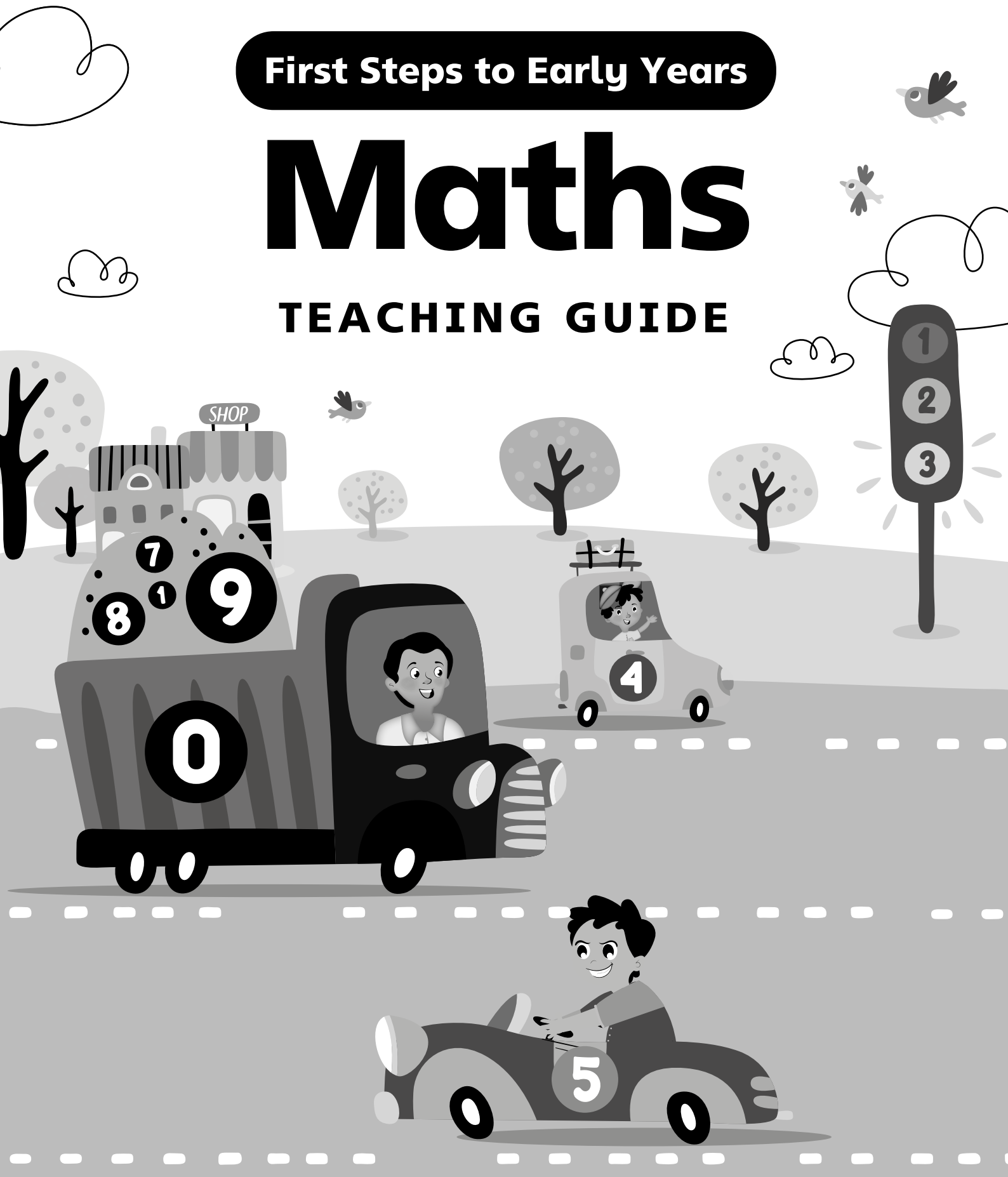


First Steps to Early Years

Maths

TEACHING GUIDE



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, flash cards, 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 class room.
- 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, the children will be able to:

- complete pre-writing exercises by 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
- trace a path through a simple maze from the beginning to the end point
- have improved hand/eye coordination and fine motor skills

Lesson 1 (page 1)	Tracing Dotted Lines
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Materials required

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

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 patterns given on the page with dotted lines. 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 the starting point.

Introduction

Draw the attention of the children to the patterns drawn on the board/display. Explain to them how to use pencils to trace the dotted line upon the pattern given. You may use your finger to first trace over the pattern yourself, and then use a board marker on top to trace the pattern again.

It is necessary to explain to the 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 the children to trace patterns on the sand box with their forefinger first. Pay attention that the children are designing the pattern correctly. You can 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 you begin working 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. You may demonstrate where the red dots are on the patterns drawn on the chalkboard/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.

Recapitulation

Ask the children about the purpose of the red dot and the arrows. You may 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.

Materials required

- student's book
- crayons/pencils
- chart paper and display board/chalkboard
- board marker/chalk
- balloons (at least 4) and thread (of a prominent colour so it is easily visible)

Pre-activity preparation

On the board or on any other large surface (such as on chart paper on the display board) that 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 (which can be shown as a large circular dot) to indicate the starting point.

Blow the balloons (at least 4), while making sure that you leave a large thread dangling from the place where the balloons are tied. Paste the balloon as well as the thread on the board, making sure to curve the thread (in the same pattern as given on the book).

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 pattern given in the book. You may use your finger to first trace over the pattern yourself, 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 balloons pasted on the board. Give the children enough time to understand the difference between a straight line and a curve. You can trace the pattern with your finger first. Then ask the children to raise their fingers in the air and follow the pattern themselves.

Pre-writing activity: Before you begin working on the page with the children, allow them to come up to the board and trace the patterns you have drawn with their fingers. Encourage them to use their forefinger for this activity.

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 if they can find the red dot before each dotted line. You may demonstrate where the red dots are on the patterns drawn on the chalkboard/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 with the patterns drawn.

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

Recapitulation

Show the children the patterns drawn on the board and ask them whether they can understand the significance of the red dot and the arrows. You can also ask the children to indicate which ones are straight lines and which ones are curved. See if they can recall other things in their lives that might be straight (roads) or curved (wires).

Lesson 3 (page 3)	Tracing Lines
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Materials required

- student's book
- large A4 sheets
- scale
- crayons/pencils
- chart paper and display board/chalkboard
- board marker/chalk

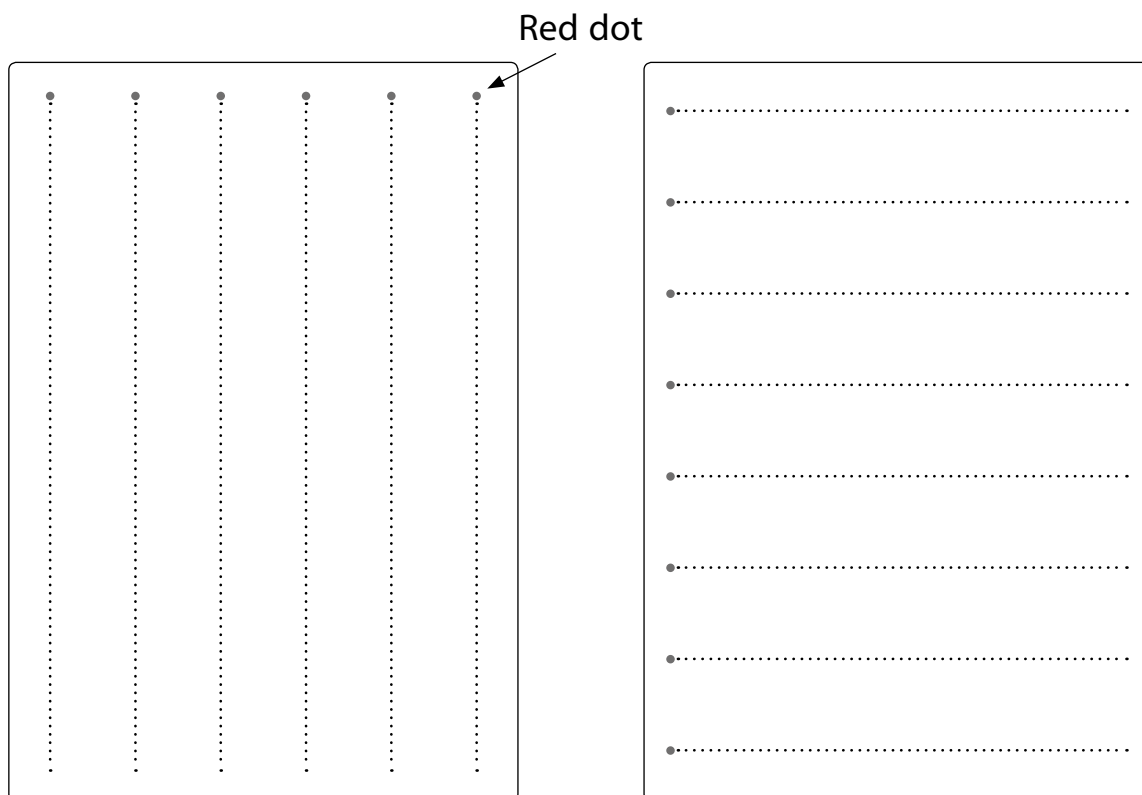
Pre-activity preparation

On A4 sheets, draw straight dotted lines both horizontally and vertically. Place red dots in different places so that children can be asked to identify the starting point for each line. You may re-use the patterns drawn on the chart paper in Lesson 1 to reiterate the concept for the children.

Introduction

Draw the attention of the children to the patterns drawn on the board/display. Explain to them how to use pencils to trace the straight dotted lines given in the book. In this lesson, you should inculcate within children the ability to identify the direction in which they have to trace without the presence of arrows. Give the children enough time to understand and recall what the red dot is meant to indicate.

Finger tracing: Share the A4 sheets with the children, and ask them to first identify where the red dot is. Allow the children to first trace the dotted lines with their fingers. Once they express the confidence and the ability to do the task independently, you may move on to allowing them to attempt the task in the student's book. Children can conduct this activity either in groups/pairs or individually, depending upon the amount of resources (A4 sheets) available.



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 each dotted line. You may demonstrate where the red dots are on the patterns drawn on the chalkboard/display board.

In this stage, due to the lack of arrows, confirm whether children understand that the direction of tracing will be away from the red dot.

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

You may use the colourful illustration given on the page as a discussion starter with the children. The straight dotted lines on this page represent rain: you may ask the children of other things that they could draw in straight lines. Allow the children to think of as many things as possible.

Lesson 4 (page 4)	Maze Puzzle
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Materials required

- student's book
- chalk/stick
- large open ground area/empty classroom space
- crayons/pencils

Pre-activity preparation

Within the classroom, create some empty space by pushing the tables and chairs to the corners. You can also use a large open area if available where you can write on the ground easily.

With a chalk (on cement floor) or stick (if the large open area has dirt), draw a lot of lines going in different directions so that children can walk on them. Try to create an irregular route from one end to the other, also creating more than one possible route (with a few dead ends also present). Make sure the path for walking is clear and 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 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 maze present on the page. If possible, construct a narrative around the two main characters (tortoise and hare) by using the famous story 'The Tortoise and the Hare' to help increase the interest of the children in the activity.

Storyline: Once a hare saw a tortoise walking slowly with a heavy shell on his back. The hare was very proud of himself and he asked the tortoise. "Shall we have a race?" The tortoise agreed. They started the race. The hare was very fast, but the tortoise walked slowly. The proud hare rested under a tree and soon slept. The tortoise kept walking, slowly and steadily, and at last he won the race. You can use this opportunity to explain the concepts of starting and end points, as well as dead ends. Have a discussion with the children about other places where there are multiple pathways to get from one place to another, such as a supermarket, etc.

Maze walking: With the lines drawn on the ground, the teacher will ask the children to move from a starting point to an end point, giving instructions for different directions. The children can also be asked to make a train and move upon the drawn lines one after the other.

Student's book activity

Seat each child with a copy of his/her student's book and a pencil. Before they begin the activity, ask the children whether they can find the point where it says 'start' and where it says 'finish'. Allow each child to find these points on his/her own. Point out that the place where it says 'start' also has an arrow present in the illustration as a helpful guide.

Once all the children are able to comprehend what they have to do, allow them to trace their own path through the maze with a pencil.

In case children are not able to trace the path through the maze properly, allow them to retrace on the paper using different pathways until they reach the right one.

Recapitulation

Discuss with children the concept of a maze and how there can be different paths leading to different places. You can also ensure that the children understand where they need to start from, and what point they need to reach.

Unit 2: Classification

Expected learning outcomes

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

- identify different colours, and be able to locate things of that colour in their environment
- classify different objects according to their colour, size, weight, thickness, temperature, and quantity
- locate the object that is different in a row of other similar objects

Lesson 1 (pages 5–10)

Colours

Materials required

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

Pre-activity preparation

Ask children to bring objects of different colours (specifically red, yellow, green, and blue) to class with their parent's permission. You can share a written note explaining exactly what topic is being taught in the 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 size so as to not endanger young children who may accidentally swallow 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 you make 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 10 and paste them on the display board in the class in order to be able to refer to 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. You can also use the following activities one by one to introduce each colour:

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

Find the colour yellow in the basket: The teacher will give a basket/shoe box full of different things to the children, which will include a number of yellow objects as well as objects of different colours. The children will be asked to sort out all the yellow 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 blue in the environment: The teacher will take the children on a trip in the school grounds. Before going on the walk, the teacher will tell the children to stay attentive and identify all the things they see around them which are blue in colour. After coming back to the classroom, the children can be asked to recall all the blue-coloured objects that they saw during the school walk. A further discussion can also be conducted to ask the children what things they did not see that are also blue in colour, e.g. sea, etc.

Find the colour green in a bag: The teacher will ask the children to put their bags in front of them on the desk. S/he will then ask them to find things in their bag which are green in colour, e.g. if they have a book with a green cover, or a stationery item which is green. This activity can be repeated for all the other basic colours as well.

I-Spy: The teacher will 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: Nominate yourself 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: You can announce further hints if you believe they will be helpful to the children, such as the shape of your object. For example, if you picked something that is circular, say 'I spy with my little eye something that is circular and red'.

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 that correctly guesses the answer first, the winner.

Show and tell activity: The teacher will ask the 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 the children can bring.

Colour day: In continuation of the 'Show and Tell' activity, a 'Colour Day' can be organised where the 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, 6, and 8 allow the children to name the objects they can see on the page. Help the children locate the objects which are blue on page 7.

Allow the children to take their time with the exercise on page 9. They may need some guidance in circling the correct buttons, or in gripping the pencil correctly for the exercise.

For page 10, the children should be allowed to select the crayons they need for the exercise to ensure that they can select the right colour themselves. 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 (pages 11–12)

Big and Small

Materials required

- pebbles, twigs, leaves, pencils, balls, books, bottles, bags, etc.
- colour pencils/crayons
- student's book
- loose sheets

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 the children the concept of sizes by showing them things that are big and things that are small. At this stage, it is easier for the 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: The teacher will display a pair of objects (different in sizes) in front of the children and will ask them to identify the bigger/smaller object. The teacher will 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 the teacher will then 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 the colours, or talk about any other distinguishing characteristic. For page 11, you may ask the children whether they recognise these objects as items they can eat, and for page 12, they are items they can play with. Once a detailed discussion has occurred, you can 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 the children have a confident grasp of the concept, seat them with their student's books, and a blue and a red crayon. Explain to them that for this exercise, the bigger object will be circled with the red crayon, and the smaller object with the blue 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 identify which one is bigger and which is smaller.

Lesson 3 and 4 (pages 13–14)

Heavy and Light/Weight

Materials required

- school bags/lunch boxes
- fruits and vegetables, balloons, stationery items, etc.
- piles of books
- colour pencils/crayons
- student's book
- basic weighing scale (if easily available)

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 weights of these items before allowing the children to judge which one is heavier.

Make pairs of objects (mentioned in 'Materials required') that have different weights and place them side by side on a table so that they are available for easy reference while teaching this unit. You can also place these objects in strategically obvious locations so that children can easily find them during the paired Student's book activity.

Introduction

Explain to children the concept of weight by showing them things that are heavy and things that are light, and allowing 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 two identical things of different weights. Children can be encouraged to suggest their own ideas of which thing is heavier and which is lighter, and to elaborate upon their statements.

Nature walk: The teacher will take the children for a walk in the school grounds or a nearby park and will ask them to collect some leaves, pebbles, twigs, etc. from the environment. Please ensure that all safety precautions are taken into account during this activity, and that children understand that they need to follow the instructions given by their teacher. Explain to the children that they need to make sure that they are walking in a straight line, holding hands, and listening to their teacher's instructions. The teacher may make a detailed list of safety precautions to follow and share with the class before starting this activity. Once the children have collected the material and brought it to the class, the teacher will display the collection on the table and will ask the children to predict which things will be light in weight and which things will be heavy in weight.

Once the children have predicted, allow them to perform an experiment by putting the things on their palm and trying to identify the heavy and light objects. Children can select any 2 objects at a time to perform this experiment.

Piles of books: Using classroom resources to introduce the concept will make it easier to demonstrate what is being taught. On a table, place ten books on one side and four books of equal size and shape on the other side (you may use

course books of a single subject to ensure uniformity in the specifications of the books). Allow the children to make an educated guess as to which pile they believe will be more difficult to lift. Children can be encouraged to give explanations for their opinions to check whether they understand the reasoning behind the concept.

How heavy is my bag? Another activity that the children can conduct together is to weigh two school bags together to see which one is heavier. This activity will be easier for the children to conduct since the school bag is a familiar object that the children use every day. For reference, you can add a few more books in any one of the bags so that there is a discernible difference between the two bags. You can also use pairs of lunch boxes for this activity.

Using a weighing scale: For this activity, the teacher will first draw the attention of the children to the objects that have been placed in pairs on a table within the classroom, and allow them to guess which object is heavier between each pair. Children can do this activity in pairs or groups.

Once all the children have guessed (either correctly or incorrectly), the teacher can then share with them a simple weighing scale to weigh the different objects to see which ones are heavy and which ones are light. The children can, with the guidance of the teacher, place the objects on the weighing scale themselves, to allow for a more active participation in the activity.

Student's book activity

Before beginning work on the pages in the student's book, ask the children to look at the illustrations given on page 13 and try to name the things that they see. You can engage the children in a discussion about whether they recognise these things from their daily life (for example, the tree, leaf, and flower can be found in gardens, and children might be able to easily give references from their own homes for these things).

Pages 13 and 14 can be done as part of a paired activity, with the children taking turns for each pair of objects. Tell the children that yellow and green crayons will be used for page 13. For page 14, allow the children to work in pairs to discuss what they understand from each illustration.

Teamwork: Children can also be tasked with finding heavy and light objects in the classroom (which have previously been placed by the teacher in the classroom in places where the children can easily locate them). Make groups of 3 or 5 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

The teacher can summarize the findings of the children at the end of the lesson in order to ensure that all children have clearly understood the concept.

Lesson 5 (page 15)

Odd One Out

Materials required

- stationery material (pencils, sharpeners, rubbers, etc.)
- fruits and vegetables, two different types of baskets
- illustrations/images of animals 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 the 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 the 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 the 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 they have a grasp on the concept of things differing from each other based on these characteristics, they will easily be able to identify the singular item that is different from the rest in a list of various 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 that the stationary objects are placed in a straight line on a table, ensuring that there is enough space on either side of the table so that the children can file past easily.)

Animals in comparison: On the display board, ask the children to first look at the animals and see if they can name them. Do not 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 animal is present on the board. Children can be encouraged to identify the distinct parts of animals (for example, an elephant's trunk, a lion's mane, etc.) to help make it easier to spot the differences.

Once the children have spent an adequate amount of time discussing the animals, you can then help them count the number of similar animals 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 you have placed the 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. You can 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 exactly the same food items.

Student's book activity

Seat each child with the student's book open to page 15. Tell them that they have to make a circle around the image in each row that is different from the other two images in the row. You can tell them to take help from 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 the children can easily grasp the task they have to complete. Allow them to work in pairs or groups.

Lesson 6 (pages 16–17)

Thick and Thin

Materials required

- books of different thickness (preferably same size)
- a bag (in which children can collect sticks)

Pre-activity preparation

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

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 the children are expected to take during the walk.

Introduction

Explain to the children the concept by allowing them to observe 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 feel the difference in thickness. Tell the children that some things around us are very thin while others are very thick. You may use this conversation as the basis on which you will introduce the concept of the Nature Walk, and tell the children that they themselves will be looking for thick and thin objects.

Nature walk: The teacher will 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. Then the children can be asked to look at the thinner stems of little plants. Encourage them to notice the difference, and see if children 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 of the two.

You can also ask the children to collect twigs to be used for comparison. Once the children have collected the material and brought it to the class, display the collection on the table and ask the children to predict which things are thinner and which ones are thicker.

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

Student's book activity

Ensure that the children have grasped the concept completely before introducing the page in class. Once you are confident that the children can differentiate between thick and thin objects, seat each child with page 16 and 17 as well as orange and green colour pencils. Allow the children to guess the correct answer themselves before you 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 placed on the table. See if they can guess which item is thicker without holding it in their hands.

Lesson 7 (page 18)	Hot and Cold
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Materials required

- warm water
- water at a normal temperature
- ice
- two cups
- newspapers/magazines
- scissors
- chart paper
- marker

Pre-activity preparation

From the newspapers and magazines, cut out the images which represent heat (sun, flames on a stove, hot iron) as well as coolness (ice cream, ice cubes, snow). On a chart paper, split the paper in two and write 'HOT' at the top of one

section and 'COLD' at the top of the other section. Paste the images as per the sections accordingly, and paste the chart paper in an area which is clearly visible to all the children in the class.

For the hands-on activity, place two cups on a table where the children can easily dip their hands into the water. In one cup, pour warm water (at a suitable temperature so it is hot enough for the children to notice the difference, but not hot enough to burn). In the other cup, pour the water and add ice so that it can cool rapidly.

Introduction

Begin the conversation by asking the children about the times they feel hot and cold. You can explain how to sense heat by referring to when the sun is out, and children feel sweaty. In the same case, you can explain how having the fan switched on can cause the air to become cooler. Continue the conversation by referring to various things from daily life that the children can remember.

Once the children have come up with as many examples as possible, bring their attention to the chart paper. Tell the children to see whether the activities they have mentioned are present on the chart paper. See if they have missed anything that is present on the chart paper. You can have a very detailed discussion about the safety precautions to take with hot and cold objects, clothes to be worn in hot and cold weather, hot and cold things we can eat, etc.

Hot and cold water: Before beginning this activity, ensure that the temperature of the water in the two cups is not going to hurt the children, i.e. that it is not too hot or cold. Tell the children to form a straight line so that they can pass next to the table, and take turns to dip their hand in the water to feel the difference in temperature. Ensure that the children work in a cooperative manner, and that they do not push or shove while standing in line.

Student's book activity

Tell the children that the red colour pencil will be used to circle the things that are hot, and the blue colour pencil will be used for things that are cold. Children can work in pairs for the activity on page 18 of the student's book, with one child identifying the cold objects, and the other working on identifying the hot objects.

Recapitulation

You can share the newspapers and magazines with the children and allow them to look for more images related to hot or cold. See if the children can identify more images correctly, and aid them with finding the correct images.

Alternate recapitulation activity: You can further build on the conversation about feeling hot or cold in the summer or winter season. Ask the children whether they know which season is hot and which one is cold. Ask them about what kind of clothing key would wear in the hot or cold weather. Would they wear a sweater in the summer, or shorts in the witer? See if they answer correctly.

Lesson 8 (page 19)

More and Less

Materials required

A selection of sets of 5 items, e.g. beads, pebbles, etc.

Pre-activity preparation:

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

Introduction

You can 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.

Which group has more objects? Place the objects 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. You can then move one bead to the other side to make two groups: one with two beads, and the other with three beads. Ask the children to continue guessing until all groups have guessed correctly.

Adding one more: Show the children three of the first set of five items, e.g. three pebbles. Ask the children to count them. Add another pebble to the set and explain that you are 'adding one more'. Ask them to count the cups again (there should be a total of 4). Ask a volunteer to come and add one more to the set and count the cups again (now there will be 5).

Now show the children three items from a different set, e.g. beads. Count the beads and then ask a volunteer to add two more to the set. Count the beads again (now there will be 5). Repeat this with the other sets of items you have prepared, asking volunteers to add 1, 2, or 3 more to the set. As they work, elicit from the children that adding more means adding extra items, so the number of items increases.

Student's book activity

You can turn this into a pair activity by allowing the children to count the number of objects in each row. Encourage them to work in coordination, since once the objects are counted both sets will need to be compared. Explain to the children that they need to circle the set 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.

Lesson 9 (pages 20–21)	Empty and Full
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Materials required

- two boxes/baskets
- content which can be used to fill the boxes/baskets, e.g. books, toys, fruits, etc.
- two jugs
- water
- two glasses
- juice

Pre-activity preparation

Place two jugs, one filled with water and one empty, on a table. Next to these, place two glasses: fill one with juice and leave the other one empty.

Place the baskets/boxes in the middle of the room, so that the children can sit in a circle around the boxes and view them easily.

Introduction

Introduce the children to the concept by allowing them to pass in a single file past the glasses and jugs that have been placed on the table. Make sure that the

glasses and jugs are placed in a stable manner so that the water and juice doesn't spill.

Once all the children have passed by, allow them to return to their seats, then begin the conversation. Ask paired children what difference they could notice between the two jugs and two glasses. Allow the children to reach the conclusion themselves. Help them along if children are unable to spot the difference.

Circle Time: For a circle time activity, ask the children to sit down in a circle around the boxes (one empty and one full) that you had earlier placed in the middle.

Once all the children are sitting down, lead a discussion about how an empty object differs from an object that is full. Allow the children to answer in their own ways, and then call their attention to the box in the middle of the circle. Ask the children whether they can recognise which box is full.

Once all the children have played an active part in the discussion and given their answers, ask one volunteer to come to the box and transfer all the objects from the box that is full to the empty one. You can ask multiple children if there are a lot of objects. Once this has been done, ask the children to state which one is empty and which one is full.

Student's book activity

Seat the children with green and yellow crayons and allow them to circle the correct basket on page 20. Only ask them to attempt page 21 once the teacher has 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, then ask the children which jug is empty. Do the same activity with the juice in the glass and ask the same question.

Alternate recapitulation activity: See if the children have fully understood the concept of empty and full by presenting them with objects other than a jug or box. For example, you can present them with a plate full of biscuits and an empty; a bag full of books and an empty bag; a shopper full of items and an empty one, etc. and ask them to categorize accordingly.

Unit 3: Measurement

Expected learning outcomes

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

- understand the concept of and approximately measure length in terms of comparisons of short and long
- understand the concept of and approximately measure capacity in terms of comparisons of empty, full, more, or less
- understand the concept of and approximately measure area in terms of comparisons of the space taken by objects

Lesson 1 (page 22)

Length

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
- 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 different sizes of arrows. 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, you can introduce the words short and long, using the pencils in your hand for a live demonstration. You should also ensure that the children

understand not only the two basic defining characteristics of length but also that they are able to make a comparison and correctly identify which pencil is shorter and which one is longer.

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

Study the arrows: Draw the attention of the children to the arrows pasted on the board/display. Explain to them how the arrows all differ in length. Break the children up into groups of 4 or 6, and ask each group which arrow they think is the longest. You can ask the next group which arrow is the shortest. 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 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 and a crayon, once the introductory activities have been completed.

Explain to the children that they first need to identify the shorter item in each pair. You may first allow the children to identify it correctly before they begin colouring.

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/longer one.

Lesson 2 (page 22)	Capacity
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Materials required

- plastic glasses
- plastic jugs
- water/orange juice

- colour pencils/crayons
- chalkboard/chalk

Pre-activity preparation

On a table, arrange the plastic glasses and jugs in a row at a level where they are clearly visible to the children. Leave one jug empty, and fill the other one completely to the top. Fill one quarter of one of the glasses with juice, and pour juice in the other glass so that it is three-quarters full.

On the chalkboard, draw a circle and a tick mark so that children can use it as a reference during the Student's book activity.

Introduction

Reintroduce the concepts taught to the children in Lessons 8 and 9 of Unit 2 of 'More and Less' and 'Empty and Full'.

Place the four transparent containers (2 glasses to demonstrate more and less, and 2 jugs to demonstrate empty and full) in front of the children. Ask them questions to ascertain whether they recall the concepts taught earlier. Help them understand that capacity refers to the ability of an object to carry/hold something within it. You can also use the glasses and jugs to explain the difference between the different capacities.

Student's book activity

Seat the children with their copies of the student's book. Explain to them that they have to identify the container which has more liquid, which one has less, and which one is empty. Bring their attention to the circle and the tick mark that is drawn on the board, and tell them that they have to use these two forms to mark their answers.

If required, allow the children to first practice drawing a circle and a tick mark on rough sheets of paper before they complete the exercise on the page.

Recapitulation

At the end of the lesson, divide the children into groups and ask each group one by one which jug is full. Allow each group to drink a little bit of the orange juice as a reward for each correct answer.

Materials required

- equipment present in class: table, book
- A4 sheets with two handprints drawn on them, one big and one small
- colour pencils

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.

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 the children are able to establish the respective sizes you can introduce the concept of space. Explain that things that are bigger take more space. You can encourage them to pick 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 you use. Be careful and do not use too many complicated or similar words, 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.

Student's book activity

Allow the children to conduct the activity in pairs. Give each pair a student's book, and tell them that one child has to answer the first question, while the second child should answer question number two.

Children should first be allowed to ask if they have any questions before they begin to work on the page. They should understand that they have the space to air their confusions before they are required to complete the assignment given to them.

Once all the children have understood the assignment, give them colour pencils and ask them to circle the correct answer. No tick marks are required in this lesson.

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 children can figure out the answer. Also ensure the usage of the term 'area' so that children attain a sense of familiarity with the term.

Unit 4: Time

Expected learning outcomes

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

- identify the two distinct periods of time as day and night
- comprehend that some things are done during the daytime and some things during night-time
- understand that some things are visible during the daytime and some during the night

Lesson 1 (pages 24–25)	Day and Night
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Materials required

- magazines/newspapers
- clear self-adhesive paper/plastic for lamination (if available)
- scissors
- chart paper
- crayons/colour pencils/paint colours and brush
- marker for labelling
- basket/shoe box
- bell

Pre-activity preparation

From the magazines/newspapers, cut out pictures/illustrations of things that are visible during the day, for example, sun, clouds, etc., as well as during the night, for example, moon, stars, etc. Laminate or cover with clear self-adhesive paper for durability if desired.

Divide a chart paper into two sections. Paint or colour one side light blue and the other side a dark black colour. The blue section of the paper will be clearly labelled 'Day' and the black section labelled as 'Night'.

For the second activity, using the same magazines/newspapers, collect pictures of children, families, and animals involved in activities related to night-time (sleeping, wearing pajamas, using flashlights, animals in the dark) and daytime (playing outside, hiking, animals in daylight). Put the pictures in a basket or shoe box for kids to look at on their own, and during Circle Time activity.

Send notes to the parents to ask them to show kids the night sky before going to sleep to help increase the children's understanding.

Introduction

Begin by talking to the children about day and night by bringing their attention to the sky outside. Ask the children to look out the classroom window and talk about what they see. They should be encouraged to identify the fact that it is sunny, and to think of times when it is dark outside. Based on the note sent to the parents earlier, ask the children whether they have seen the night sky, and whether they have noticed the difference between daytime and night-time. Introduce the idea of the sun, and the fact that during daytime there is a lot of light, whereas during the night it is dark.

Pasting on a poster: Once the children are able to differentiate between the two distinct periods of time, they can be introduced to the things that are only visible during the day (sun, clouds), and those that can be seen at night (moon, stars). Use the cut-outs that you have created during the pre-activity preparation to give children visual examples of the concepts you are explaining.

Once all the children have understood the concept, split the class into pairs. Give each pair a cut-out of the moon and stars as well as of the sun and clouds. Introduce the poster which has been split into two parts, one part representing day-time and the other part representing night-time.

Allow the children to first look at the poster and identify the two time periods shown. Ask them whether they can identify which portions represent night, and why. If the children are able to correlate the dark portion of the poster to night-time and the blue portion to daytime, you can proceed to the next part of the activity.

Paste the poster on the display board, or on a spot within the classroom where it is clearly visible to all the children. Point to the portion which has the blue sky as the background, and ask the children to identify which objects (sun, clouds) are visible during that time. Each pair can be encouraged to hold in their hand and raise the cut-out of the relevant object.

You can paste these cut-outs at the end of the exercise on the poster in order to act as an aid for the children during the Student's book activity.

Circle time: Circle Time can be done both indoors and outdoors for interactive purposes. It is a special time when you sit down with your class, introduce topics, share information, talk about the day, and help the children share ideas freely.

For Circle Time, you can mark a circle on the floor by spreading mats or pasting some coloured tape. Invite children to the circle by clapping your hands/ ringing a bell. Tell the children that they have to come to the circle following the particular sound.

Once all the children are sitting down, ask them about the activities they do during the day. Allow them children to think of as many things as they can mention, such as having lunch, playing with friends, doing homework, etc. Then ask them what they do at night, such as changing into their night clothes, brushing teeth, reading a book with their parents, getting into bed, etc.

Once all the children have played an active part in the discussion and given lots of suggestions, pass the box around and ask them to pick, one by one, the pictures/illustrations placed inside the box. Children can then be asked what they see in the picture, and whether they believe it is an activity that is done during the day or during the night.

Nature walk: Arrange a nature walk for the children to the school grounds or a nearby park/garden. Allow them to observe their surroundings, and to pay special attention to things that are only visible during the daytime. You can provide helpful hints in order to bring the attention of the children during the clouds. At this stage you can also point out the birds which are usually asleep at night, and which children can see during the day.

Lead the children back to the classroom. Once all of them are seated, form small groups and allow each group to share the things they noticed. Based on the note sent earlier to parents for the 'night-time' part of the discussion, ask the children whether they can remember the things they only see at night.

Ensure that all the safety measures have been followed that are necessary for such an outing.

Student's book activity

Allow the children to look at page 24 of the student's book properly before you begin the discussion. Children should be able to spot the distinct differences between the two time periods as given clearly on the page. Engage in a discussion with the children where you ask them to place their finger on the things only visible during the day, and then on those things which are visible during the night.

Once all the children have identified the things correctly, seat each child with their student's book open to page 25, along with crayons/colour pencils. Allow

the children to draw the things they remember from their nature walk. You can leave the poster from Activity 1 up on the display board in order to act as a helpful guide.

Recapitulation

The teacher will name activities (such as eating lunch, eating dinner, going to sleep, getting up to go to sleep, etc.) and will ask the following questions:

- can you describe when this activity is done?
- what is the colour of the sky when you do this activity?
- what else can you see in the sky when you do this activity?

Unit 5: Numbers

Expected learning outcomes

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

- trace the numbers from 0 to 20
- write the numbers from 0 to 20
- find and circle the numbers from 1-20 among other numbers
- find and circle the numbers from 1-20 among pictorial representations
- find and circle groups of objects of certain numbers
- count and match objects with correct numbers
- identify the biggest and smallest number
- find out which number comes before or after certain numbers
- identify the correct sequence of numbers
- trace and write numbers in words from 1 to 10
- count and write backwards from 20 to 1

Note: The following lessons can be used to teach the numbers from 0 to 20. 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 1–5 (pages 26–37)	Let's Learn Numbers 1–5
Lessons 7–11 (pages 39–50)	Let's Learn Numbers Zero, 6–9
Lesson 13 (pages 52–54)	Let's Learn Number 10
Lessons 15–23 (pages 57–78, 80–81)	Let's Learn Numbers 11–20

Materials required

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

- newspapers/magazines and scissors
- Drawings (you may also use cut-outs from newspapers/magazines if they are easily available): boats, balloons, ants, cups, trees, rockets, rabbits, jars, hot-air balloons, rickshaws, eye glasses, eagles, bells, monkeys, flying saucers, suns, parrots, lollipops, mangoes, tomatoes, bags, goats, guitars, buckets, doughnuts, snakes, scissors, tents, candles, moons, kettles, pencils, helicopters, doors, shovels, keys, cameras, flowers with distinct petals

Pre-activity preparation

Using newspapers or magazines, cut out the things mentioned in the resource list (use the student's book as a reference for the number of items required). Paste as many of them as is possible on the display board. These will also be useful when the children have to complete the colouring portion of each page.

0		
1	one	11
2	two	12
3	three	13
4	four	14
5	five	15
6	six	16
7	seven	17
8	eight	18
9	nine	19
10	ten	20

Using the blank A4 sheets (or card paper sheets, if available, since they are more durable and will last longer), draw the 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.

Introduction

Introducing the 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.

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 card.

Writing on our 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 the children can easily use them.

Use these resources to daily ask the children about 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 one of the drawings you have prepared 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 3 cups on one side, then the other side should have the cards for numbers 3 and 5). 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: You can use the card sets you have 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 the 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 10).
- **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.
- **Bigger and smaller number:** Ask each group to spread the cards face down in front of them on the table. Call out a random name from each group of any two children. Ask them to select any one number from their table and display it. The other groups can be asked to identify which number is bigger, and which one is smaller.
- **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 the 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.

Explain to the children that the drawings/cut-outs displayed on the class display board can be used as a reference point for colouring the images given. Help the children count the number of objects per page so that they have clarity of the concept.

The teacher might be required to aid the children in finding and circling the number from the box on each page. You can provide helpful hints about the exact number of times a number has been mentioned so that the 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 a set of objects of that number. 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 6 (page 38)

I Can Make Groups

Materials required

- chart paper
- colour pencils and markers
- scissors
- baskets

Pre-activity preparation

On the chart paper, draw stars, circles, squares, and other shapes using a marker. Cut them out and place them in baskets. Place baskets in the middle of tables where children can sit in groups of 4 or 6.

Introduction

Explain to the children that some things look similar while others look different. Ask them to find things in class that look similar, such as pairs of windows, children's school shoes, uniforms, etc. as well as things that are very different, such as school bags, lunch boxes, etc.

Similar things in the class: You can encourage the children to turn the activity into a fun one by asking them to locate and point towards as many similar things as they can within an allotted time. Tell the children that they should stay in their seats as they try to find as many similar things as possible. You can provide helpful hints during this activity by telling the children that they can use the shape, size, and colour of things to check for similarity.

Group activity: Arrange the children into groups of 4 or 6 depending upon the size of the class and the number of baskets available. Ask the children to take out the cut-outs placed in the baskets in the middle of each group. Once all the

children have these cut-outs in front of them, you can ask them to make groups, e.g. a group of 3 stars, 4 squares, 5 circles, and so on.

Before beginning this activity, ensure that each group has the required number of items that you will be calling out to form into groups. You can also ask the children, at the end of the activity, to exchange places with another group and then find the groups in the pile made by the other group.

Student's book activity

Allow the children to complete the exercise given on page 38 in small groups. Each child in the group can be responsible for locating one group on his/her own. Keep in mind that the groups in the boxes aren't necessarily in a straight line (vertically, horizontally, or diagonally) but rather present right next to each other in some cases as well. Allow the children to first guess their answers, and ask for help only if they are having problems.

Recapitulation

Paste the cut-outs on the display board in random combinations and allow the children to identify as many groups as they can.

Lesson 12 (page 51)

Before, After, and Between

Materials required

- chart paper
- marker
- scissors

Pre-activity preparation

Fold the chart paper into small squares. On each square write the numbers from 1 to 10. Cut out these squares. Make as many sets as required depending upon class size and the number of children who will be formed into groups

Introduction

Since the children have already studied the numbers as well as the concept of more and less, they will already have an understanding of which number comes before and which one comes after. However, it is important to reiterate this concept regularly to ensure that the children can have regular revisions, and if they have any problems then the teacher can identify and help solve them.

Card games: Seat the children in groups of 3 or 5. Give each group the set of cards labelled 1–10 and ask them to arrange them on their desks in the correct ascending order. Walk around the room to check their work. Tell the children that they must work in groups and allow each one to have a chance.

- On the board: Fix the cards 1–10 on the display board and revise the meanings of 'before' and 'after' by asking the children to tell you which number comes before or after a number that you point to. You can also write any random number from 1 to 9 on the board, or call out any number, and then ask the children to tell you which number comes before or after.

In Between: To revise 'in between', fix two of the cards, e.g. 3 and 5 on the display board (or hold one in each hand) and ask the children to tell you which number comes between them.

Ball game: Ask the children to sit in a large circle. Begin by saying the first number in the sequence and rolling the ball to one of the children. The child should stop the ball, say the next number, and roll the ball to another child who must catch the ball and say the next number, etc. If a child fails to stop the ball, cannot continue the sequence, or says the wrong number, s/he should sit down for one minute before rejoining the game.

Student's book activity

Seat the children down with the page and ask them to first spend some time looking at the page. You should first ask the children to solve the exercise given on the page verbally during a class discussion, so you can ensure that all the children have understood the concept correctly before they begin attempting the page.

Recapitulation

Split the children into groups and continue the activity 'On the Board' while turning it into a competitive exercise. This will make it into a fun activity for the children while ensuring that they can revise the concepts taught.

Materials required

- chart paper
- markers
- cut-outs of stars

Pre-activity preparation

On a chart paper, write the numbers in words in a large enough font that they can be easily seen once pasted on the display board. Next to each number, paste the same number of stars.

Introduction

Recall the numbers that have already been taught to the children using the stars pasted on the display board. Ask the children to count, one by one, the number of stars, and call out the correct number accordingly.

Once all the stars have been counted, tell the children that these numbers can also be represented using letters too. Read each alphabet out loud as you introduce each number to the children, encouraging them to repeat after you.

Air tracing: Ask the children to raise their hands, forefinger lifted straight up, and trace each letter. Make sure to make large, obvious motions with the finger as each number is written so that the children can easily follow. Allow them to repeat the motion twice or thrice before they are expected to write it on paper.

Student's book activity

Tell the children that the number of the stars present on pages 55–56 will tell them which number they have to write. Encourage them to read each word aloud before they begin tracing the letters of each number. Allow the children to first practice writing on blank sheets of paper before they finally write the words in their student's books.

Recapitulation

Continue the activity using different mediums such as tracing in sand, or tracing on the ground using a stick, to check if the children can trace properly.

Unit 6: Shapes

Expected learning outcomes

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

- easily name and trace the shapes given in the book (square, triangle, rectangle, circle, oval)
- count the sides of the shapes given in the book (square, triangle, rectangle, circle, oval)
- identify the shapes in their surroundings as well

Lesson 1 (pages 82–83)

Trace the Shapes

Materials required

- A4 sheets/chart paper
- colours pencils/crayons
- scissors
- crayons/pencils
- chalkboard and chalk
- boxes/eggs/books/things in surroundings that are of the five shapes taught in the book

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 five shapes given on the page with dotted lines. 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 the 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 for each shape, so that you can use these cut-outs in the activities for Lesson 2 as well:

Red: Circle

Green: Oval

Yellow: Rectangle

Blue: Square

Orange: Triangle

Draw visible dotted lines at the edges of each shape that the children can use to trace the sides and corners. Children can use these dotted lines to trace the edges with their fingers. Make sure you write numbers on each side as well so that children can use it as a reference point for counting the sides.

Introduction

Draw the attention of the children to the shapes drawn on the board/display. As each shape is introduced, read the name out loud, and use the children to repeat the name after you. Allow the children to take their time with the pronunciation.

Explain to the children how they will use their pencils to trace the dotted lined shapes in their books. To demonstrate, use a finger to first trace over the dotted lines of the shape on the chart paper, and then use a board marker on top to trace the shapes again.

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, the children should be able to relate the name and the shape correctly with ease.

Group activity with cut-outs: Seat the children in groups of 3 or 5 and hand them the cut-outs of the five shapes. Allow them to feel the sides and the corners. Demonstrate to the children how they can follow the dotted lines to create the shape using their fingers.

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.

Counting the sides: Once the children have grasped clearly the name of each shape, encourage them to pass the cut-outs so that each child can have the

chance to pass their finger over the dotted lines on the edges. Then the children can be asked to count the number of sides of each shape. Explain to the children that a circle and an oval have no sides, triangles have 3 sides, and squares and rectangles have 4 sides each.

Shapes all around: To reinforce the idea of shapes, show the 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 the children may point out include the shape of the windows, display board, door, etc. Allow the children to name as many things as they can think of.

Student's book activity

Seat each child with a copy of his/her student's book and a crayon. Before they begin the activity, ask them whether they can identify each shape by name. You may demonstrate exactly how the children have to trace by drawing on the chalkboard. Once all the children are able to comprehend what they have to do, allow them to trace the dotted lines. Children should also count the sides of each shape before they go on to tracing and colouring.

Recapitulation

Ask the children if they can recall which shape has 4 sides, 3 sides, or no sides. You may draw each shape on the board and see if the children can easily name the shape on their own without any prompting.

Lesson 2 (page 84)

IQ Booster – Colour the Shapes

Materials required

- blank A4 sheets
- colours pencils/crayons
- cut-outs used in lesson 1

Pre-activity preparation

Paste the cut-outs used in Lesson 1 on the display board and write the name of each shape next to it.

Ensure that there is one blank sheet for each child.

Introduction

In this lesson combine the children's recognition of colours along with the comprehension of different shapes. It is important that the children are confident in their ability to not only recognise the shape that is being taught, but also the colour that they are expected to use.

Before beginning the activity, bring the attention of the children to the display board where the cut-outs are pasted. Divide them children into groups and ask each group if they can name each shape.

Once all the groups can name each shape, move on to the colours. Keep repeating the same question until all the children can easily answer the question.

Individual activity: Divide the children into groups of 5. Seat each child with a blank A4 sheet, and explain to the children that each person in the group has to draw one shape. Ensure that the name of the shape is already written at the top of each page so that each child knows exactly which shape they have to draw. Explain to the children that once they have finished drawing the shape mentioned on their page, they also have to colour it. They should colour it in the same hue as the one of the cut-out pasted on the display board.

Once each group has completed their colours, allow them to exchange their sheets within the group. Each member should check that the correct colour has been used for each shape, after comparison with the cut-outs on the display board.

Student's book activity

Allow the children to first identify the shapes given on the page before they begin the exercise. The teacher can ask the children to first count the number of times each shape is drawn on the page. Once each child has managed to correctly identify how many circles, ovals, rectangles, squares, and triangles are present, explain to the children that only certain colours will be used in this exercise for certain shapes.

Explain to the children each colour that they should be using, in the following order:

Red: Circle

Green: Oval

Yellow: Rectangle

Blue: Square

Orange: Triangle

For a smooth flow of work within the class, first ask the whole class to begin with the circle so that it is easier to ensure that the correct colour is used, since the whole class should be familiar with the red colour at this stage. The rest of the shapes can be treated in the same manner: once all the children have finished with the first shape, move on to the second shape while clearly indicating which colour needs to be used. You can use the same procedure until all shapes have been coloured.

Recapitulation

Bring the attention of the children back to the display board once the activity has been completed. See if the children are able to identify which shape you are referring to when you call out the name.

Lesson 3 (page 85)

Can You Count My Sides?

Materials required

- yellow chart paper
- scissors
- pen

Pre-activity preparation

Cut the yellow chart paper into the four following shapes: square, circle, rectangle, and triangle.

On each side of the shapes, write the number of sides, clearly numbering each side in order from 1 to 4 (for squares and rectangles), from 1 to 3 (for triangles), and 0 (for circles). Draw a line per each side so that the children can understand what constitutes one side.

Introduction

Hold up each cut-out individually and allow the children to first identify which shape you are holding. They should, at this stage, be able to name the shape with confidence.

Once the children have identified all the shapes, use a forefinger to trace the sides of each shape. Allow them to count the sides, so that they have clarity on what constitutes a side. The circle might prove confusing for certain children, so explain with as much care as possible, and take care to revise the topic if they express any confusion. Explain that a straight line constitutes a side, and retrace each side with your finger until the children can count the side with you.

Student's book activity

Seat each child with the student's book and a pencil. Allow them to trace the edges of the shapes drawn on the page before they begin to write their answers.

Give hints at this stage: tell the children that 2 shapes have 4 sides, 1 shape has 3 sides, and 1 shape has no sides at all.

Recapitulation

Once all the children have completed the activity, call out the number 4 and see if they can name a shape which has 4 sides. Repeat the activity with the number 3 and the number 0. Encourage the children to remember that an oval also has zero sides.

Activity Bank

Activity 1: Start with Counting

Young learners are very curious and always intrigued about themselves. Help them build their counting skills by introducing numbers in everyday activities. This can be done by asking the child to count using very simple numbers in activities like buttoning their shirt, counting their steps when they go up or down the stairs, etc. Children need to be comfortable with the idea of numbers in daily life so that they can gain the confidence required to solve sums easily in the future. Thus they should be encouraged to count all the

Skills learnt: counting and self-confidence, sequencing and numbers.

Activity 2: Helping Hands

Children can be encouraged to take part in activities which increase their fine motor skills, e.g. at home they can be asked to help set the table, or in class they can be encouraged to help the teacher carry items from the cupboards/shelves to the tables and then place them accordingly. In these situations, the items (e.g. at home the plastic cutlery such as plates or glasses, or the books and toys at school) should be handed to the children, and they should be asked to then carry the things very carefully to the table.

At the end of the trip ask them how many things they may have carried to the table. This exercise will not only help their muscles to work properly but will also help improve their counting skills.

Skills learnt: counting, memorisation, fine motor skills.

Activity 3: Separate and Group

Put a bunch of entangled scarves or dupattas in front of the children and ask them to separate them based on colour, size, etc. It is possible to go a step ahead and, once the scarves/dupattas have separated, ask the children to count the number of items in each particular group, for example, two groups: one of scarves and one of dupattas, or groups based on colour, etc.

Skills learnt: attempting IQ boosters

Activity 4: Find the Square (Any Shape)

Ask children to find objects of particular shapes in the room. For example, if there is a circular clock, a rectangular bag, or a square box, etc. it is possible to ask them to just find and point to the object.

The attention of the children can also be directed towards the food they eat. Show them how a boiled egg is oval in shape and the yolk inside it is circular, or the paratha that they eat is square or circular in shape. Children should be encouraged to practise further visual activities by identifying basic shapes in their surroundings, such as square windows, rectangular doors, etc. Give children time to sit and observe their surroundings so that they might get used to the idea that these shapes exist all around them.

Skills learnt: visual discrimination, basic shapes

Activity 5: Compare

Keep on directing the attention of the children to objects of different sizes, and allow them to comment on the characteristics they can identify, such as colour, shape, size, etc. Always ask questions when they are playing or carrying multiple objects such as: Which object is smaller? Which one is closer? Which one seems heavier? Always encourage them to look at the toys closely, for example, their shape, size, weight, etc.

You can use these examples in daily life further to increase the physical development of the children. For example, ask children to run and bring the bigger book from the shelf. Other examples are: hopping towards the window which is square, skipping the black/white tiles on the floor, etc. All these activities allow children to analyse their surroundings to make value judgements while allow be involved in physical activity which increases their health.

Skills learnt: comparison and analysis, physical development

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

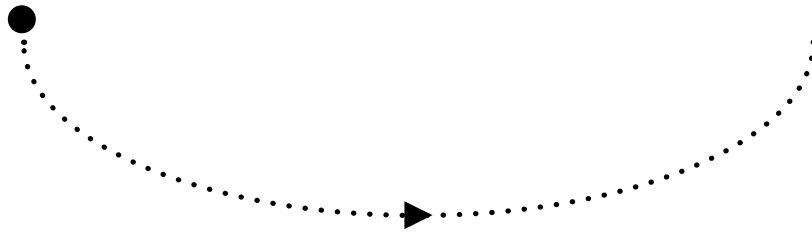
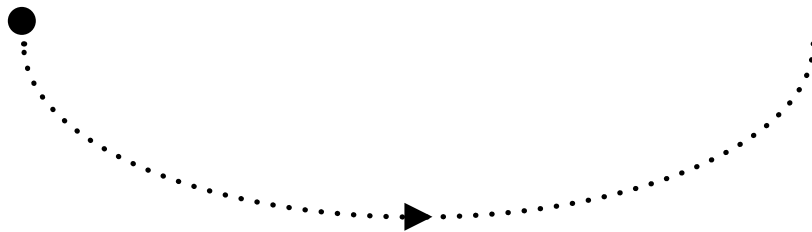
The Assessment Guide contains:

- 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

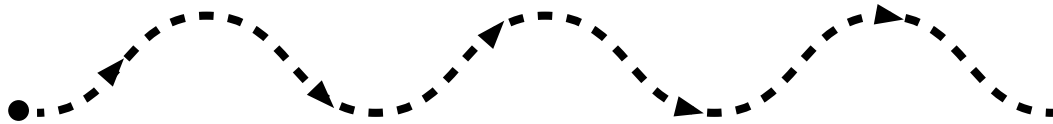
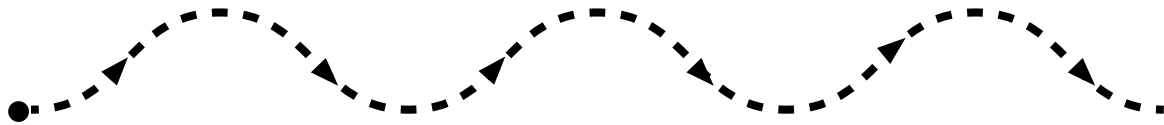
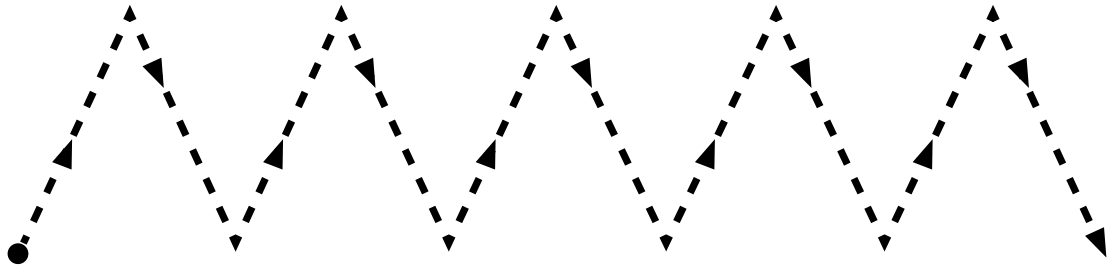
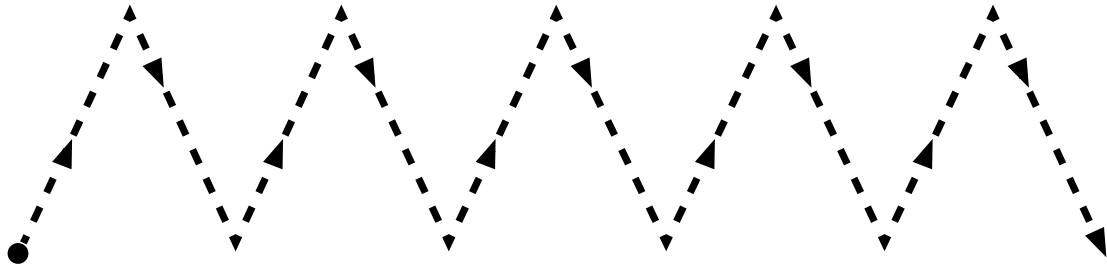
Worksheet – 1: Patterns and Tracing

Trace the following dotted lines, following the arrows.



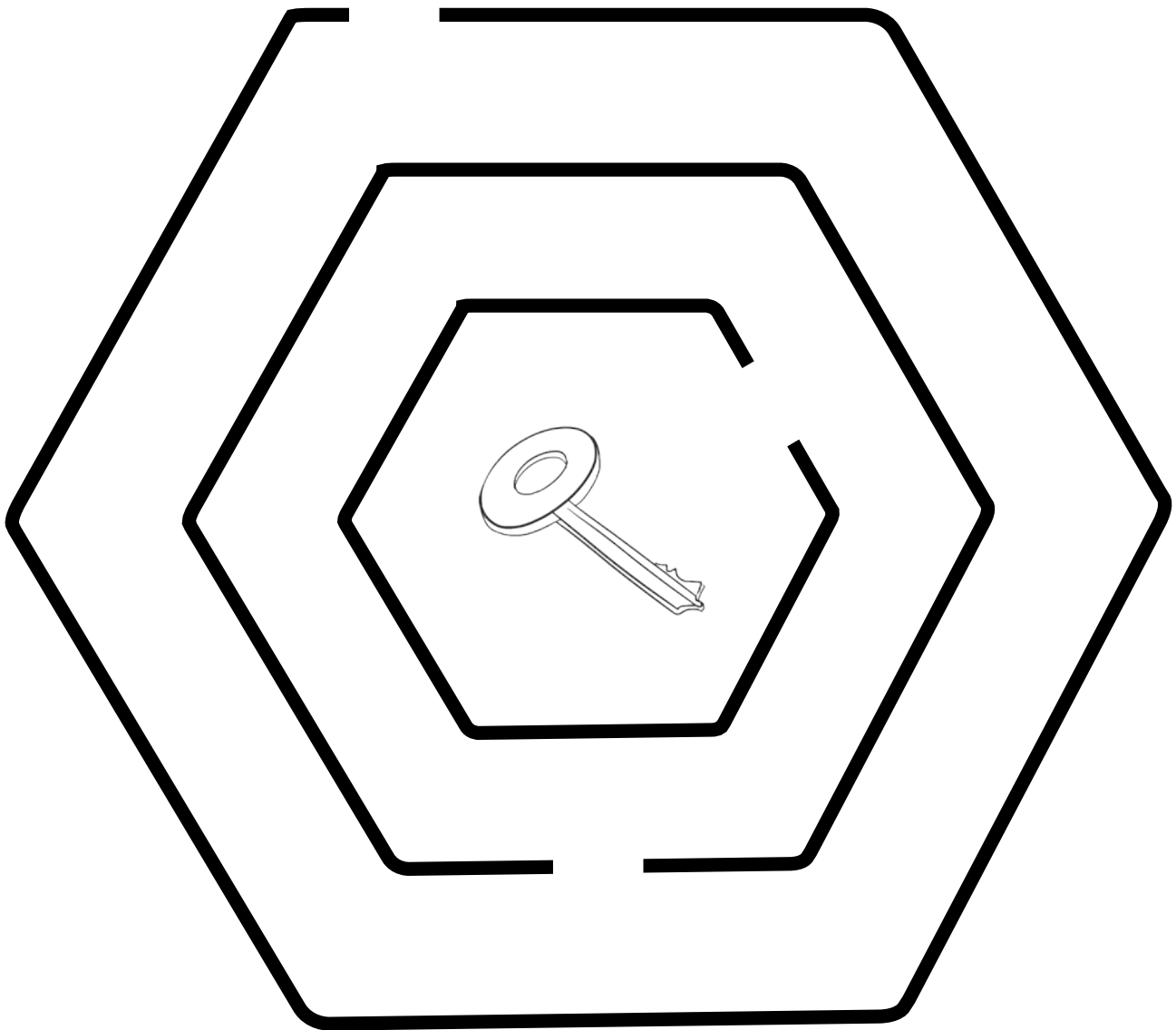
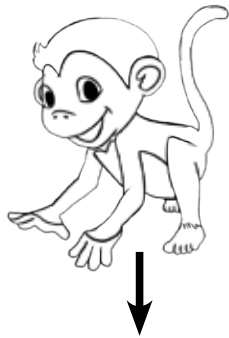
Worksheet – 2: Patterns and Tracing

Trace the following dotted lines, following the arrows.



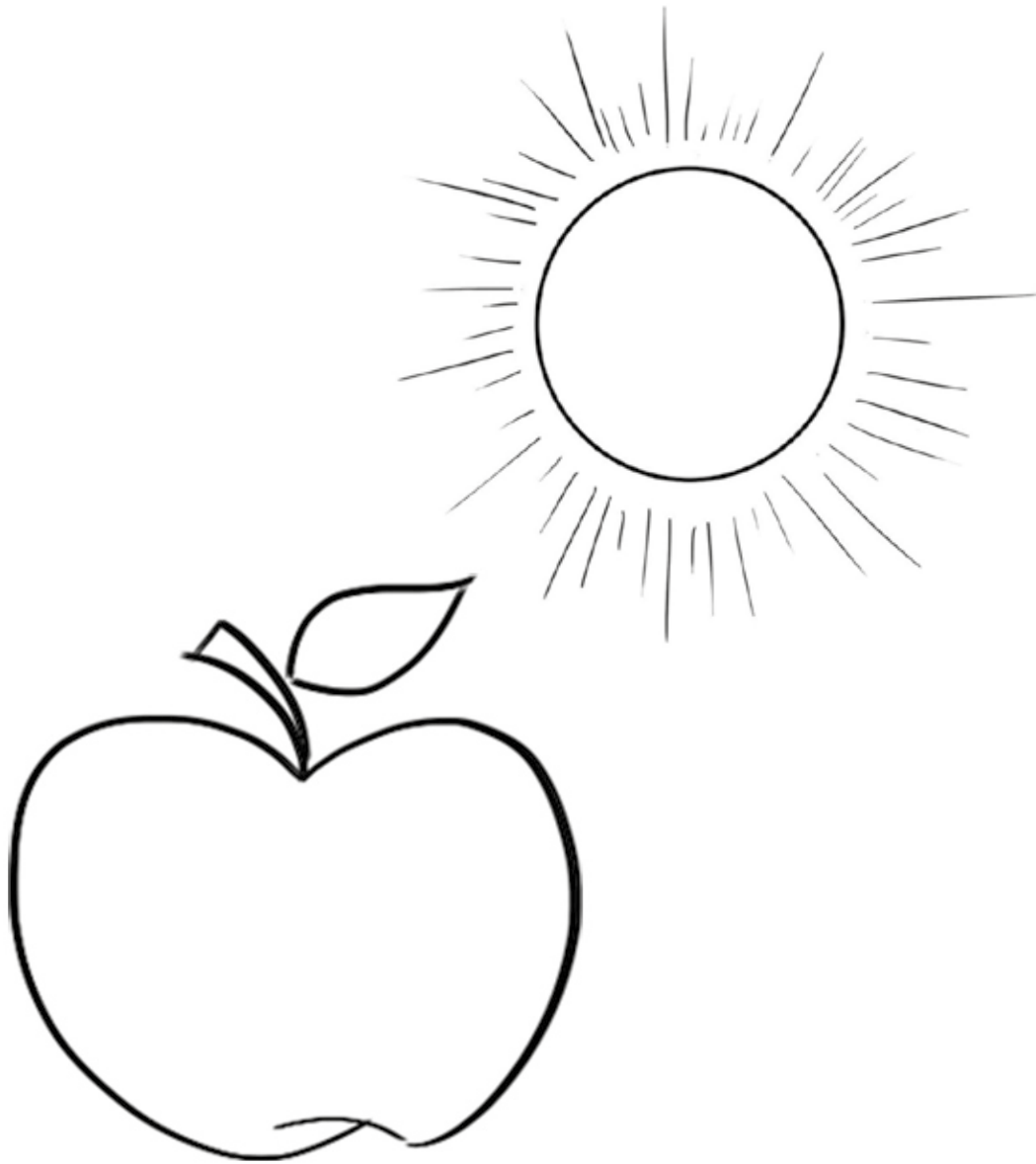
Worksheet – 3: Maze

Help the monkey find a path through the maze to reach the key.



Worksheet – 4: Colors (Red and Yellow)

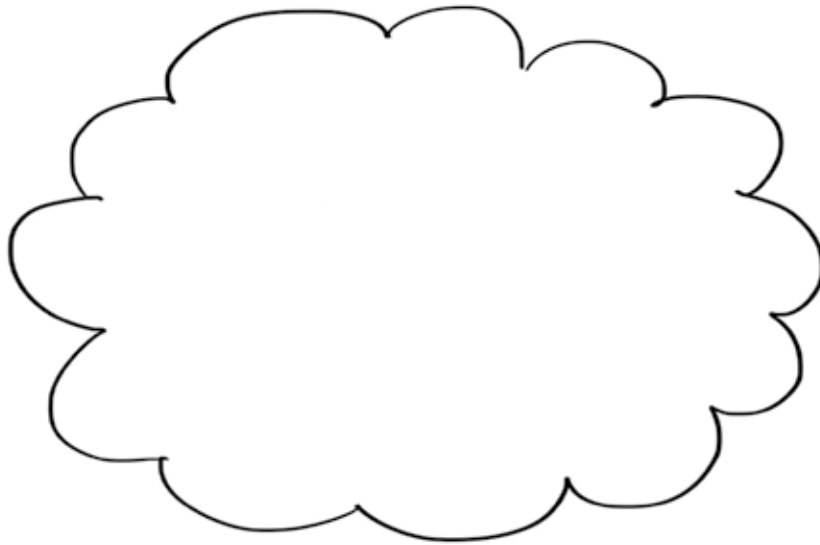
Finger-paint the following.



Teacher's note: Pour paints into a wide bowl. Spread newspaper over the tables, and allow children to work in groups. Show the children how they have to press a finger into the paint, and then place that finger within the outlines of the images.

Worksheet – 5: Colors (Blue and Green)

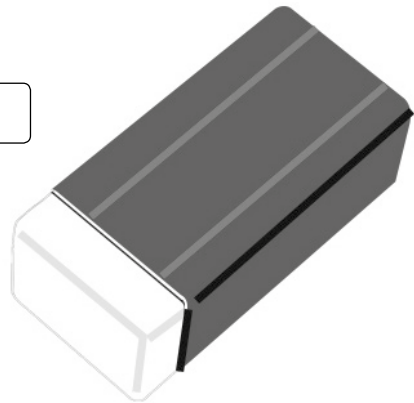
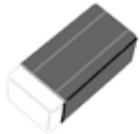
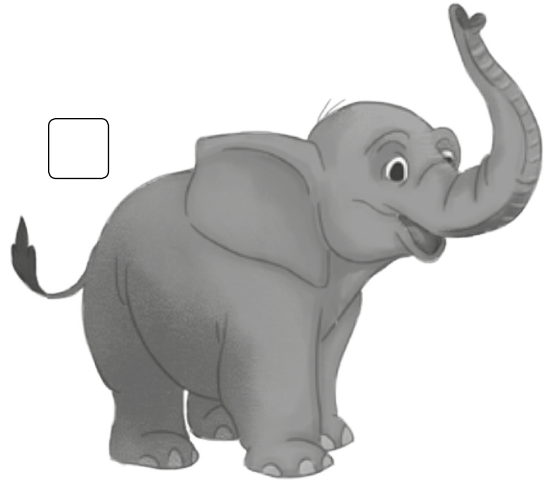
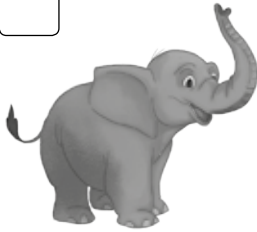
Sponge paint the following.



Teacher's note: Use an old piece of sponge. Pour the paints into a wide bowl, and show the children how they should press the sponge into the paint. Demonstrate how they should press the sponge lightly within the outlines of the given images.

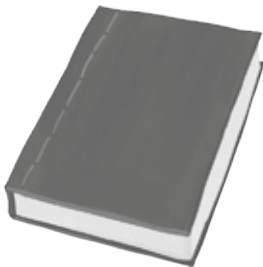
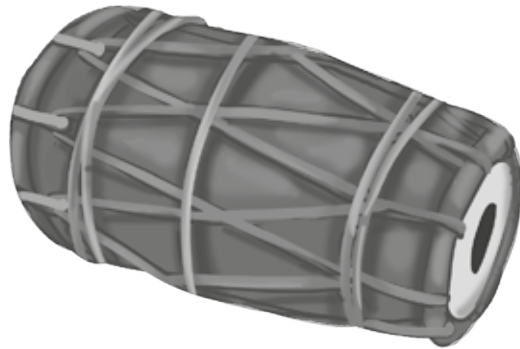
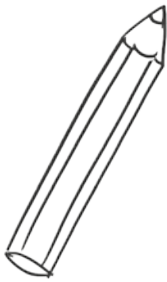
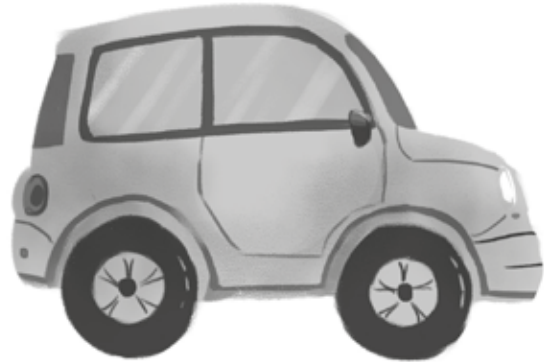
Worksheet – 6: Big and Small

Place a tick mark next to the object that is bigger in each row.



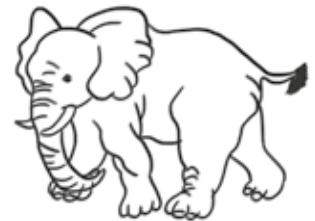
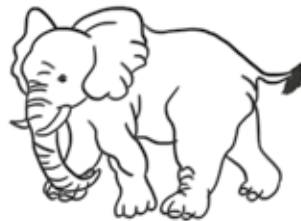
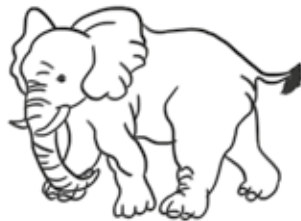
Worksheet -7: Heavy and Light

Circle the heavier object.



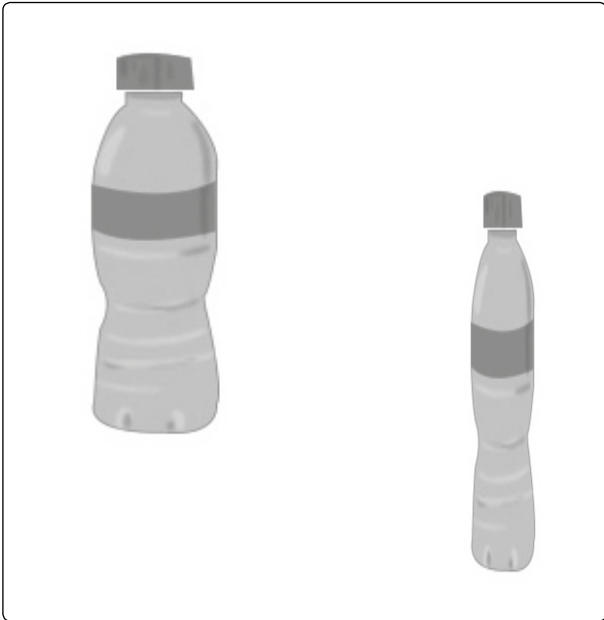
Worksheet – 8: Odd One Out

Colour the odd one out in each row.



Worksheet – 9: Thick and Thin

Circle the object that is thicker in each box.



Worksheet – 10: Hot and Cold

Circle the things that are hot with red and the things that are cold with blue.



Worksheet – 11: More and Less

Place a tick mark in the box in each row with the greater number of objects.

<input type="checkbox"/>		<input type="checkbox"/>	
<input type="checkbox"/>		<input type="checkbox"/>	

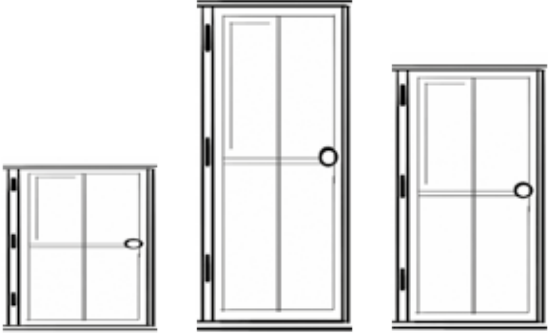


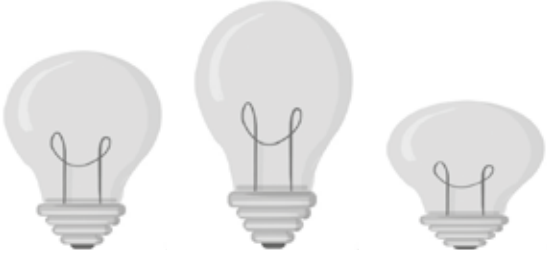
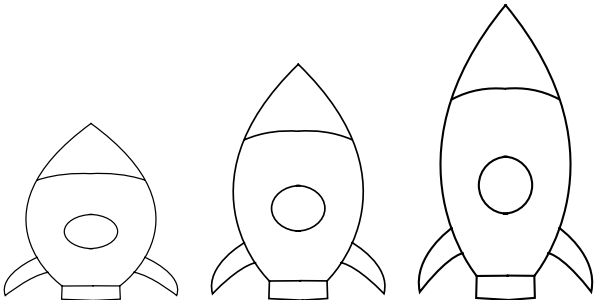

Worksheet – 12: Empty and Full

Circle the objects which are empty.



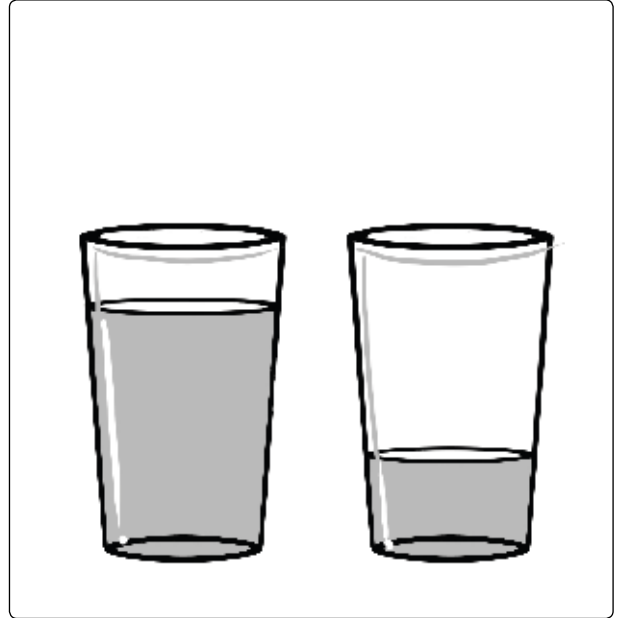
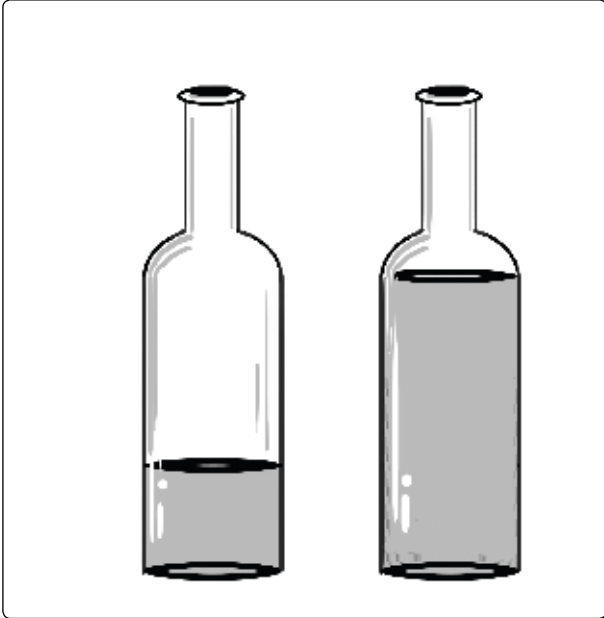
Worksheet – 13: Length

Circle the longest item in each group below.

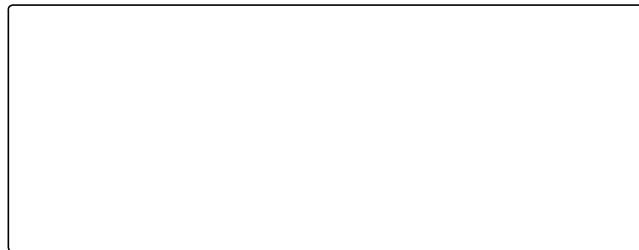
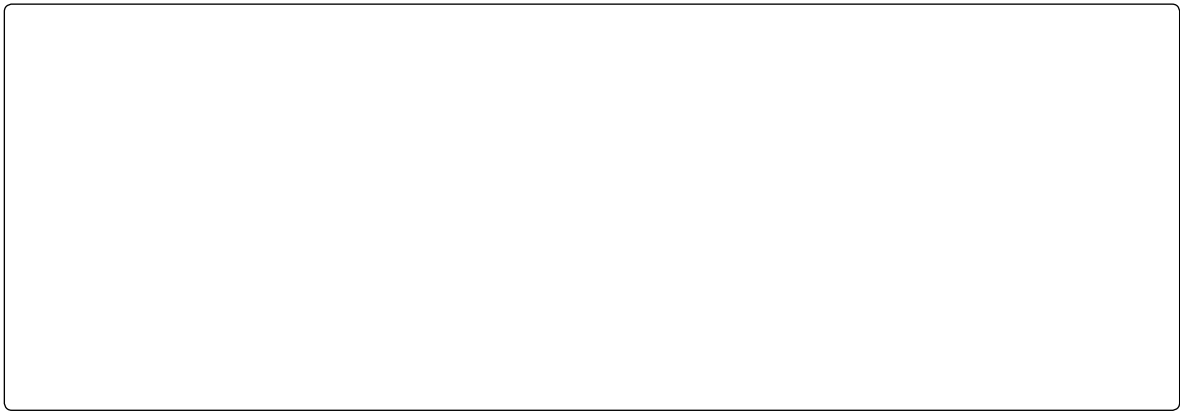
Worksheet – 14: Capacity

Circle the container which has more liquid in each box.



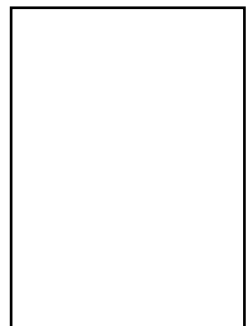
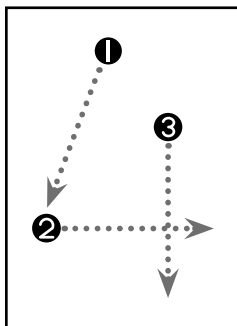
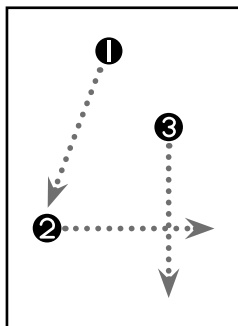
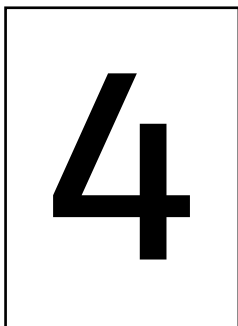
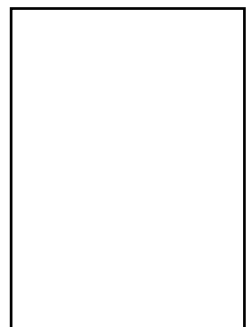
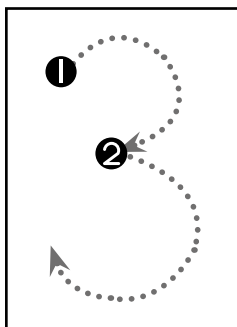
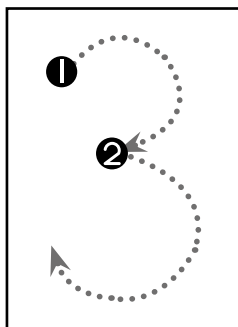
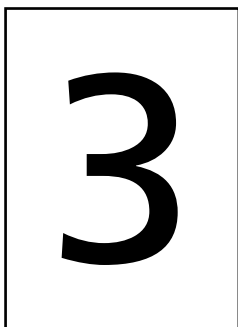
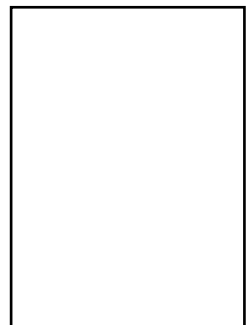
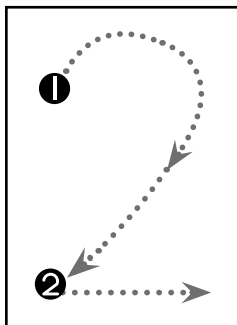
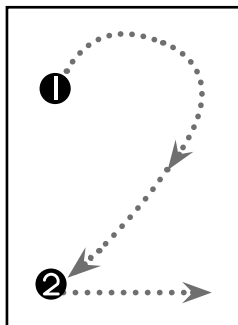
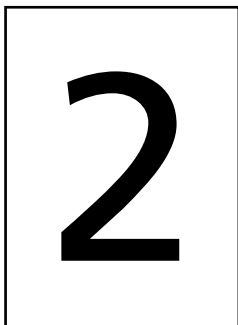
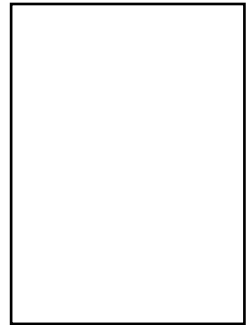
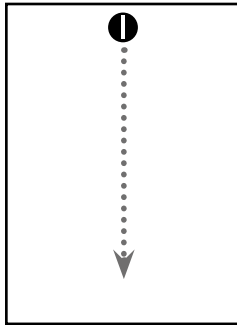
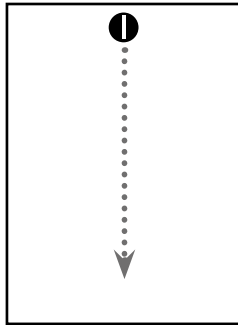
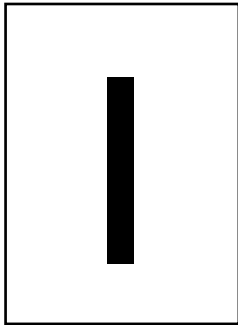
Worksheet – 15: Area

Colour the rectangle which covers more area.

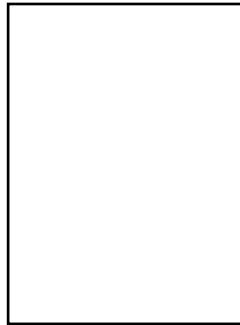
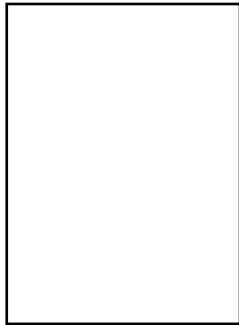
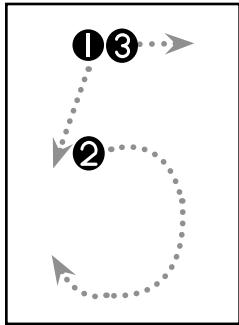
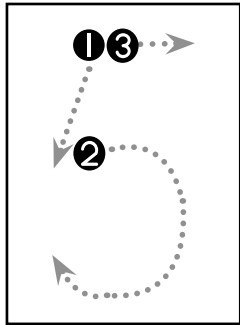


Worksheet – 16: Numbers

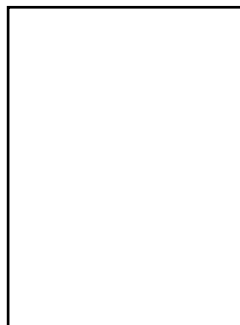
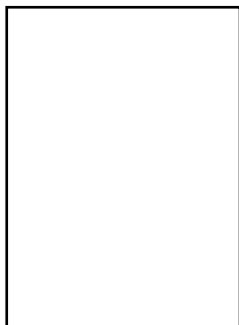
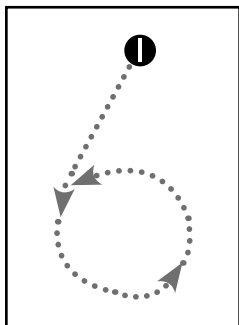
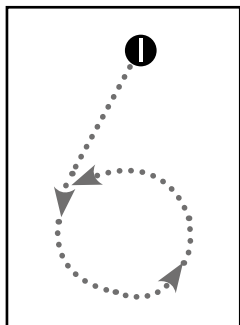
Trace and write the following numbers.



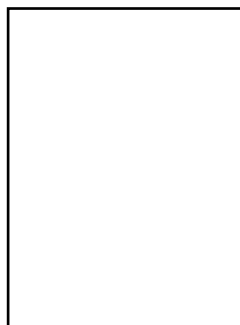
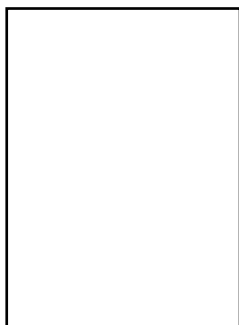
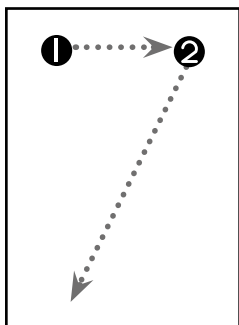
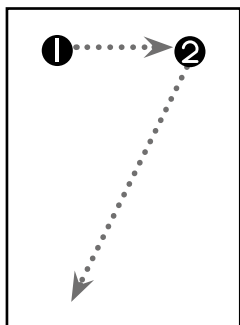
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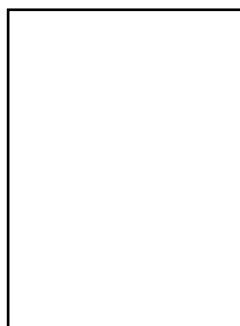
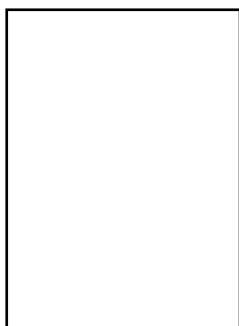
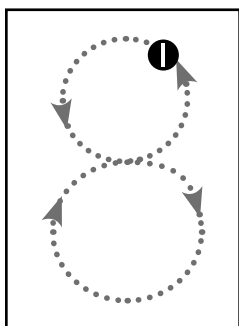
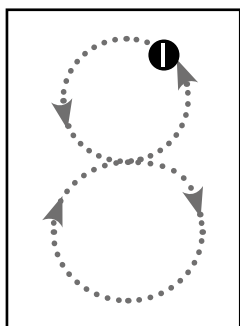
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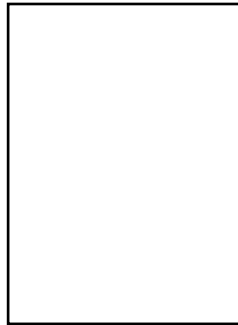
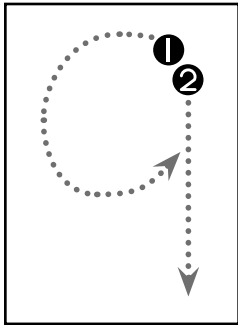
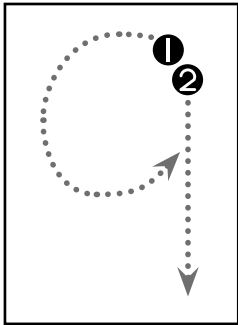
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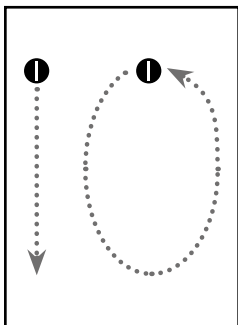
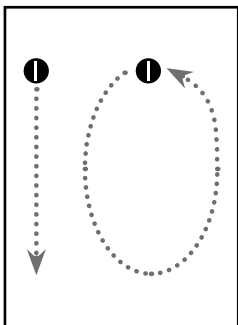
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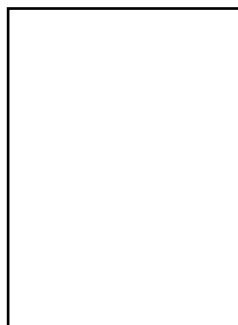
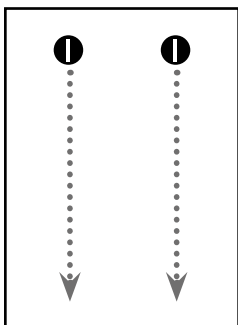
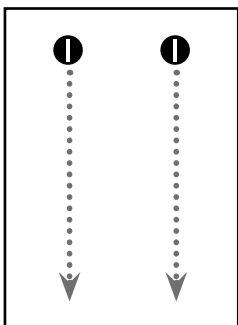
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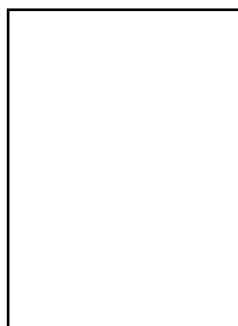
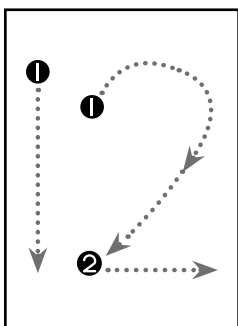
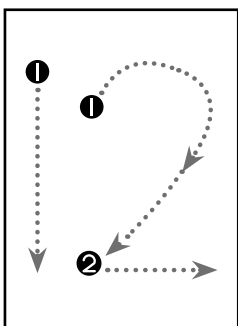
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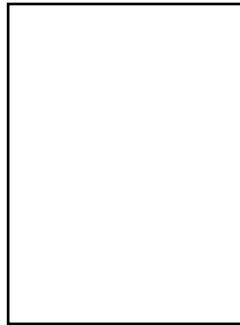
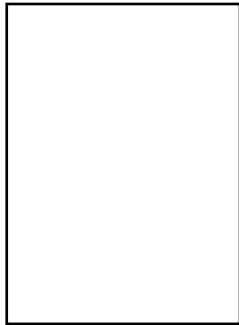
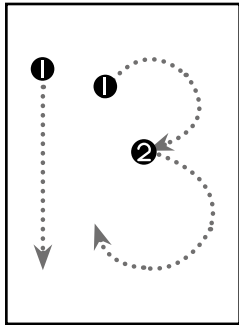
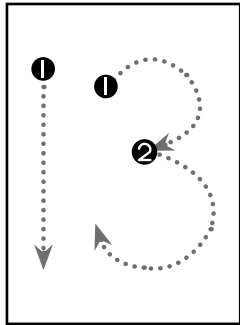
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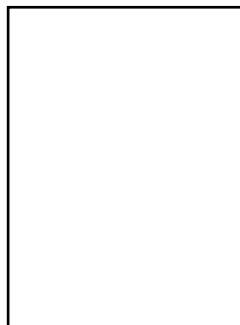
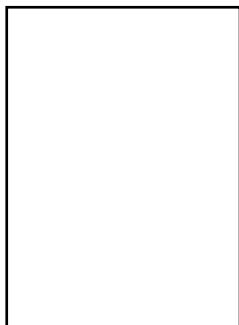
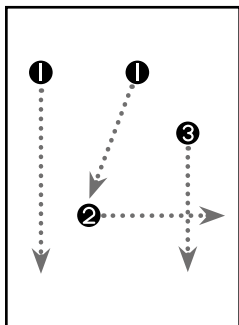
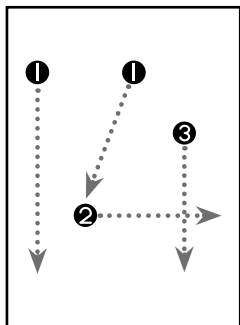
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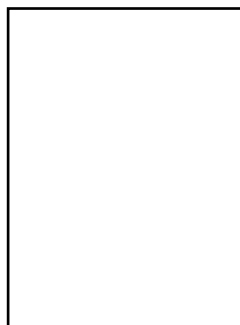
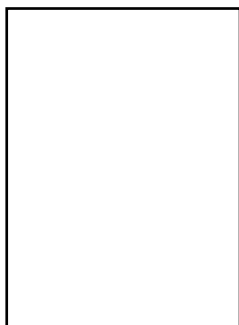
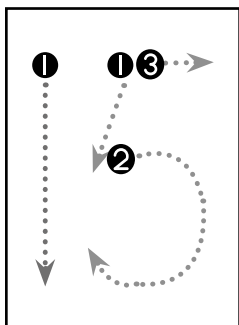
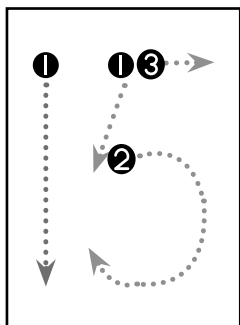
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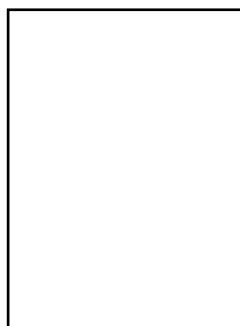
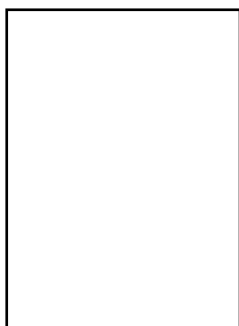
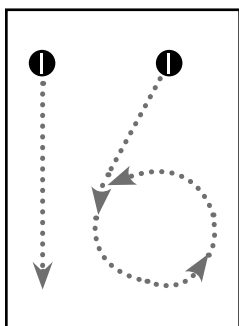
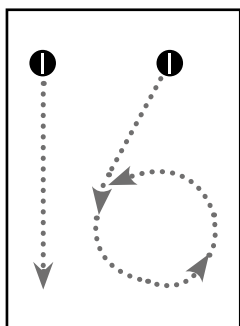
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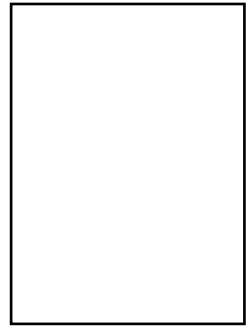
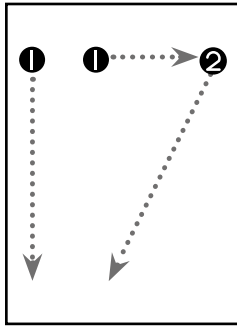
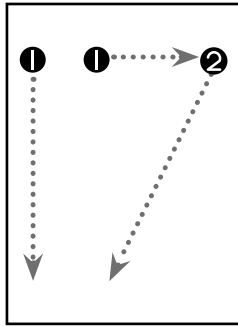
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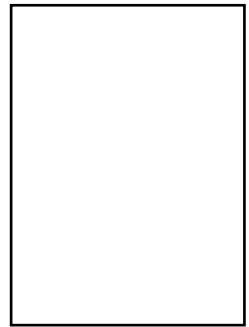
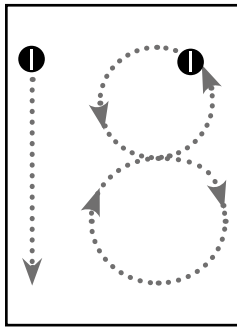
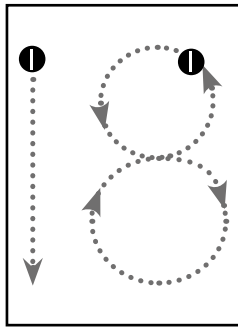
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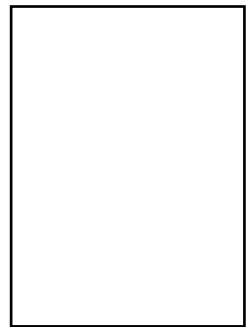
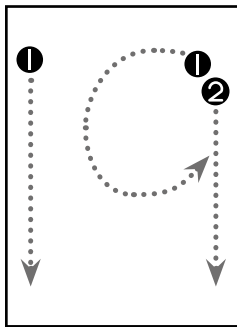
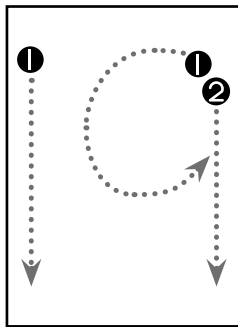
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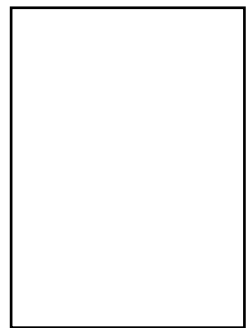
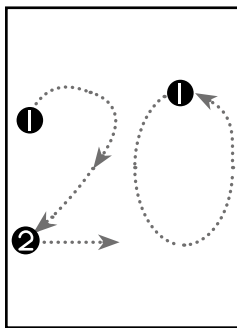
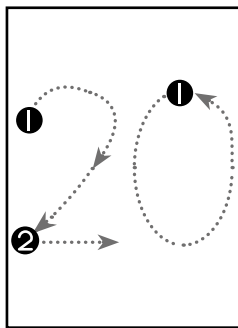
18



19



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Worksheet – 17: I Can Make Groups

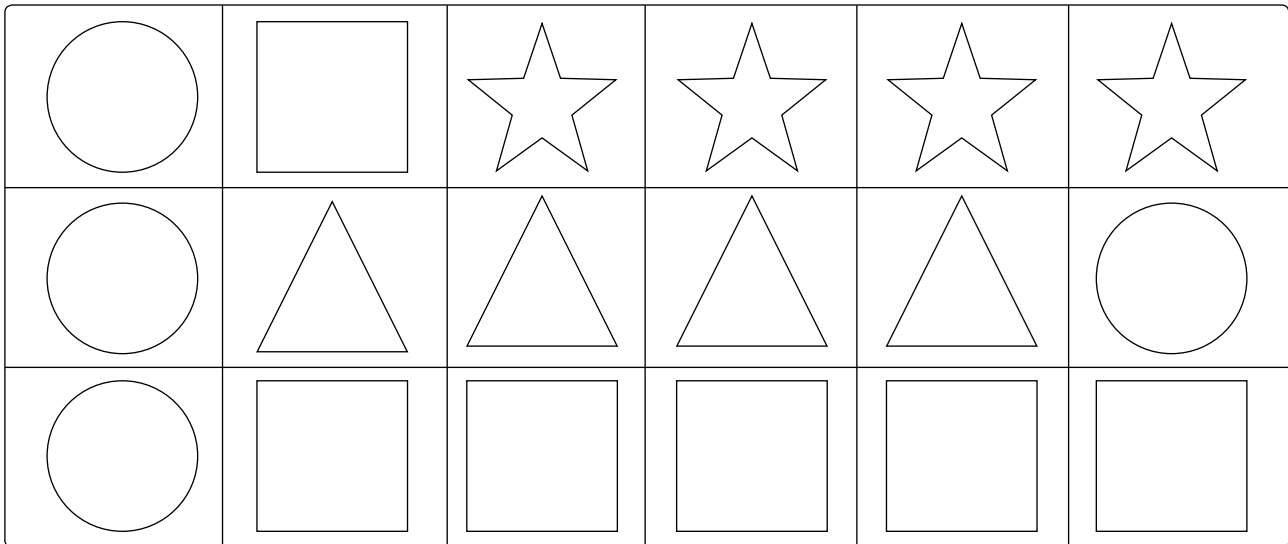
Find and circle the given groups of objects in the crossword below.

4 Stars

3 Circles

4 Triangles

5 Squares



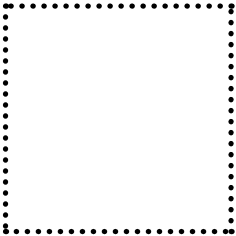
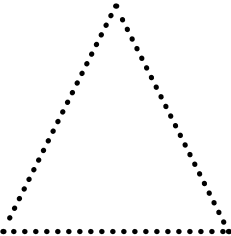
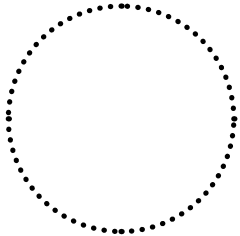

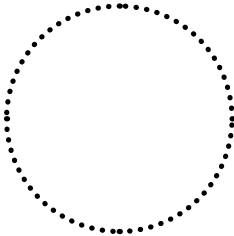
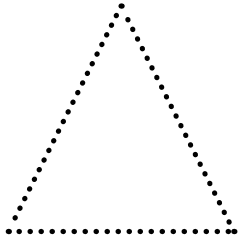

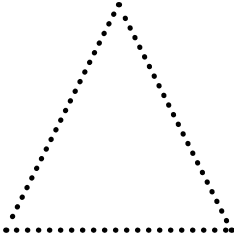
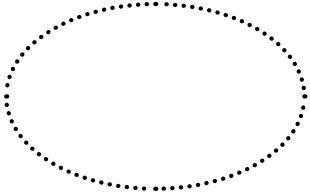
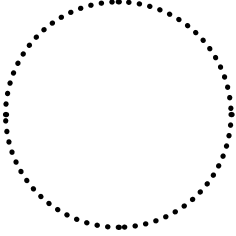
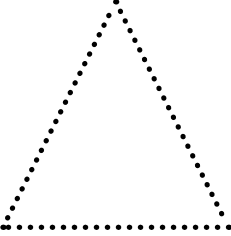
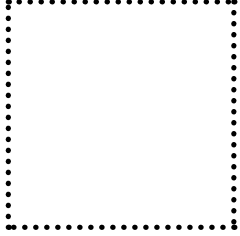
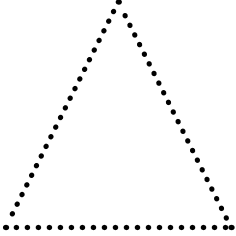
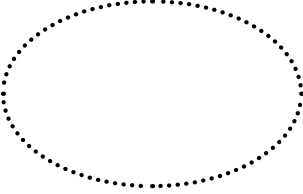

Worksheet – 18: Before, After, and Between

What comes before and after the given numbers? Fill in the missing numbers.

0	___	2	___	4	5	___
7	___	9	10	___	12	13
___	15	16	17	___	19	___

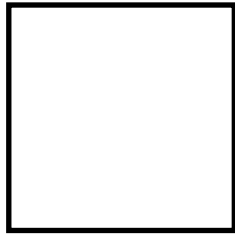
Worksheet – 19: Shapes

Trace and colour the correct shape mentioned in each row.

Square			
Triangle			
Rectangle			
Circle			
Oval			

Worksheet – 20: Counting the sides of shapes

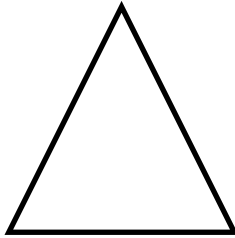
Count the sides of the shapes given below and colour the matching numeral.



2

4

6



1

3

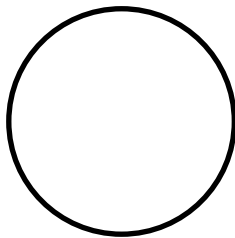
5



3

4

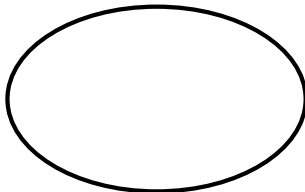
5



0

1

2






2

0

4

Mid-of-Year Teacher's Observation Checklist




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

CATEGORIES			
ACADEMIC			
Traces on dotted lines and given patterns with support			
Recognises basic colours (red, green, yellow, blue) to some extent			
Differentiates between big and small, heavy and light, thick and thin, hot and cold, empty and full, less and more, night and daytime with some help			
Differentiates between length and area of varying sizes			
Identifies and counts numbers from 0 to 20 to some extent			
Recognises numerical values in sequence and backwards from 20 to 1			
Recognises basic shapes (square, circle, rectangle, triangle, oval) with some help			
LANGUAGE DEVELOPMENT			
Expresses needs in mother tongue and in English (a few words)			
Listens and follows directions			
FINE MOTOR DEVELOPMENT			
Holds a pencil and colour pencils with adequate grip			
GROSS MOTOR DEVELOPMENT			
Finds and walks towards the classroom on their own			
Jumps and skips without falling over to some extent			
Changes direction and maintains balance while walking			
TEAMWORK AND GROUP BEHAVIOUR			
Studies and plays well with classmates without causing trouble			
Maintains friendliness with most peers and adults			
SOCIAL DEVELOPMENT			
Uses basic greetings and respects elders (teachers and parents)			
Shows awareness of personal safety to some extent			

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			
ACADEMIC			
Traces on dotted lines and given patterns with minimal support			
Recognises basic colours (red, green, yellow, blue)			
Differentiates between big and small, heavy and light, thick and thin, hot and cold, empty and full, less and more, night and daytime			
Differentiates between length and area of varying sizes			
Identifies and counts numbers from 0 to 20			
Recognises numerical values in sequence and backwards from 20 to 1			
Recognises basic shapes (square, circle, rectangle, triangle, oval)			
LANGUAGE DEVELOPMENT			
Expresses needs clearly in mother tongue and in English (a few words)			
Listens and follows directions			
FINE MOTOR DEVELOPMENT			
Holds a pencil and colour pencils with adequate grip			
GROSS MOTOR DEVELOPMENT			
Finds and walks towards the classroom on their own			
Jumps and skips without falling over			
Changes direction and maintains balance while walking			
TEAMWORK AND GROUP BEHAVIOUR			
Studies and plays well with classmates without causing trouble			
Maintains friendliness with most peers and adults			
SOCIAL DEVELOPMENT			
Uses basic greetings and respects elders (teachers and parents)			
Shows awareness of personal safety			

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
<p>Competency 1: 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.</p>	a. Recognise, name and differentiate between colours.	pp. 5–10
	b. Differentiate between the objects on the basis of size, weight, length, width and textures (smooth & rough).	pp. 11–14, 16–17
	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.	p. 22
	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.	pp. 22–23
	e. Match and compare one object with another on the basis of similar attributes.	p. 5–17, p. 38
	f. Sort and group objects (classify) based on a single attribute (e.g., colour or size etc.) and based on two attributes (e.g. colour, weight, size, number of sides).	pp. 5–17, p. 38
	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.	Covered in other books of the series
	i. Group objects together according to their shapes and colours.	pp. 9, 38
	j. Sequence objects according to their size, shapes and colours	pp. 9, 38, 84
	k. Identify and differentiate between broad and narrow	pp. 16–17
l. Identify that ‘some’ is less than ‘all’. Differentiate between ‘more’, ‘less’, and ‘equal’.	pp. 19–21	

BASIC MATHEMATICAL CONCEPTS	Expected Learning Outcomes	Book reference
	n. Differentiate between half and full.	pp. 20–21
	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.	p. 15
Competency 2: 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.	pp. 19–21
	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.	p. 87
	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.	pp. 19–22
	f. Begin to develop an understanding of the concept of zero (meaning nothing).	pp. 49–50
	g. Identify and write correct numerals to represent numbers from 0–50.	pp. 26–81
	h. Sequence numerals correctly from 0–50.	pp. 54, 79,
	i. Identify which numeral represents a bigger quantity or lesser quantity.	p. 51
	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.	p. 19

BASIC MATHEMATICAL CONCEPTS	Expected Learning Outcomes	Book reference
	l. Use concrete objects to develop the concept of addition and subtraction.	Covered in other books of the series
	m. Substitute numerals for concrete objects during the process of addition.	Covered in other books of the series
	n. Use the concept of addition in their daily lives with oral examples.	Covered in other books of the series
	o. Remove the identified number of objects from a given set, and tell how many objects are left in the set.	Covered in other books of the series
	p. Substitute numerals for concrete object during the process of subtraction.	Covered in other books of the series
	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 other books of the series
	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.	Covered in other books of the series
	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 other books of the series
Competency 3: 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. 82–85
	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.	Covered in other books of the series

BASIC MATHEMATICAL CONCEPTS	Expected Learning Outcomes	Book reference
	c. Identify the shapes in their environment.	p. 83
	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.	p. 87
Competency 4: Children will develop an understanding of measurement.	a. Describe and compare objects using length; weight, height, and temperature (hot & cold) as measurement attributes.	pp. 13–14, 18, 22
	b. Observe various objects and estimate their weight and length.	p. 14
	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. 24–25
	e. Sequence events in time and anticipate events.	pp. 24–25

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.

