groups of twos or threes. If they can easily sequence in larger patterns then continue on with another shape of a different colour, or else ask the third child to continue the pattern (i.e. at this stage, to continue the pattern Child 3/Child C should pick up another green square).

This activity can continue until all children have had a chance to recognise which shape/colour will come in a sequence next.

### **Student's book activity**

Ensure that all children have the correct colours required for this activity before beginning. Each child should be asked to open their student's book and attempt to colour and draw the next shape. The teacher should be present to provide assistance in case of any confusion. Children are likely to not draw an exact copy in terms of size; the important thing is to ascertain whether the shape and the colour of the missing item have been correctly identified by each child.

### **Recapitulation**

Paste the cut-outs on the display board and tell the children that they are welcome to draw further patterns of their own in their copies if they wish to do so. It is a fun activity which helps to increase colour and shape recognition as well as allows children to express their artistic side.

## Unit 8: Addition

### **Expected learning outcomes**

By the end of the unit, children will be able to:

- understand the concept of addition
- count and add given objects
- use the number line for addition
- add objects introduced in a story

Lesson 1 (pages 62–64)

Count and Add

### **Materials required**

- newspapers/magazines
- scissors
- stationery items (pencils, rulers, rubbers, etc.)
- chart paper
- markers
- baskets (one for each pair)
- blank A4 sheets

### **Pre-activity preparation**

From the newspapers/magazines, cut out multiple images of objects (for example, strawberries, mangoes, oranges, etc.) as well as animals (for example, sheep, monkeys, penguins, elephants, lions, etc.).

On the chart paper, make three columns. Place similar images in each row in the first and second column (for example, two strawberries in the first column and three strawberries in the second column in the first row) and write the number of items below each image. Place the total number of images in the third column (for example, five strawberries in the third column in the first row) but leave a space empty at the bottom so the children can count and add.

On another chart paper, draw similar sums as given on page 64 of the student's book. You can add even more combinations of numbers if you have the resources in terms of time and space available.

Place the stationery items on a table in front of the class from where children can easily view them. Also place stationery items in the baskets which are to be distributed in the class for pair work.

### **Introduction**

Since this will be the first introduction for children to the concept of addition, begin by displaying the stationery items, and asking them to count one by one as the teacher counts. Hold two pencils in one hand, and two in another. Then bring them together, and help children reach the number four by adding the two separate groups. This is both a revision to the concept of counting numbers, as well as a new concept being taught, so allow children time to manage to clarify their concepts. Keep repeating this exercise until the whole class can answer confidently.

**Group work for addition:** Seat children in pairs and place the baskets in the middle. In this activity, children will be expected to consider two sets of the same objects, count the number of objects in each set, and then respond to how many there are altogether.

Ask one child in each group to take out 3 rubbers (or 3 pencils/rulers, etc.). Ask the other child to take out 2 of the same item. Once each child has counted how many items they each have individually, instruct them to place the items together on the table, and then count the table number. Explain that what they are doing is called addition.

**Count and add given objects:** Bring the attention of the children to the display board, where the chart paper is present. Go through each row one by one, first counting the number of items (shown visually) in each column and showing the number written underneath each. In the third column, allow the children in groups to count the total number of items before the teacher writes the correct answer underneath.

**Number sums:** While visual representations are helpful and bring more clarity to the children's understanding, it is imperative that they learn to add without visual cues given. Move forward to the number sums also present on the chart paper once all children have had enough practice with counting using the images. This might be tough for a few of the children, so go at a pace that allows the whole class to work together.

Sticks can also be used for this exercise, to represent the sticks drawn next to each number on the page. The children can also be asked to draw small lines on blank A4 sheets (as many as the number which is part of the sum) while carrying out the

addition sums. This will help with greater retention. Tell them to count how many lines there are together, which is the final answer to each sum.

### **Student's book activity**

Only begin working on the student's book once children have had adequate practice on addition sums with the teacher during class demonstrations and using images and/or objects during introduction to the topic.

Seat each child with a copy of the book open to the relevant pages and allow each child to attempt the sum themselves before help is provided. If children express some frustration, explain to them that it is okay to make mistakes, and provide assistance where required.

### **Recapitulation**

Leave the images and sums up on the chart paper as more lessons are taught so children can keep revising their concepts. Keep adding more numbers to the display so that they can be challenged to count and add different combinations of numbers.

Lesson 2 (page 65)	Addition on Number Lines
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### **Materials required**

- chart paper
- ruler
- marker
- white board and white board marker OR black board and black board marker

### **Pre-activity preparation**

Draw the number line (up till 9) on chart paper or on the board and ensure that it is clearly visible to the children. Write the numbers in large and clear format and draw dotted lines which show the path between numbers.

Write multiple addition sums below the number line (as many as the space allows) so that children have lots of sums to solve for rigorous practice.

### **Introduction**

While children know and have understood the concept of addition at this stage,

they have not been introduced to the number line before, so it is imperative to go over it a number of times before they have a proper grasp of the topic.

Introduce counting on the number line by explaining to the children how it can be used for addition. Start with very basic sums (for example, adding two plus one) and then move on to bigger sums as the children get more comfortable with the number line. Use fingers to trace the path between numbers as each sum is counted. Encourage children to come up to the board and trace the path with their fingers as well. Explain that this is just another way of addition.

### **Student's book activity**

Allow children to get comfortable with the concept of the number line before beginning work on page 64 of the student's book. Once all children demonstrate a sufficient ability to count on the number line, seat each child with a copy of the student's book open to this page, and tell them to trace the path with the number if they need help before writing the final answer.

### **Recapitulation**

Leave the number line up on the board as well for the children to make their own addition sums which they can trace with their own fingers. Ensure that the drawing of the number line is present at a height which the children can easily reach.

Lesson 3 (page 66)	Story Sums
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### **Materials required**

- Stationery items (pencils, rulers, rubbers, etc.)

### **Pre-activity preparation**

Place the stationery items on a table in front of the class from where children can easily view them.

### **Introduction**

Story sums are an excellent way to teach addition to children, since it helps give them real life examples of situations where they might have to put the concepts they have learned to use.

**Volunteers:** Ask children to come up as volunteers to the front of the class, so

that they can be part of the activity. Hand each child a few items (for example, two pencils to the first child and one pencil to the second child).

Encourage them to stand facing the class, with the pencils held up so that they are visible to everyone. Tell the class: 'Child A (name) has two pencils. Child B (name) has 1 pencil. How many pencils do they have together?'

Allow children to give answers before asking the two volunteers to hold their pencils together.

Children can be asked to keep coming up in pairs, to keep practicing using such story sums. Items can also be exchanged, for example using books, rubbers, etc., as long as the children can easily hold them without dropping them and they can hold them in a manner visible to the whole class.

An alternative can also be holding up fingers. Ask the children who are acting as volunteers to hold up as many fingers as given on top of the sum (use sums given on board/display for reference) and then continue to hold up as many as the bottom number. Ask them to count their fingers all together to find the answer.

### **Student's book activity**

Seat each child with their copy of the student's book open to page 66 and allow them to attempt the sum themselves first. Encourage them to use their fingers as taught during the introduction if they come across a difficulty.

### **Recapitulation**

At the end, change the numbers of the sums given on the board/display (for example, change the number of items present in each row, or flip the placement of numbers from the top and bottom of sums). Keep asking children to solve the sums as much as they can for regular revision.

Lesson 4 (page 67)	IQ Booster—puzzle
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### **Materials required**

- Chart paper
- Marker
- Colouring pencils/crayons (pink and brown)

### **Pre-activity preparation**

Draw a box of nine squares in a similar manner to the one given on page 67 of the student's book. Write the same numbers as given on the page.

On the chart paper, draw sets of triangles and pentagams. Make all of them of different sizes and make two that are of the same size. Ensure that there is a significant degree of difference between the sizes so children can easily identify the difference. Cut these out and paste them on the display board.

### **Introduction**

It will be necessary to explain to children exactly what they are required to do before this particular IQ challenge can be done.

Bring the attention of the children to the board, and tell them that it is a new puzzle for them to solve. Each column and row add up to the number given outside the boxes, and only contains the number 1 to 3. Children are required to put the correct number in the empty boxes to complete the addition puzzle.

Next, bring the attention towards the shapes pasted on the board, and tell the children that they must identify which two shapes are of the same size. Allow children to guess the answers themselves before providing any assistance.

### **Student's book activity**

Children might need some help attempting this particular puzzle, since it will be a different way of adding than the one they are used to. Make it exciting by telling them that this is a special puzzle. They can also use their fingers to solve this puzzle, since it involves basic numbers, or solve it with the help of friends or in groups.

Seat children in groups to solve the second part of the IQ challenge, and tell them that they have to colour the two shapes of the same size.

### **Recapitulation**

You may change the numbers on the puzzle to make it harder as more children are able to solve it easily. As children advance with their addition practices, this puzzle can be modified to keep up with their progress, and is a fun and exciting method of keeping things interesting in class.



# Unit 9: Subtraction

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- understand the concept of subtraction
- count and subtract given objects
- use the number line for subtraction
- subtract objects introduced in a story

Lesson 1 (pages 68–69)

Count and Subtract

## **Materials required**

- newspapers/magazines
- scissors
- stationery items (pencils, rulers, rubbers, etc.)
- chart paper
- markers
- baskets (one for each pair)
- blank A4 sheets

## **Pre-activity preparation**

From the newspapers/magazines, cut out multiple images of objects (for example, footballs, cricket balls, etc.)

On the chart paper, make two columns. Place a set of similar images in each row in the first column (for example, four footballs in the first column in the first row) and write the number of items below each image. Place the total number of images in the second column (for example, two strawberries in the second column in the first row) but leave a space empty at the bottom so the children can count and add.

On another chart paper, draw similar sums as given on page 69 of the student's book. You can add even more combinations of numbers if you have the resources in terms of time and space available.

Place the stationery items on a table in front of the class from where children can easily view them. Also place stationery items in the baskets which are to be distributed in the class for pair work.

## Introduction

Since this will be the first introduction to children to the concept of subtraction, begin by displaying the stationery items, and asking them to count one by one as the teacher counts. Hold four pencils in one hand. Then remove two of the pencils, and help children reach the number two by counting the remaining pencils. This is both a revision to the concept of counting numbers, as well as a new concept being taught, so allow children time to manage to clarify their concepts. Keep repeating this exercise until the whole class can answer confidently.

**Group work for subtraction:** Seat children in pairs and place the baskets in the middle. In this activity, children will be expected to consider sets of objects, count the number of objects in each set, and then respond to how many there are left after a certain number is removed.

Ask one child in each group to take out 3 rubbers (or 3 pencils/rulers, etc.). Ask the other child to take out 2 of the same item. Once each child has counted how many items they each have individually, instruct them to place the items together on the table, and then count the total number. Explain that what they are doing is called addition.

Now ask the first child to remove 2 pencils. Ask the children to count the remaining items. Explain that what they are now doing is called subtraction.

**Count and subtract given objects:** Bring the attention of the children to the display board, where the chart paper is present. Go through each row one by one, first counting the number of items (shown visually) in each column and showing the number written underneath each. In the second column, tell the children that after the items have been subtracted, these are the items that are left. Allow the children in groups to count the total number of items before the teacher writes the correct answer underneath.

**Number sums:** While visual representations are helpful and bring more clarity to the children's understanding, it is imperative that they learn to subtract without visual cues given. Move forward to the number sums also present on the chart paper once all children have had enough practice with subtraction using the images. This might be tough for a few of the children, so go at a pace that allows the whole class to work together.

Sticks can also be used for this exercise, to represent the sticks drawn next to each number on the page. The children can also be asked to draw small lines on blank A4 sheets (as many as the number which is part of the sum) while carrying out the subtraction questions. This will help with greater retention. Tell them to count how

many lines are left after a certain number has been crossed out, which is the final answer to the question.

### **Student's book activity**

Only begin working on the student's book once children have had adequate practice on subtraction questions with the teacher during class demonstrations and using images and/or objects during introduction to the topic.

Seat each child with a copy of the book open to the relevant pages and allow each child to attempt the sum themselves before help is provided. If children express some frustration, explain to them that it is okay to make mistakes, and provide assistance where required.

### **Recapitulation**

Leave the images and sums up on the chart paper as more lessons are taught so children can keep revising their concepts. Keep adding more numbers to the display so that they can be challenged to count and subtract different combinations of numbers.

Lesson 2 (page 70)

Subtraction on Number Lines

### **Materials required**

- chart paper
- ruler
- marker
- white board and white board marker OR black board and black board marker

### **Pre-activity preparation**

Draw the number line (up till 9) on chart paper or on the board and ensure that it is clearly visible to the children. Write the numbers in large and clear format and draw dotted lines which show the path between numbers.

Write multiple subtraction questions below the number line (as many as the space allows) so that children have lots of sums to solve for rigorous practice.

### **Introduction**

While children know and have understood the concept of subtraction at this stage,

they have not been introduced to the number line before, so it is imperative to go over it a number of times before they have a proper grasp of the topic.

Introduce counting on the number line by explaining to the children how it can be used for subtraction. Start with very basic sums (for example, subtracting one from two) and then move on to bigger subtractions as the children get more comfortable with the number line. Use fingers to trace the path between numbers as each sum is counted. Encourage children to come up to the board and trace the path with their fingers as well. Explain that this is just another way of subtraction.

### **Student's book activity**

Allow children to get comfortable with the concept of the number line before beginning work on page 70 of the student's book. Once all children demonstrate a sufficient ability to count on the number line, seat each child with a copy of the student's book open to this page, and tell them to trace the path with the number if they need help before writing the final answer.

### **Recapitulation**

Leave the number line on the board for the children to make their own subtraction questions which they can trace with their own fingers. Ensure that the number line is present at a height which the children can easily reach.

Lesson 3 (pages 71–72)	Story Sums
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### **Materials required**

- stationery items (pencils, rulers, rubbers, etc.)

### **Pre-activity preparation**

Place the stationery items on a table in front of the class from where children can easily view them.

### **Introduction**

Story sums are an excellent way to teach subtraction to children, since it helps give them real life examples of situations where they might have to put the concepts they have learned to use.

**Volunteers:** Ask children to come up as volunteers to the front of the class, so that they can be part of the activity. Hand the first child a few items (for example, five books to the first child).

Encourage the volunteers to stand facing the class, with the books held up so that they are visible to everyone. Tell the class: 'Child A (name) has five books. She/he has read 2 books. How many books are left to read?'

During this demonstration, remove the requisite number of items (for example, in this situation remove 2 books), and place them on the side. Allow the volunteer to keep holding the remaining books. Allow children to give answers before asking the volunteer to count the remaining items themselves and give the answer.

Children can be asked to keep coming up in pairs, to keep practicing using such story sums. Items can also be exchanged, for example using pencils, rubbers, etc., as long as the children can easily hold them without dropping them and they can hold them in a manner visible to the whole class.

An alternative can also be holding up fingers. Ask the children who are acting as volunteers to hold up as many fingers as given on top of the sum (use sums given on board/display for reference) and then close as many as the bottom number. Ask them to count their fingers left open to find the answer.

### **Student's book activity**

Seat each child with their copy of the student's book open to the relevant pages and allow them to attempt the subtraction questions themselves first. Encourage them to use their fingers as taught during the introduction if they come across a difficulty.

### **Recapitulation**

At the end, change the numbers of the sums given on the board/display (for example, change the number of items present in each row, or flip the placement of numbers from the top and bottom of sums). Keep asking children to solve the sums as much as they can for regular revision.

# Unit 10: Time

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- understand that a clock is used to tell the time
- understand the significance of the short and long hand of a clock
- read the time using a clock
- draw the hands on a clock to show the time

Lesson 1 (page 73)

What is the Time?

## **Materials required**

- paper plate with a hole in the centre
- split pin
- marker
- sticks (cut to make the hour and minute hands of a clock, and holes punched in them)

## **Pre-activity preparation**

On the paper plate, write the 12 numbers on the edges in a similar manner to a stick. By poking a hole in the very middle, thread a split pin through the centre, and attach two sticks to the pin which can be used as the hour and minute hand of the clock. Ensure that these are movable.

## **Introduction**

Children have already been introduced to the concept of different times of day in the previous class. In this lesson, they will be introduced to the concept of telling time through the clock.

Explain to the children that the clock is used to represent time throughout the day. Show the children the paper clock, point out the numbers 1–12, and introduce the terms hour (short) hand and minute (long) hand. Explain that clocks are used to tell the time and we tell the time by looking at the positions of the hands.

Explain that time is divided into hours and minutes; minutes are shorter than hours. Ask the children to sit still and in silence for the duration of one minute; if there is a

clock in the room with a second hand they could watch the hand move right round the clock while they do this.

### **Student's book activity**

Ask the children to open their books at page 73 and look at the illustration of the clock. Ask them to look at the hands and to tell you which number the shorter hand is pointing to (8). Explain that this is the hour hand and it tells us the hour. Explain that the longer hand is called the minute hand and it tells us how many minutes have gone by. Remind them that the minute hand moves more quickly than the hour hand.

Open a discussion about the time the children reach school and the time the children reach home. Once the children can answer the question, encourage them to write the answer on the page.

### **Recapitulation**

Ask children the time at different moments of the day, to check whether they have understood the concept clearly. Encourage them to ask questions if they require more clarity.

Lesson 2 (page 74)	Draw the Hands on the Clock
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### **Materials required**

- paper plate clock (used in Lesson 1)
- chart paper
- marker
- colouring pencils

### **Pre-activity preparation**

On the chart paper, draw multiple clocks with different time on each face. Ensure that the time is written at the bottom as well. This is to provide a reference point for children while the lesson is on-going.

### **Introduction**

Once children are able to read time from a clock, they should be able to draw the short and long hands of the clock on a blank clock face to represent a given time.

Explain clearly to the children that the short hand of the clock has to be on the number mentioned and when the time says o'clock, the long hand needs to be on number 12 of the clock.

Use a paper plate clock to demonstrate the time first, using the times given on the display/board as reference. Encourage children to mention other times which the teacher can demonstrate to ensure that all their queries have been adequately addressed.

### **Student's book activity**

Seat each child with their copy of the student's book open to the relevant page and encourage them to complete the activity while taking help from the clocks which have been drawn on the chart paper up on the display board. Check to ensure that they are drawing the long and short hand correctly.

### **Recapitulation**

Keep asking children throughout the day (at significant moments of the day, such as when they arrive at school or are leaving, or when a new lesson is about to start) what the time is, using the clock present in class. This will help children develop the habit of reading the time regularly.



# Unit 11: Money

## **Expected learning outcomes**

By the end of the unit, children will be able to:

- have a clear understanding of the concept of money, and what it is used for
- recognise one, two, and five rupee coins, and the ten rupee note
- add and subtract sums of money
- understand what the terms cheap and expensive mean

Lesson 1 (page 75)

Adding Money

## **Materials required**

- large images of 1, 2, and 5 rupee coins and 10 rupee note (drawn on chart paper, or taken from internet)
- various objects (for example toys, old clothes, etc.) to set up a shop in the classroom (with price tags for each item)
- student sets of fake 1, 2, and 5 rupee coins and 10 rupee note (if easily available)
- baskets (1 per each group)

## **Pre-activity preparation**

Paste the images up on the display board where the children can easily see them. Set up tables at the corners of the classroom with the various objects available, along with their price tags placed next to them where they are clearly visible. Keep sets of the fake coins and notes in baskets so that the children can use them easily during the 'Shopping day' activity.

## **Introduction**

Children have already been introduced to the concept of money in *Maths Level 1*. Begin the discussion by talking to the children about the times when they go shopping with their parents. Elicit from this conversation and their experiences that it is necessary to pay for the things we take from the shops, and for this we need to use money. Explain that the shopkeeper will add up the cost of the items we want

to buy and the customer has to give him/her that amount of money in order to take the things away.

Bring the attention of the children to the images pasted on the board and introduce each coin and the note one by one. They must be able to recognise the coins and note first before moving forward with this activity.

**Shopping Day:** Set up a shop with different objects and their price tags. Explain to the children that since money is needed to buy things we need, they can try using fake money to buy the things available on the tables.

Divide the children into groups and give each group a basket containing the fake coins and notes. Help them to buy and sell items from the shop.

### **Student's book activity**

Ask the children to open their student's books to page 75 and look at the coins and note given. Explain that these are some of the coins that are used in Pakistan and make sure that each child can see the amount of money stamped on each coin and on the note. Talk about the sizes and colours of the coins and note in order to help the children differentiate between the various types.

Show the children the fake coins. Seat children in groups and give the fake coins to each group in turns so that they can feel them and examine them closely.

Help the children add the coins together to find the final answer given on the student's book. Encourage children to place the coins or the note side by side so they can count more easily.

### **Recapitulation**

Keep adding more things to the shop set up so that children can continue with the shopping day activity later as well.

Lesson 2 (pages 76–77)	Money Questions
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### **Materials required**

- Re-use materials used in Lesson 1

### **Pre-activity preparation**

Place the price tags of the items on the table in a prominent position so children can easily tell which one is cheaper and which one is more expensive.

### **Introduction**

This lesson reinforces the lesson taught previously by allowing children to make value judgements about which item is cheaper and which item is more expensive. Explain to the children the comparison in terms of price comparisons. Bring the attention of the children to the notes pasted on the display and ask them which number is bigger/smaller.

### **Student's book activity**

Pair up the children for this activity. First, ask the children to look at page 76. Talk about the objects present on the page and their prices. Ask them which is the cheapest, and which is the most expensive. Go through the list of questions present on the page with the children to ensure that they have understood the concept clearly.

Turn to page 77 and allow the children to do this on their own. Assist them only if they ask for help.

### **Recapitulation**

Different objects can be further added to the shopping day table to allow the children to try different combinations of coins to buy further items.

# Activity Bank

## Activity 1: Don't stop counting

The counting activity never stops. It is important to encourage children to count as many things as possible in their daily life: parents can be encouraged to help their child count the number of buttons on their shirt or the number of houses in their block. When children are out, they may count the number of streets that are passing by or the number of stairs they are taking.

**Skills learnt:** Counting and self-confidence, sequencing and numbers

## Activity 2: Measure

Make use of those tiny hands and help children measure from a very young age. Children should be encouraged to take part in activities where they will be involved in the measuring process. While cooking, ask parents to encourage children to get them half a cup of water or one tablespoon of a particular spice. Ask questions such as, 'Can you get me half a cup of water?' Make them feel as if they are doing an important job on their own.

**Skills learnt:** Measurement

## Activity 3: Colours

Colours are very eye-catching and vibrant. They are one of the few things that attract a child from a very young age. They are able to differentiate colours even before they find out their names. Make use of that knowledge and help build a habit so that they identify colours as quickly as possible and then slowly progress towards them grouping things together on the basis of a colour.

Whenever there is free time, children should be asked to find a particular coloured object in that room. For example: 'How many brown-coloured objects can you see?' This will not only make them find brown objects but count them as well.

**Skills learnt:** Identification of colours and the ability to count, addition and subtraction, visual activities

#### **Activity 4: Compare**

Place the feet and hands of children together, next to the hands and feet of an adult, and ask the child whose hand or feet are bigger. The same activity can be done with other objects, by placing any two differently-sized objects and asking children to differentiate on the basis of being bigger or smaller.

**Skills learnt:** Comparing sizes, IQ boosters

#### **Activity 5: Independent learners**

Encourage children to pack their school bag on their own from a young age. Ask them to count the books, stationery items, and every other thing that they might take to school.

You may also ask them to carry their school bag when it is empty, and after they have placed everything in their school bag. Ask them to compare the weight of the school bag. This is a good way of checking how much weight children are able to carry. Ask them to walk in a straight line with their bag, and then to remove the bag and run, hop, or skip across the room. Children should not be burdened with bags that are too heavy for their weight or height.

**Skills learnt:** Independent learning, physical development

#### **Activity 6: Shapes with play dough**

Play dough is an excellent method for developing all fine motor skills. It helps to strengthen little hands as they roll, squeeze, twist, or build different objects with it. Encourage children to work in groups or in pairs to create different shapes such as circle or square.

**Skills learnt:** 3D shapes, fine motor skills

# Assessment Guide

Research indicates that formal tests and examinations are not all accurate when measuring a toddler's abilities. Many young children do not perform well in situations where they must answer specific questions or complete tasks because they may not be familiar with the testing language, they may be shy or just frightened. When a young child does not perform well, he/she is labelled as a below average child.

The comparison between two young children is fruitless as children of such age grow and progress at their own pace. Young children's progress should be measured by the teacher's on-going observations during the entire year. Their progress should be compared to their own development and not to that of other children.

## – Children Assessment and Record Keeping

The teachers are requested to observe each child as they participate in different activities. Though at times they may step back and observe, however, more so than usual, they may have to be involved with the children. Teachers will have to develop this skill, to be actively involved, picking up cues from the children.

What is the teacher supposed to look for? The teacher observes the children and assesses the different areas of learning and development.

The following methods of assessment and record keeping are strongly recommended:

- Checklist of the child's progress
- Maintain a portfolio of the child's work
- Progress reports for parents

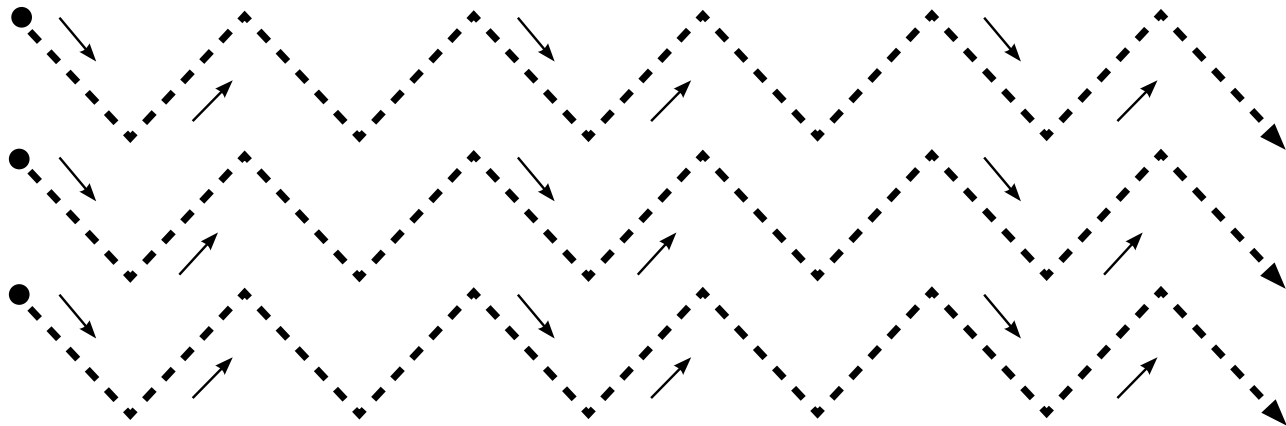
The Assessment Guide contains:

- Worksheets (Informal assessment)
- Observation checklists (the teacher will observe the points mentioned in the observation checklists and then fill it at the mid and end of the year).

# Worksheets

## Worksheet – 1: Patterns and Tracing

Trace the following dotted lines, following the arrows.



## Worksheet – 2: Colour by Numbers

Colour the ball according to the given numbers.

1-red

8-brown

2-yellow

9-white

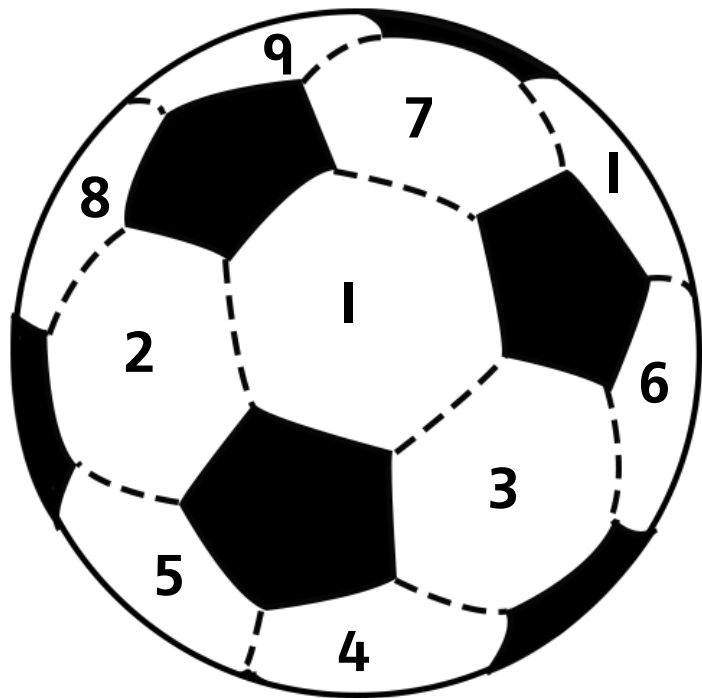
3-green

4-blue

5-orange

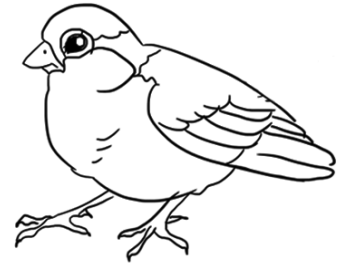
6-pink

7-purple



### Worksheet – 3: Big and Small

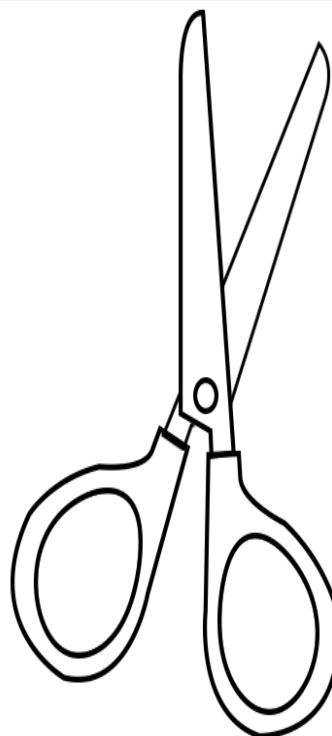
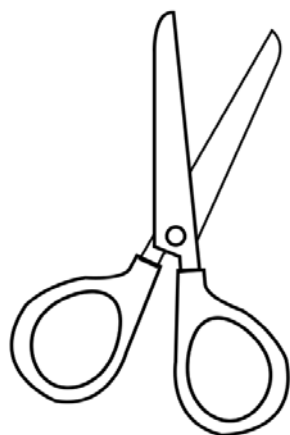
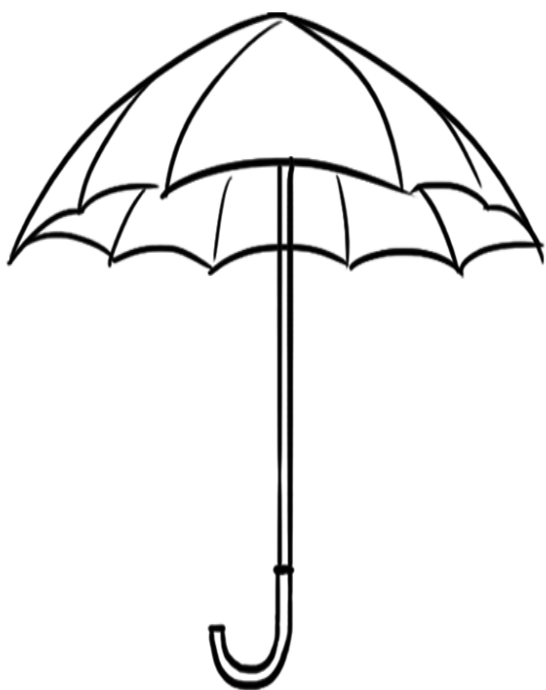
Colour the bigger objects orange and the smaller objects purple.





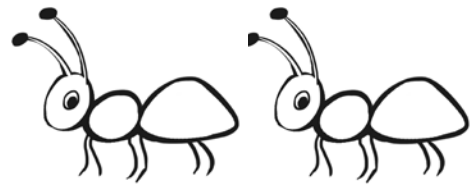
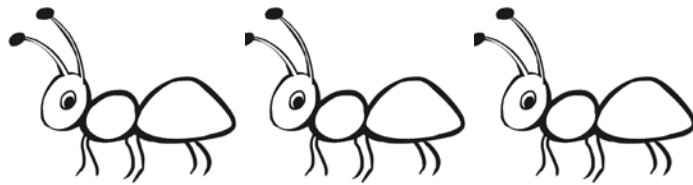
### Worksheet – 4: Tall and Short

Circle the taller object in each box.



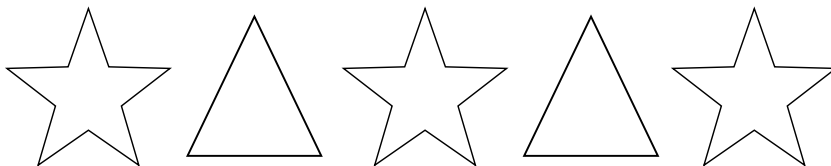
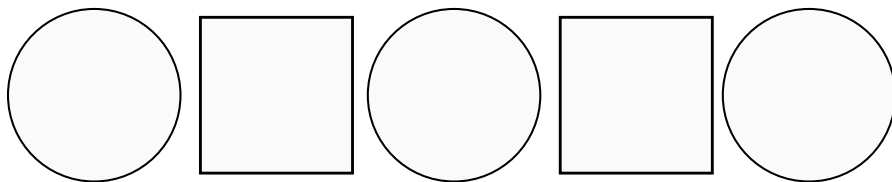
### Worksheet – 5: More and Less

In each row, colour the group that has more objects.



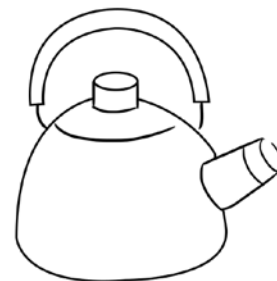
### Worksheet – 6: Patterns and Sequences

Draw the shape that will come next.



### Worksheet – 7: Odd One Out

Colour the odd one out in each row.



### Work sheet – 8: Sizes

Trace and colour the biggest shape in each row.

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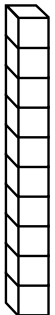

## Worksheet – 9: Measurement

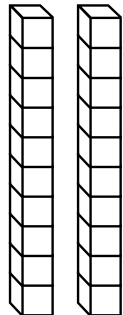
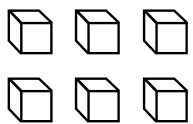
Trace and colour the leaf which covers more area.

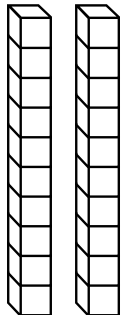
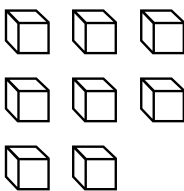


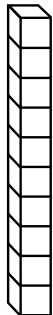
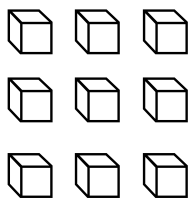
# Worksheet - 10: Tens and Units

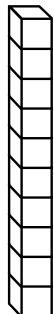
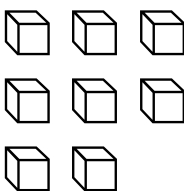
How many tens and units?

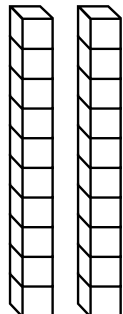

	
tens	units

	
tens	units

	
tens	units

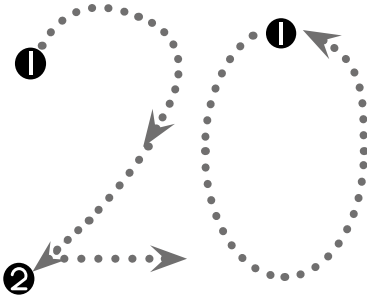
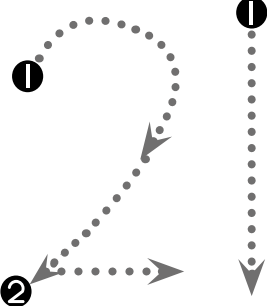
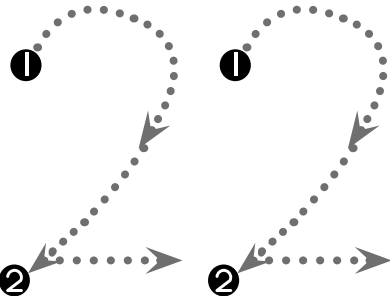
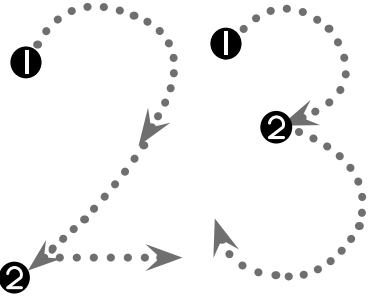
	
tens	units

	
tens	units

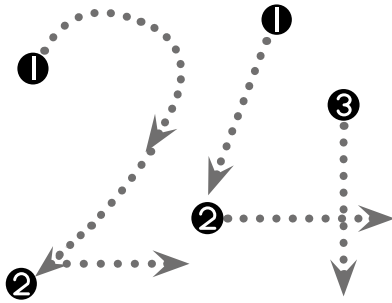
	
tens	units

## Worksheet – 11: Numbers

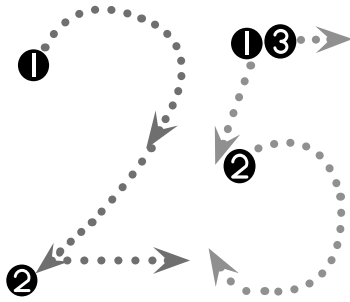
Trace and write the following numbers.

20		
21		
22		
23		

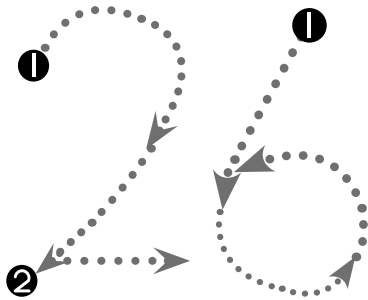
24



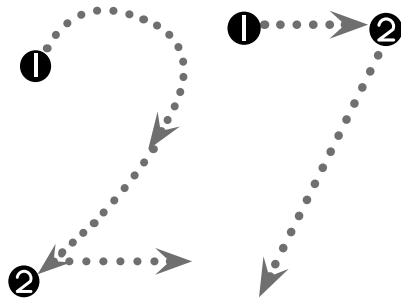
25



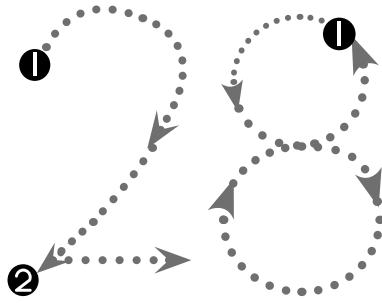
26



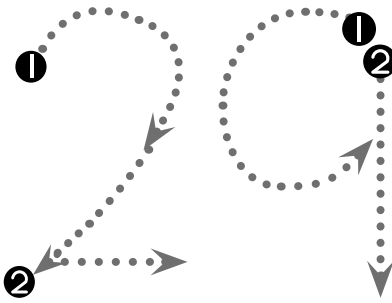
27



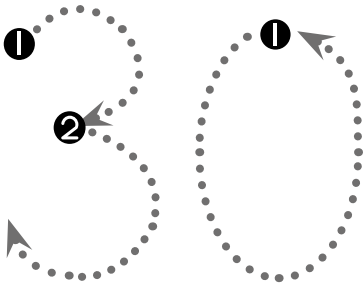
28



29



30





## Worksheet – 12: Shapes

Match the 2D shapes with similar shaped objects.

square



triangle



circle



rectangle

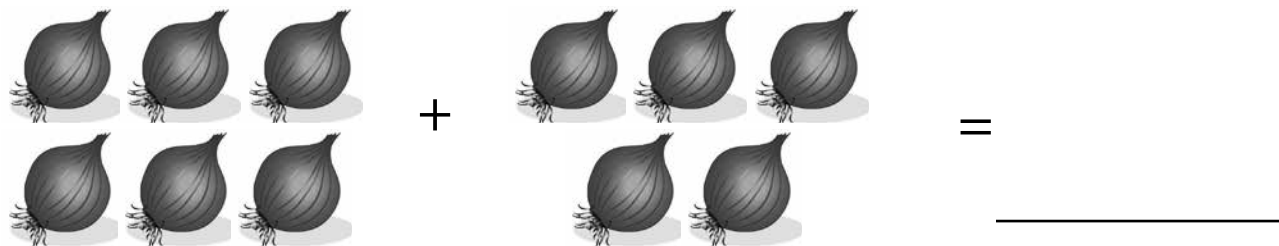


### Worksheet – 13: Addition

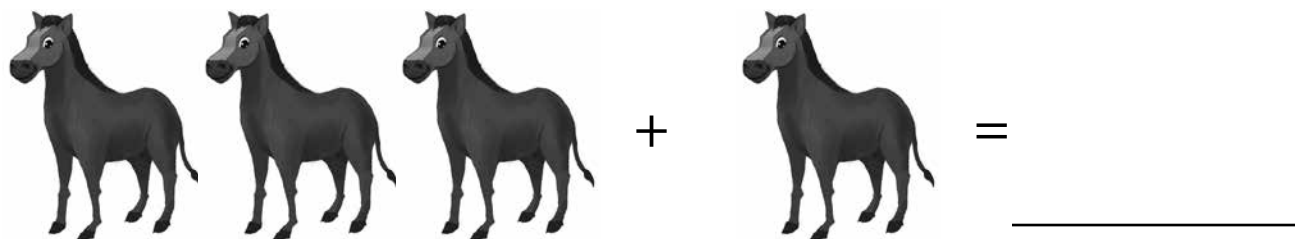
Count and add the objects according to the given questions.



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_



\_\_\_\_\_

## Worksheet – 14: Subtraction

Count and subtract the objects according to the given questions.

$$5 - 1 = \underline{\hspace{2cm}}$$



$$3 - 2 = \underline{\hspace{2cm}}$$



$$2 - 1 = \underline{\hspace{2cm}}$$



$$4 - 2 = \underline{\hspace{2cm}}$$



**Worksheet – 15: Time**

Draw the hands on the clock to show the time.



**3 o'clock**



**6 o'clock**



**5 o'clock**



**7 o'clock**



**9 o'clock**



**11 o'clock**

## Worksheet – 16: Money

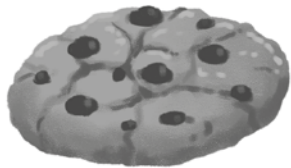
Match the objects with the money they cost.



**Rs 5**



**Rs 2**



**Re 1**



**Rs 10**



**Rs 2**



**Re 1**






**Rs 10**



**Rs 5**

# Mid-of-Year Teacher's Observation Checklist




Consider the child's strengths and the areas in which they can improve. Use the checklist to record their development.

CATEGORIES			
<b>ACADEMIC</b>			
Traces on dotted lines and given patterns independently			
Classifies objects according to colour and size			
Determines objects that have larger area and capacity			
Recognises and counts numbers introduced in the book			
Groups objects in tens and units			
Recognises various 2D and 3D shapes			
<b>LANGUAGE DEVELOPMENT</b>			
Expresses needs clearly in mother tongue and in English (short sentences)			
Listens and follows instructions with minimal facilitation			
<b>FINE MOTOR DEVELOPMENT</b>			
Writes with a pencil and colour pencils with adequate grip			
Opens zip of their bag and lunch boxes			
<b>GROSS MOTOR DEVELOPMENT</b>			
Climbs onto/down from chair with minimal assistance			
Walks up and down the stairs			
<b>TEAMWORK AND GROUP BEHAVIOUR</b>			
Follows good habits and displays positive behaviour			
Engages with class fellows during work and playtime on their own			
<b>SOCIAL DEVELOPMENT</b>			
Uses basic greetings for elders (teachers, parents, and peers)			
Shows awareness of personal safety (does not socialise with strangers)			

**Teacher's note:** This rubric can help you report the progress of the children. It is by no means exhaustive and can be changed as per need. The star stands for satisfactory, the moon is for good, and the sun is for excellent.

# End-of-Year Teacher's Observation Checklist

Consider the child's strengths and the areas in which they can improve. Use the checklist to record their development.

CATEGORIES			
<b>ACADEMIC</b>			
Traces on dotted lines and given patterns independently			
Classifies objects according to colour and size			
Determines objects that have larger area and capacity			
Recognises and counts numbers introduced in the book			
Groups objects in tens and units			
Recognises various 2D and 3D shapes			
Knows basic concept of addition; counts and adds up; recognises the '+' sign			
Knows basic concept of subtraction; counts and subtracts; recognises the '-' sign			
Identifies a clock and recognises that it is used to tell time			
Identifies money and understands that it is used for shopping			
<b>LANGUAGE DEVELOPMENT</b>			
Expresses needs clearly in mother tongue and in English (short sentences)			
Listens and follows instructions with minimal facilitation			
<b>FINE MOTOR DEVELOPMENT</b>			
Writes with a pencil and colour pencils with adequate grip			
Opens zip of their bag and lunch boxes			
<b>GROSS MOTOR DEVELOPMENT</b>			
Climbs onto/down from chair with minimal assistance			
Walks up and down the stairs			
<b>TEAMWORK AND GROUP BEHAVIOUR</b>			
Follows good habits and displays positive behaviour			
Engages with class fellows during work and playtime on their own			
<b>SOCIAL DEVELOPMENT</b>			
Uses basic greetings for elders (teachers, parents, and peers)			
Shows awareness of personal safety (does not socialise with strangers)			

**Teacher's note:** This rubric can help you report the progress of the children. It is by no means exhaustive and can be changed as per need. The star stands for satisfactory, the moon is for good, and the sun is for excellent.

# Single National Curriculum Alignment

BASIC MATHEMATICAL CONCEPTS	Expected Learning Outcomes	Book Reference
<b>Competency 1:</b> Children will develop basic logical, critical, creative and problem solving skills by demonstrating an understanding of the different attributes of objects (such as colour, size, weight and texture) and match, sequence, sort and classify objects based on one/two attributes.	a. Recognise, name and differentiate between colours.	pp. 5-9
	b. Differentiate between the objects on the basis of size, weight, length, width and textures (smooth & rough).	pp. 10-14, 25
	c. Arrange objects and later pictures, according to their size/length, going from smallest to biggest, biggest to smallest, shortest to longest and longest to shortest and vice versa.	pp. 10-14, 25
	d. Arrange objects and then pictures, according to their weight and width, going from highest to lowest, heaviest to lightest and narrowest to widest and vice versa.	p. 25
	e. Match and compare one object with another on the basis of similar attributes.	pp. 5-14
	f. Sort and group objects (classify) based on a single attribute (for e.g.; colour or size etc) and based on two attributes (e.g. colour, weight, size, number of sides).	pp. 23, 45, 54
	g. Observe, identify and extend patterns developed with various concrete materials.	Covered in other books of the series
	h. Observe, identify and extend the given picture/symbol patterns.	pp. 16-17, 61
	i. Group objects together according to their shapes and colours.	Covered in other books of the series
	j. Sequence objects according to their size, shapes and colours.	Covered in other books of the series



	k. Identify and differentiate between broad and narrow.	Covered in other books of the series
	l. Identify that 'some' is less than 'all'. Differentiate between 'more', 'less' and 'equal'.	p. 15
	n. Differentiate between half and full.	Covered in other books of the series
	o. Create own patterns using concrete materials and pictures and then explain them.	Covered in other books of the series
	p. Observe and identify the 'odd one out' from the given set of concrete material or pictures and explain the answer.	pp. 18-19
<b>Competency 2:</b> Children will develop a basic understanding of quantity, counting up to 50 and simple number operations of 0-9.	a. Differentiate between some and all from a given set of objects, and understand that some is less than all.	Covered in other books of the series
	b. Understand one to one correspondence.	Covered in other books of the series
	c. Count up to 100 orally.	Covered in other books of the series
	d. Use numbers to represent quantities in daily life interaction.	pp. 75-77
	e. Compare quantities of objects in different sets and describe which sets are equal, which have more objects, and which have lesser objects than another.	p. 24
	f. Begin to develop an understanding of the concept of zero (meaning nothing).	Covered in other books of the series
	g. Identify and write correct numerals to represent numbers from 0-50.	pp. 26-44, 46-53
	h. Sequence numerals correctly from 0-50.	pp. 30, 55-57
	i. Identify which numeral represents a bigger quantity or lesser quantity.	Covered in other books of the series

	j. Identify ordinal numbers up to ten.	Covered in other books of the series
	k. Tell number stories to build the concept of 'more' and 'less' using concrete objects.	Covered in other books of the series
	l. Use concrete objects to develop the concept of addition and subtraction.	p. 62
	m. Substitute numerals for concrete objects during the process of addition.	pp. 63, 66
	n. Use the concept of addition in their daily lives with oral examples.	pp. 75-76
	o. Remove the identified number of objects from a given set, and tell how many objects are left in the set.	p. 68
	p. Substitute numerals for concrete object during the process of subtraction.	pp. 69-72
	q. Use the concept of subtraction in their daily lives with oral examples.	Covered in other books of the series
	r. Identify the signs of addition and equals to.	Covered in TG 2
	s. Introduce and apply the addition and subtraction signs to add or subtract from 0 till 9 with a single digit answer. Use concrete objects and other ways to support the process.	pp. 64-65, 69-70
	t. Use mathematical language while talking to children, such as, add/ subtract and makes/left to describe the process of addition and subtraction.	Covered in Unit 8 and 9
<b>Competency 3:</b> Children will recognise basic geometrical shapes and the position of objects in relation to each other and surroundings	a. Recognise, name and draw two dimensional shapes, such as circle, oval, square, rectangle or triangle, using features such as number of sides, curved or straight.	pp. 58, 60
	b. Recognize and name 3-D shapes such as sphere, cube, cuboid cylinder and cone using features such as number of faces, flat or curved faces.	p. 59
	c. Identify the shapes in their environment.	p. 59

	d. Draw object of their own choice using various shapes.	Covered in other books of the series
	e. Develop understanding and describe the position and order of objects using position words such as, in front of, behind, up, down, under, inside, outside, between and next to.	Covered in other books of the series
<b>Competency 4:</b> Children will develop an understanding of measurement.	a. Describe and compare objects using length; weight, height and temperature (hot & cold) as measurement attributes.	pp. 20-22
	b. Observe various objects and estimate their weight and length.	pp. 13-14, 25
	c. Verify their estimations using simple tools.	Covered in other books of the series
	d. Understand informal time units and know that clocks and calendars mark the passage of time.	pp. 73-74
	e. Sequence events in time and anticipate events.	Covered in other books of the series

**Note:** SNC alignment tables at the end of each Teaching Guide represent the alignment of the book at that level, hence the competencies not covered in this table are all adequately represented in the other books in this series. The SNC alignment tables of Maths Level 2 and Level 3 are present at the end of their own respective Teaching Guides. Each book also contains value-added content which adds on to the topics recommended for teaching in the Single National Curriculum.

