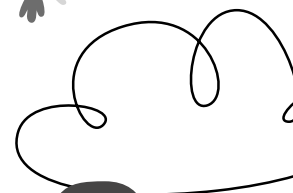
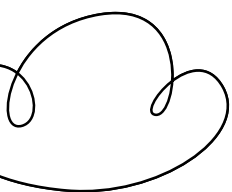


First Steps to Early Years

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, flashcards, etc.

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

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

Daily Routine

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

Lesson Plans

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

Making Teaching Resources

How to maintain flash cards

Suggestions for teachers as to how they can preserve and save their flashcards (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 by Shapes and Colours

Expected learning outcomes

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

- colour an empty shape by following a colour and shape sequence
- draw and colour a shape by following a shape and size sequence

Lesson 1 (pages 2–4)

Completing the Pattern (by Colour, Size, and Shape)

Materials required

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

Pre-activity preparation

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

Keep a separate set to teach children the concept of patterns by size by ensuring that there are copies of each shape in a slightly smaller or larger size as well. These can be pasted on the display board in a repeating pattern (for example, small and large circles repeated so that children can guess the final missing shape).

Introduction

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

Begin the lesson by holding up the cut-outs and asking the children what features they can recognise. Children can either reply in terms of shapes or in terms of

colours. Allow the children to keep guessing until there is a degree of certainty that all children can confidently recognise all the shapes and colours of the shapes that are part of this lesson. Children should also be able to differentiate between the sizes easily (for this, their attention should be brought to shapes of various sizes pasted on the display board).

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

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

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

Pattern recognition in terms of size: Bring the attention of children to the display board, where various sizes are displayed. Split the children into pairs and allow one child from each pair to say 'big' or 'small' along with the name of the shape. The second child in the pair should call out the consecutive size. Pairs should be called out to keep identifying and calling out the sizes until a pattern is established (for example, first child identifies the first shape as a big red circle, and the second child identifies the second shape as a small red circle. The second pair should repeat the same values, and so on).

Children can also be taught to practice patterns with three repeating shapes instead of two. The teacher should encourage children to practice with more detailed sequences in order to hone their ability to identify and repeat patterns of greater complexity.

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

Call out the number/letter used as a representation for the first child (for example,

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

At this stage, it is the teacher's discretion to check whether children are able to identify sequences in groups of twos or threes. If they can easily sequence in larger patterns then continue with another shape of a different colour, or else ask the third child to continue the pattern.

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

Student's book activity

Ensure that all children have the correct colours required for this activity before beginning. Each child should be asked to open their student's books to the correct pages and attempt to colour and draw the next shape on the three pages of this unit, paying particular attention to the size as well. The teacher should be present to provide assistance in case of any confusion.

Recapitulation

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

Unit 2: Classification

Expected learning outcomes

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

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

Lesson 1 (pages 5–7)	Classification by Colour
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Materials required

- colour pencils/crayons
- chart paper and scissors
- blank A4 sheets
- chalk board and chalk OR board and board marker

Pre-activity preparation

On the blank A4 sheets, draw huge boxes split into smaller boxes and write numbers in them (from 1 to 8). Keep one sheet for each child. On the board, write the numbers 1 to 8, and next to each number write a colour. These will be used during class colouring activity.

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

If you have the resources available, you can also draw and colour the objects given in the student's book on page 5 and paste them on the display board in the class in order to be able to refer to each one of them while you are teaching the pages of this unit.

Introduction

Draw the attention of the children to the things present in the class around them and call out different colours by asking children if they can find things of that colour

in the class. Introduce the concept of colours, pointing towards the names written on the board for maximum clarity. It is also possible to use the following activities one by one to reinforce the concept of colours:

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

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

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

Colour by numbers: Split the children into small groups and pass around the A4 sheets with squares drawn on them, each square containing a number. Bring the attention of the children to the numbers and colours written on the board and explain to them that they must colour the boxes accordingly. Allow the children to ask questions for clarity, and be present to provide assistance as required.

Colour day: A 'Colour Day' can also be organised where children can be asked to wear colours of the colours mentioned in this unit.

Student's book activity

Seat each child with a copy of his/her student's book and a pencil. Before they begin the activity, discuss the colours taught again and allow them to look at the objects present in the class as reference.

Allow children to take their time with the exercise on page 6. They may need some guidance in connecting the right colour to the number mentioned, or in locating the numbers on the butterfly. The children should be allowed to select the crayons

they need for the exercise themselves to ensure that they can select the right colour easily.

Have a discussion with the children before starting the exercise on page 7, and whether they can identify the fruits and animals easily. Discuss with the children what they see on the page and what colour they think these objects should be.

Recapitulation

Pick up various items present in class and allow the children to identify what the colour of each object is independently. You can conduct this activity by grouping the children or seating them in pairs.

Lesson 2 (page 8)	Classification by Size
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Materials required

- school bags/lunch boxes
- coloured sheets
- colour pencils/crayons
- scissors
- blank A4 sheets

Pre-activity preparation

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

Using the coloured sheets, cut out balls and kites in various sizes. Paste these on the display board so that the children can easily see them.

Introduction

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

Teaching by comparison: Display a pair of objects different in sizes (such as the school bags and lunch boxes of children in class) and will ask the children to identify

the bigger/smaller object. Continue to do this with different objects until they have grasped the concept and can answer with relative confidence.

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

Sorting: Bring the attention of children to the cut-outs pasted on the board. Ask children whether they can tell what the difference between the objects is. Revise the words 'big' and 'small' with the children. Split them into pairs, and ask different pairs to identify the size of different objects present on the board.

Student's book activity

Before beginning work on the page in the student's book, allow the children to look at the size of each object given and discuss it. Explain to the children that in this exercise, they have to re-draw the objects given above (balls and kites) in the columns given below. The bigger objects will go in the column on the left and the smaller objects will go in the column on the right. Once all children have a confident grasp of the concept, seat them with their student's books, and colouring pencils/crayons. Ensure that they have the assistance they require during the task.

Recapitulation

Share the A4 sheets that the children were drawing on earlier, and ask them to draw a few more objects.

Lesson 3 (page 9)

Classification by Shape

Materials required

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

Pre-activity preparation

Using the colouring pencils/crayons, draw squares, circles, triangles, and ovals on the chart paper in different colours. Use the scissors to cut them out and place

them in different baskets. Ensure that there are enough baskets for small groups of children in the class. Keep one set for the teacher to demonstrate. You can also re-use the material prepared for Unit 1, Lesson 1.

Introduction

The lesson reinforces the same concept taught in Unit 1, Lesson 1, and can be taught in the same manner. Introduce it again to the children by displaying the shapes in different colours, while explaining to them that this exercise requires sorting, i.e. shapes must be sorted into separate columns. This is a good opportunity to also revise the colours taught previously to the children, as well as check whether children can recognise different shapes easily.

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

Sorting by shape: Since children have already been taught the concept of recognition of shapes, colours, and sizes, they should be able to attempt to sort with a degree of confidence. Seat the children in small groups, and give each group a basket full of the cut-outs.

Using the set made specifically for the teacher, raise a cut-out of a particular shape, for example square, and ask the children to take out all the square cut-outs from their basket and place them on the desk.

Continue doing this with all the other shapes until each group has managed to sort with minimum mistakes. Encourage children to behave in a cooperative and friendly manner, and explain that no pushing and shoving will be allowed.

Student's book activity

Ensure that all children have the correct colours required for this activity before beginning. Each child should be asked to open their student's book and attempt to draw and colour the correct shape in each column given. The teacher should be present to provide assistance in case of any confusion.

Recapitulation

Paste the cut-outs on the display board in various columns, and at the top of each column write the name of the shape so that it can act as a regular reminder to the children to help increase their shape and colour recognition.

Unit 3: Position Words

Expected learning outcomes

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

- understand the concept of prepositions, and use the words 'inside' and 'outside' with ease
- understand usage of words 'up' and 'down' with clarity on the positions 'top' and 'bottom'
- identify left and right
- recognise the item which is the odd one out in a group of items

Lesson 1 (pages 10–11)

Inside and Outside

Materials required

- chart paper
- marker
- scissors
- newspapers/magazines

Pre-activity preparation

On the chart paper, write the words 'inside' and 'outside' within square boxes and cut the square with a scissor to form small signs which can be used during the class activity. Ensure that there are enough for groups in class. Paste one set on the display board.

From the newspapers/magazines, cut out examples of images which represent inside and outside, such as people sitting inside cars, a person standing outside a building, etc. Paste them on the display board as well so that they can be used during the class demonstration.

Introduction

Introduce the children to the concept of prepositions by giving them examples through objects present in the class room, for example, through the books placed inside cupboards, etc. The images pasted on the display boards can also serve as visual explanations of the terms 'inside' and 'outside'.

With each example, point towards the words 'inside' and 'outside' pasted on the display board while saying them out loud in a clear and loud manner, so the children have a clear understanding of the terms and how to pronounce them.

Group work: Seat the children in small groups, and place one set of the 'inside' and 'outside' sign in front of each group. Point to different examples, either present in the classroom or pasted on the display board and ask different groups to identify which term is being represented. Allow all groups to have a chance to answer.

Student's book activity

Seat each child with a copy of the student's book open to pages 10 and 11, along with colouring pencils. Explain that on page 10 they have to circle their answers, whereas on page 11 they have to indicate the correct answer using tick marks.

Since this is a new concept, give children the space to ask lots of questions until they have clearly understood the concept.

Recapitulation

Encourage children to form sentences which state the position of different objects, such as, 'the books are inside the cupboard', etc. Allow children to identify things themselves in the classroom which can be represented using the words inside and outside.

Lesson 2 (page 12)	Top and Bottom
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Materials required

- stationery material (pencils, sharpeners, rubbers, etc.)
- images of fruits and vegetables
- chart paper

Pre-activity preparation

Place the stationery objects in a straight line on a table where they can be reached easily for demonstration.

On the chart paper, paste the images of fruits and vegetables in vertical rows. Make lots of rows so children have lots of examples they can practice from.

Introduction

The children need to be introduced to the concept of 'up' and 'down'/'top' and 'bottom'. This is an increase in their vocabulary, as well as a new concept that is being explained to them, so it is important to take time to ensure that everyone understands correctly.

Using stationery in class: For the first introductory activity, call the attention of children to the table with the stationery objects. Encourage volunteers to come to the front of the class. Split the volunteers into pairs, and allow each to hold one stationery object either above or below. Then introduce the four words mentioned earlier while providing context. The first child in each pair should hold the object above, and the second child the object below.

Once children have understood the concept, check whether they know it themselves by switching the positions, for example, ask the second child to hold their object on top, and check if they have understood the instructions.

Using fruits and vegetables to teach positions: On the display board, ask the children to first look at the objects pasted there and see if they can name them. Then, split the children into groups and ask each group which fruit is present at the top and which one is present at the bottom. Allow each group to continue guessing until all groups have had a chance to provide the answer.

Student's book activity

Seat each child with the student's book open to page 12. Tell the class that they have to put a tick mark in the box next to the fruit present at the bottom of the page and a cross mark in the box next to the fruit present at the top of the page. Encourage them to take help of the demonstrations that have taken place in class to answer the questions.

Recapitulation

At the end of the unit, change the positions of the fruits and vegetables from top to bottom and see if children can easily recapitulate the concept taught by correctly identifying the positions of each item.

Materials required

- newspapers/magazines
- scissors
- balloon/ball/cup/glass
- chart paper
- ruler
- marker
- A4 sheets
- colouring pencils/crayons
- baskets

Pre-activity preparation

From the newspapers/magazines, cut out images of objects which can be used to teach children the concept of left and right, for example a table, a chair, a lamp, a bulb, etc.

On the chart paper, draw a line in the middle. Paste a copy of the images, one on each side, which can be used to teach children the concept of left and right. Keep another set in baskets for children to use in groups.

On the A4 sheets (one for each child), draw the same vertical line and right 'left' and 'right' at the top of each column respectively.

Introduction

The children need to be introduced to the concept of 'left' and 'right'. This is both an increase in their vocabulary, as well as a new concept that is being explained to them, so it is important to take the time to ensure that everyone understands correctly.

Guess the direction: Bringing the attention of the children to the chart paper, place a finger first on the words present on top of each column. Help them pronounce the words 'left' and 'right' and then begin naming the images present below each column respectively.

Once this practice has been carried out, separate the children into groups and hand them the baskets. Ask each group to come to the front of the class. Ask children

from the group to take out the objects, call out where the child holding a certain object should stand, for example, 'the child holding a cut-out of a balloon to stand on the right'. Continue this exercise until the whole group has been divided, and check if they have taken their positions correctly.

Continue the same exercise using the balloon, ball, cup, and glass that has been brought to class.

Drawing in correct directions: Seat children in pairs and give them the A4 sheets. Ask the child on the left to draw a certain object (for example, a balloon) and the one on the right to draw a different object (for example, a ball). Check to see whether the children are drawing things correctly.

Hokey Pokey: The Hokey Pokey (also called The Hokey Cokey in certain regions of the world) is a song which children can participate in with dance steps. It has a distinct tune and lyric structure, which allows children to easily retain the concept being introduced in the song as they sing it with appropriate gestures. The dance follows the instructions given in the lyrics of the song which either the teacher can sing himself/herself or use a recording.

Ask the children to stand in a circle. The instruction set that is to be used goes as follows:

You put your (right foot) in

You put your (right foot) out

You put your (right foot) in

And you shake it all about

You do the Hokey Pokey and you turn yourself around

That`s what it`s all about!

(The words given in brackets can be changed as per the abilities of the children: words which can be used include: 'left foot', 'right hand', 'left hand', 'head', 'whole self', etc. The body parts 'right elbow', 'left elbow', 'right hip', and 'left hip' are often included as well.)

When saying the word 'in', children should put the appropriate body part in the circle, and on 'out' they put it out of the circle. On 'And you shake it all about', the body part is shaken three times. While singing 'You do the hokey pokey and you turn yourself around', they spin in a complete circle with the arms raised up high and the index fingers pointed up, shaking their arms up and down and their hips

side to side seven times. At the end with the words 'That's what it's all about', they have to clap their hands twice in front, once behind, and once in front.

The final verse goes:

You do the hokey pokey,

The hokey pokey,

The hokey pokey.

That's what it's all about! Yeah!

Student's book activity

Seat each child with the student's book open to pages 13 and 14. Explain that on page 13, they must circle the correct object according to the instructions given, whereas for page 14 they have to draw objects according to the instructions given. Children have already practiced these directions and should have a clear idea of what is expected of them.

Recapitulation

At the end of the unit, change the positions of objects on the chart paper so that children can continue guessing correct directions.

Lesson 4 (pages 15–16)	Odd One Out
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Materials required

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

Pre-activity preparation

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

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

Cut out illustrations/images from newspapers/magazines and paste them on the display board/walls. Make sure that in a row of three or four illustrations, there is

only one that is different and the rest are the same so that children can easily spot the odd one out.

Introduction

Explain to the children that the phrase 'odd one out' means anything which looks different from the rest. There are various ways to help the children differentiate between different objects, but the basics of differentiation remain the same, i.e. colour, shape, size, etc. Once the children have a grasp on the concept of things differing from each other based on these characteristics, they will easily be available to identify one singular item which is different from all the rest in a list of different items.

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

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

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

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

Tell the children that there are two identical baskets (containing the same fruits and vegetables arranged in the same manner) next to a third basket with different fruits and vegetables. Allow them to guess which one is the odd one out. Have a

conversation with the children regarding the fruits and vegetables present before the activity starts. This will also help them see that two baskets have the same food items.

Student's book activity

Seat each child with the student's book open to pages 15 and 16 of the student's book. Tell them that they have to make a circle around the image in each row or set that is different from the other images in the row/set. Encourage them to take the help of the demonstrations that have taken place in class to help them answer the questions.

Recapitulation

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

Lesson 5 (page 17)

Let's Revise – Counting and Matching Objects with the Correct Numbers

Materials required

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

Pre-activity preparation

Using the newspapers/magazines, cut out various similar objects so you have an adequate number of objects to represent numbers from 1 to 6. Paste these on the display board.

Using the scissors, cut out circles from the chart papers and write the numbers from 1 to 6 on the circles. Paste these circles on the display board as well so that the children can easily see them during the activity.

Introduction

Children should already have a clear grasp of numbers, as well as the ability to count objects when they are presented in groups. In this activity, they are required to do both of these activities simultaneously, and then match the group of objects to the correct number.

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

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

Student's book activity

Seat each child with a copy of the student's book and allow them to first attempt to solve the questions given on the page themselves. The children might require some help in understanding exactly what is required of them in the activities given. Tell the children that they should first count the number of objects on page 17. Then, using a colour pencil they should circle the number which represents the amount of items present above the numbers.

Recapitulation

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

Unit 4: Numbers

Expected learning outcomes

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

- trace the numbers in words from 1 to 50
- write the numbers in figures from 0 to 99
- identify the numbers which come before and after the written numbers
- fill in missing numbers from 1 to 50

Note: The following lessons (presented in the book in strategically placed intervals to allow the children to work in a naturally progressive manner, with the first exercise on pages 18 and 10 related to numbers 1 to 25, and the second exercise on pages 23 to 24 related to numbers 26 to 50) can be used to teach how to write numbers in words from 1 to 50. The lessons have been numbered according to their order within the book itself. The activities mentioned correspond to the following lessons and page numbers.

Lesson 1 (pages 18–19)	Numbers in Words
Lesson 3 (pages 23–24)	Numbers in Words

Materials required

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

Pre-activity preparation

On the chart paper, with a ruler draw red and blue lines similar to the ones given on the pages of the student's book. Write the numbers to be taught (1–5) as well as in words in a clear manner so that the children can easily view them from every angle. Paste this chart paper on the display board.

Introduction

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

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

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

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

Student's book activity

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

Recapitulation

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

Materials required

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

Pre-activity preparation

On the chart paper, with a ruler draw columns similar to the ones given on the pages of the student's book. Write the numbers to be taught (1–90) as well as the headings (tens, units) in a clear manner so that the children can easily view them from every angle. Paste this chart paper on the display board.

Introduction

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

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

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

Student's book activity

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

Recapitulation

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

Lesson 4 (pages 25–26)

Numbers Before and After

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 50. 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 small groups. Give each group the set of cards labelled 1–50 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 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

50 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 relevant pages and ask them to first spend some time looking at the exercise. First ask the children to solve the exercise given on the page verbally during a class discussion, so that it is assured 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.

Unit 5: Measurement

Expected learning outcomes

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

- use different objects (for example, hand spans, paper clips, rulers) to measure length and height
- understand what a hand span means

Lesson 1 (pages 27–28)

Length and Height

Materials required

- chalk board and chalk
- blank A4 sheets
- crayons
- books of equal size (1 for each group)
- paper clips (boxes for each group)
- small chairs (1 for each group)
- rulers (boxes for each group)

Pre-activity preparation

On the board, place your hand with fingers spaced wide apart and trace the edges. Label it clearly to show that it represents a hand span.

Introduction

Children should already know about the basics of measurement and how much area certain things can cover. At this stage, they will be introduced to different ways of measuring the length and height of various objects.

Measuring by hand span: Bring the attention of the children to the board, where a hand span is present. Give each child an A4 sheet with a set of crayons. By demonstrating as you explain, ask the children to place their hands on the paper and spread their fingers wide. Mark the two outer edges, one where the thumb ends and the other at the tip of the little finger. Draw a line between these two marks and explain to the children that this constitutes a hand span.

Tell them that a hand span can be used to measure various objects. Ask a volunteer to come to the front of the class, where the teacher can demonstrate how hand spans can be used to measure height. Ensure that the volunteer understands exactly what the activity is going to be so he or she is comfortable and does not get flustered when the teacher starts measuring using hand spans.

As the child is being measured, explain in a loud voice exactly what is being done so the rest of the children can also see and understand. On the board, write the name of the child and write the number of hand spans next to it.

Split the class into pairs and explain to the children that they will be measuring their friends from head to toe using hand spans. Ensure that each pair understands the activity's purpose and how to carry it out.

Measuring by paper clips: This activity can be carried out in small groups. Seat each group with a book and a box of paper clips. Before beginning the activity, demonstrate how it must be done by placing paper clips in a straight line and counting how many paper clips were used to measure the book. Explain to the children that they must work in a cooperative manner. Since the paper clips are small and can have pointed parts, ensure that the relevant safety measures are taken, for example, by explaining to the children that they should not put the clips in their mouth, etc. Provide adequate help to each group as required to place the paper clips in a line along the length of their books.

Measuring using rulers: For this activity, the children will be required to measure the chairs on which they are sitting. Bring a volunteer's chair to the front of the class and demonstrate exactly how rulers must be placed one after the other along the length of the chair. Tell the children that the total number of rulers at the end need to be counted.

This activity also requires children to work in groups. Check that there are enough members in each group so that each one has a chance to hold a ruler in place during the measurement. Ensure that the children count only the rulers and not the numbers given on the rulers.

Student's book activity

Seat the children with their books open to pages 27 and 28. They have already carried out the relevant activities during the introduction. Tell them that they only need to write the total number of hand spans/paper clips/rulers used for measuring the height.

Unit 6: Addition

Expected learning outcomes

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

- count objects in a rhyme for addition
- use the number line for addition
- use visual cues to count and add objects
- count and add using addition sums
- count and add using story sums

Lesson 1 (page 29)

Addition Rhyme

Materials required

- newspapers/magazines
- scissors

Pre-activity preparation

Cut out images of various objects such as fruits, vegetables, toys, etc., which can be used to teach children counting. Use the same images as given on page 29 of the student's book for better representation. Ensure that enough images are present for each number (for example, there are nine images of trees for the number 9 and ten images of eggs for the number 10, and so on).

Introduction

Gather the children for a Circle Time activity by singing the following song (sing to the tune of the nursery rhyme 'Brother John'. If tune is not familiar, it can be found easily on the internet):

Circle time, circle time, circle time
Come around in a circle
Make a round, big circle
Let's have circle time

Circle Time is a group activity of around 10 to 15 minutes where the teacher gathers all the children in a circle around him/her. This group activity, which involves

the whole class, can be used in numerous ways before the lesson begins as a preliminary/warm-up activity. Circle Time activities include sing-alongs and small physical activities, as well as speaking and listening activities.

It is important to set some ground rules specifically for speaking activities and also in a general manner, to be followed for the duration of the Circle Time activity. Ask children to always speak politely, respect each other's opinions, and take turns while speaking. Children should know that they have to cooperate with and be sensitive to their peers during this exchange.

Student's book activity

Once children are sitting down in a circle and have gone through the warm-up activities, bring out the cut-outs, and sing the rhyme given on page 29 of the student's book. With each number, show the cut-out which represents that number (for example, when singing the first line for number 1, exhibit 1 cut-out). Continue in this manner until all the numbers have been demonstrated. At the end, raise only the cut-outs, and ask the children to count the total. Volunteers may be called to the front of the class to hold the cut-outs, since those for the bigger numbers might be hard for one teacher to hold.

Recapitulation

Allow the children to sing the rhyme as the cut-outs are shown. This will be a fun activity for them as well as ensuring that they recognise the numbers in the correct order and can count using visual cues.

Lesson 2 (pages 30–31)	Addition on Number Lines
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Materials required

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

Pre-activity preparation

Draw the number line (up till the number 9) on chart paper or on the board and ensure that it is clearly visible to the children. Write the numbers in a large and clear

format and draw dotted lines to show the path between the numbers which are to be added.

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

Introduction

Children have already been introduced to the concept of addition as well as to the number line in the previous class. However, it is still imperative to go over it a number of times to ensure that it is well revised for all the children.

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

Student's book activity

Allow children to get comfortable with the concept of the number line before beginning work on pages 30 and 31 of the student's book. Once all children have demonstrated a sufficient grasp of the ability to count on the number line, seat each child with a copy of the student's book open to these pages. Tell them to trace the path with the relevant numbers if they need help before writing the final answer.

Recapitulation

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

Lesson 3 (pages 32–33)

Add the Objects Together

Materials required

- newspapers/magazines
- scissors
- stationery items (pencils, rulers, rubbers, etc.)
- chart paper

- markers
- baskets

Pre-activity preparation

From the newspapers/magazines, cut out multiple images of objects (for example, stars, apples, balls, guitars, etc.) as well as animals (for example, frogs, monkeys, hens, etc.). These resources can be used in later lessons within this unit as well.

On the chart paper, make three columns. Place similar images in each row in the first and second column (for example, five stars in the first column and four stars in the second column in the first row) and write the number of items below each image. Leave the third column blank for the children to provide the answers.

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

Introduction

Use the stationery items to reiterate the concept of addition with the children. Display the stationery items in front of the class and ask them to count one by one as the teacher counts. Hold two pencils in one hand, and two in another. Then bring them together, and help children reach the number four by adding the two separate groups. This allows children to revise both counting and addition. Keep repeating this exercise until the whole class can answer confidently.

Count and add given objects: Bring the attention of children to the display board, where the chart paper is present. Go through each row one by one, first counting the number of items (shown visually) in each column and showing the number written underneath each. In the third column, allow the children in groups to count the total number of items before the teacher writes the correct answer underneath. If the extra resources are present, volunteers can be asked to come up to the display board and paste the correct number of images in the third column above the correct answer.

Student's book activity

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

Seat each child with a copy of the book open to the relevant pages and allow each

child to attempt the sum themselves before help is provided. If children express some frustration, explain to them that it is okay to make mistakes and provide assistance where required.

Recapitulation

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

Lesson 4 (page 34)

Addition Sums

Materials required

- chart paper
- markers

Pre-activity preparation

Using the chart paper, draw similar sums as given on page 34 of the student's book. More combinations can be added if resources are available in terms of the teacher's time and space on the display board.

Introduction

While visual representations are helpful and bring more clarity to the children's understanding, it is imperative that they learn to add without visual cues given. At this stage, children should be able to use number sums to count without the presence of images. This might be slightly confusing for some children, so go at a pace that allows the whole class to work together.

Explain the vertical format to children. In the first sum, 7 would be added with 2, as the number at the top will add to the number written underneath it. Allow the children to ask questions at this stage so that if there are any confusions they can be tackled before moving forward. Use fingers to point exactly which sum is being tackled on the display board so that children can follow along as the sum is being carried out. Show them how we add the right column, which represents the units, first, and then the left column, which represents tens. If there is no number present below the top number, it will be come down as the answer. The children can also be asked to use tally marks for the numbers and count them altogether.

Student's book activity

Seat each child with a copy of the student's book open to page 34. Children might require help with some questions, especially since they have not used addition sums which include both tens and units before. Provide assistance wherever required.

Recapitulation

Continue with more questions on the display board until all children have clearly understood the concept and can answer easily.

Lesson 5 (pages 35–38)	Story Sums and IQ Booster
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Materials required

- stationery items (pencils, rulers, rubbers, etc.)
- cut-outs of images/illustrations used in Lesson 1
- chart paper
- marker
- ruler

Pre-activity preparation

Paste the cut-outs on the display board. Place the stationery items on a table in front of the class from where children can easily view them.

Draw a box of nine squares on chart paper in a similar manner to the one given on page 38 of the student's book. Write the same numbers as given on the page.

Introduction

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

Using visual cues for addition: Use the images pasted on the board to generate a story. Multiple scenarios can be created to fulfill the aim of getting the children to count and add. A few possible scenarios are mentioned on the pages 35 to 38 of the student's book.

Using children as volunteers: Ask children to come up as volunteers to the front

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

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

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

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

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

Puzzle box: For the IQ booster, it will be necessary to explain to children exactly what they are required to do before this particular IQ challenge can be done.

Bring the attention of children to the board and help them remember that they have solved similar puzzles in their previous class. Tell them that each column and row add up to the number given outside the boxes. Children are required to put the correct number in the empty boxes to complete the addition puzzle.

Student's book activity

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

Children might need some help attempting the puzzle since it includes bigger numbers which might be complicated for a few of them. Tell them that they can also use their fingers to solve this puzzle, since it involves basic numbers, or solve it with the help of friends or in groups.

Unit 7: Subtraction

Expected learning outcomes

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

- count and subtract given objects
- use the number line for subtraction
- learn how to subtract from 10 and 20
- subtract objects introduced in a story
- fill in the missing numbers from 51 to 100

Lesson 1 (page 39)	Count and Subtract
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Materials required

- balloons (and threads or strings to tie them)
- chart paper
- markers

Pre-activity preparation

Blow the balloons up and tie them loosely using thread or strings.

Introduction

Children have already been introduced to the concept of subtraction in their previous class. A revision of the basics of the concept is required so that the whole class can recall and understand clearly.

Subtraction with balloons: Ask the children whether they would like to come to the front of the class as volunteers. Begin with a small group, only four children or less, so that children can practise with easier sums before moving on to the harder ones. Hand a balloon to each child and ask them to stand together. Ask the rest of the class to count the total number of balloons. Then ask two of the children to move to one side. Now ask the class to count how many balloons are left in the hands of the children who are still in the front.

Continue in this manner by adding more balloons. Children should also be changed so that everyone has a chance to volunteer and take part in the activity.

Student's book activity

Seat each child with a copy of the student's book open to the relevant page. The exercise given is a repetition of the activity carried out in the class during introduction, so it should be easy for children to count and subtract to find the final answer.

Recapitulation

The activity with the balloons can be carried out again at the end of the week to check whether children have retained the concept.

Lesson 2 (page 40)	Subtraction on Number Lines
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Materials required

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

Pre-activity preparation

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

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

Introduction

Children have already been introduced to the concept of subtraction as well as to the number line in the previous class. However, it is still imperative to go over it a number of times to ensure that it is well revised for all the children.

Re-introduce counting on the number line by reminding to the children how it can be used for subtraction. Start with very basic sums for revision (for example, subtracting one from two) and then move on to bigger sums as the children

remember their earlier lessons. Use fingers to trace the path between numbers as each sum is counted. Encourage children to come up to the board and trace the path with their fingers as well. Explain that this is just another way of subtraction.

Student's book activity

Allow children to get comfortable with the concept of the number line before beginning work on pages 40 and 41 of the student's book. Once all children demonstrate a sufficient ability to count on the number line, seat each child with a copy of the student's book open to this page, and tell them to trace the path with the number if they need help before writing the final answer.

Recapitulation

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

Lesson 3 (pages 42–43)

Taking Away from 10 and 20

Materials required

- newspapers/magazines
- scissors
- chart paper
- ruler
- marker
- blank A4 sheets
- colouring pencils/crayons

Pre-activity preparation

From the newspapers/magazines, cut out images of animals. Paste these in rows on the display board. Below each, write subtraction sums so that the children know how many images they need to cut out. Leave an empty sum where the answer will be written.

On the chart paper, draw boxes of squares like those given on page 43. Colour a few so that children can use them for reference. Do the same on the blank A4 sheets but leave the boxes uncoloured. Beneath each box, write the subtraction sum that the children are required to complete. Ensure that there are enough blank A4 sheets for the whole class to work in pairs.

Introduction

These activities further strengthen the ability of children to subtract using visual cues in different manners. The first activity involves images of animals where the children are required to cut the image out to calculate the final answer. The second activity involves colouring the boxes and counting the remaining uncoloured boxes to calculate the final answer.

Subtracting using images: Explain to the children that the first number they see in each row matches the total number of animals present in that row. Cross out the animals in each group to match the second number and write the animals that are left in the blank.

Split the children into groups and allow each group to solve the remaining sums. If possible, volunteers can come up and cut out the images (if it is present at a height where the children can reach).

Subtracting using boxes: Distribute the A4 sheets with the boxes drawn on them to the children, along with the colouring pencils/crayons. Explain to the children that in the questions given, the number of the squares matches the first number in the subtraction question. They need to colour as many squares as the second number in the question, then count the remaining squares and write the number in the blank space. Bring their attention to the boxes drawn on the chart paper during the explanation so children have a point of reference. Allow them to ask questions, since it is possible that the explanation might need to be repeated twice to ensure that everyone present in the class has understood the activity.

Student's book activity

Children should already have enough practise with this exercise before they begin work on the pages in the student's book. Allow them to ask questions if they require further assistance since it might be confusing for some. It is not imperative that children colour within the borders of the lines but rather that they be able to count the correct number of boxes, colour them, then count the remaining boxes and write the final answer.

Recapitulation

Rub out the colours of the boxes on the chart paper and allow children to supply the correct answers again for revision of the concept.

Lesson 4 (page 44)

Subtraction Sums

Materials required

- chart paper
- marker
- ruler

Pre-activity preparation

On the chart paper, draw similar sums as given on page 44 of the student's book. If possible, add even more combinations of numbers if the resources in terms of time and space are available.

Introduction

While visual representations are helpful and bring more clarity to the children's understanding, it is imperative that they learn to add without visual cues given. At this stage, children should be able to use number sums to count without the presence of images. This might be slightly confusing for some children, so go at a pace that allows the whole class to work together.

Explain the vertical format to children. In the first sum, 4 should be subtracted from 8, as the number at the bottom will be subtracted from the number written at the top. Allow the children to ask questions at this stage so that if there are any confusions they can be tackled before moving forward. Use fingers to point exactly which sum is being tackled on the display board so that children can follow along as the sum is being carried out. The children can also be asked to use tally marks for the numbers and count them altogether.

Student's book activity

Seat each child with a copy of the student's book open to page 44. Children might require help with some questions, especially since they have not used subtraction sums which include both tens and units before. Provide assistance wherever required.

Materials required

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

Pre-activity preparation

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

Introduction

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

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

Encourage the volunteers to stand facing the class, with the books held up so that they are visible to everyone. Tell the class: 'Child A (name) has eight pencils. She/He gave 5 pencils to her/his friends. How many pencils does she/he still have?'

During this demonstration, remove the requisite number of items (for example, in this situation remove 5 pencils), and place them on the side. Allow the volunteer to keep holding the remaining pencils. Allow children to give answers before asking the volunteer to count the remaining items themselves and give the answer.

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

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

Student's book activity

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

Recapitulation

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

Lesson 6 (page 46)

Fill in the Missing Numbers

Materials required

- chart paper
- marker
- scissors

Pre-activity preparation

Fold the chart paper into small squares. On each square write the numbers from 51 to 100. 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 small groups. Give each group the set of cards labelled 51–100 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 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 51 to 100 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. 53 and 55 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 relevant pages and ask them to first spend some time looking at the exercise. First ask the children to solve the exercise given on the page verbally during a class discussion, so that it is assured 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.

Unit 8: Multiplication

Expected learning outcomes

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

- find and make groups of 2
- find and make groups of 5
- skip count in 2s
- skip count in 5s
- learn about multiplication tables of 2, 3, 4, and 5 by counting sets

Lesson 1 (pages 47–51)

Finding Groups of 2 and 5

Materials required

- newspapers/magazines
- scissors
- baskets
- beads/buttons/counters

Pre-activity preparation

From the newspapers/magazines, cut out images of various animals (rabbits, cats, squirrels, etc.) or objects (bulbs, jars, beans, etc.) and place them in baskets. Paste one set on the chart paper, split into groups as shown on the pages of the student's book.

Introduction

Before beginning the exercise, ensure that children can clearly see the display board. Bringing their attention to each set of pages, ask them to count how many animals there are in each group. Write this number at the top of each group.

Finding groups of 2: Then circle the animals into groups (for example, circle the rabbits to make equal groups of two) while explaining to the children what is being done. Once the rabbits are circled, ask the children to count each circle that has been made. Children should be able to conclude that 4 groups of 2 rabbits have been made. Help them reach this conclusion with further explanations.

Continue in the same manner with the other images. For example, point to the

images of the cats (make sure there are 10) and ask the children to count them. Then, circle the cats to make equal groups of two, and ask the children to count the number of circles. Children should be able to come to the conclusion that there are 5 groups of cats.

Finding groups of 5: Use the same method of teaching to explain the concept of finding groups of 5. Using the squirrels or bulbs, first ask the children to count the total number of images, and then the number of groups.

Classroom activity: Split the children up into pairs. Give each pair 10 beads/buttons/counters and ask each pair to separate the items into groups of two. Once this is done, ask them to count the number of groups (and not the number of total beads). Explain to them that this is how groups are made, and this is how we divide. Keep increasing the number of items (for example, after children have understood the concept they can be given 20 beads/buttons/counters) and ask the children to make more groups for further practice. This activity can also be used to make groups of five.

Student's book activity

Open the student's book to pages 47 to 51 and seat each child with their notebook. Allow everyone to attempt the answers themselves before the teacher is required to provide assistance. Page 47 is only for explanation, and the rest of the pages require children to answer the questions. It requires the children to draw an exact number of beans in each jar.

Lesson 2 (pages 52–53)

Skip Counting (in 2s, in 5s)

Materials required

- chart paper (green and pink)
- markers
- scissors
- blank A4 sheets

Pre-activity preparation

Use the green chart paper to cut 30 circles. Within the circles, write the numbers starting from 1 till 30, skipping the numbers that are left on page 52. Paste these up on the display board in a similar style of the page, leaving empty circles for the missing numbers.

Use the pink chart to cut 8 pieces in the shape of gloves. Within the gloves, write the numbers from 5 to 40, skipping the numbers that are left on page 53.

Introduction

Before beginning the exercise, ensure that children can clearly see the display board. At this stage, children have already understood the concept of identifying numbers in order, thus they should be able to fill the empty spaces themselves. However, it is important to call attention to the fact that counting is being done in 2s and 5s.

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

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

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

Student's book activity

Open the student's book to pages 52 and 53 and seat each child with their notebook. Allow everyone to attempt the answers themselves before the teacher is required to provide assistance. Explain to the children that they are counting by 2s, which means that the missing number can be found by adding 2 to the previous number, and by 5s, which means that the missing number can be found by adding 5 to the previous number.

Recapitulation

Allow the children to keep separating the cut-outs into different groups and counting the total number of groups. The more they practise, the easier they will find it to multiply larger numbers.

Materials required

- chart paper
- markers
- beads/buttons/counters (in sets of 2s, 3s, 4s, and 5s)
- cut-outs from Lesson 1

Pre-activity preparation

On the chart paper, write down the tables given on pages 54 and 55. Ensure that the font is large and clear enough that all the children can easily see from their seats.

Split the buttons into groups so children can use them easily.

Using the cut-outs from Lesson 1, paste them on the chart paper in the manner as given on page 56. Ensure that multiplication sums are written below each row so that the children can see clearly the sum they are supposed to be attempting to solve.

Introduction

Before beginning the exercise, ensure that children can clearly see the display board. Even though children have already been introduced to the concept of multiplication, tables can seem confusing to a number of them. Thus, it is important to give them time to understand the tables and how they are used.

Counting sets: Introduce multiplication tables by counting sets. Make sets of 2s (a set of 2 objects), 3s, 4s, and 5s and ask children to count them before introducing the tables. Split the children into groups for this activity, and allow them to count until they have multiplied each number by 10.

Children can also be asked to come to the front of the class where they can recite the tables by reading off the chart papers. Split children into groups of four so that each child in one group has a chance to recite a table. Repeat the activities of Lesson 1 if required for further clarity.

Student's book activity

Seat the children with the student's book open to page 56 in groups. Bring the attention of the children to the chart paper where the sums are mentioned and allow them to first attempt to find the answers themselves before the teacher provides help.

Recapitulation

Leave the chart paper with the tables drawn on them up on the display board. At the beginning of each day, children can be encouraged to recite the tables and include them in different activities for constant revision.

Unit 9: Division

Expected learning outcomes

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

- divide objects equally into smaller parts
- divide objects equally between a certain number

Lesson 1 (pages 57–58)

Making a Fair Share of 2s and 5s

Materials required

- toffees
- newspapers/magazines
- scissors
- chart paper
- thumb pins
- colouring pencils/crayons

Pre-activity preparation

Place the toffees on a table in front of the class where all the children can easily see them.

From the newspapers/magazines, cut out images of cats and fish.

On the chart paper, draw 5 large trees. Also draw images of apples and cut these out so they can be pasted on the trees. Paste this chart paper on the display board.

Introduction

Since division will be a new concept being introduced to children, allow them to take some time to get comfortable with the concept. It is important to provide visual representations to each activity and to involve children in the division process themselves so that they can understand better how it is carried out.

Sharing equally: Discuss with children the concept of sharing equally. Ask 4 volunteers to come to the front of the class. Show children the toffees and tell them that each they have to be divided equally between the volunteers, which means that all the volunteers must have an equal number of toffees. To share 8

toffees between 4 children, give 1 toffee in each child's hand, counting up as each is handed over. Stop when all 8 are shared.

Repeat the exercise with a different number of volunteers and total number of toffees (for example, 6 toffees shared between 3 children) so that the concept is clear to all the children in the class. The cut-outs of cats and fish should be used to reiterate the same exercise. Show the children how to add another cut-out of a fish to each image of a cat, counting up by ones until they reach the total.

Group work: Split the children into groups and give each group a set of 5 cut-outs of apples. Allow the children to first colour these for a group activity, and then bring the attention of the children to the trees on the chart paper. Explain to each group that there are a total of 25 apples, and they need to be shared equally between the 5 trees. Allow each group to come and paste their cut-outs on the trees, and then the whole class can together count the number of apples.

Student's book activity

Open the student's book to pages 57 and 58. Allow the children to work in pairs to solve the questions given.

Recapitulation

Use the toffees left over to reiterate the concept and have a small party with the children.

Unit 10: Shapes

Expected learning outcomes

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

- recognise properties of complex 3D shapes, including faces, vertices, and edges (taught as per teacher's discretion)
- identify 3D shapes in their environment
- differentiate between 2D and 3D shapes
- solve puzzles related to shapes

Lesson 1 (pages 59–60)

3D Shapes

Materials required

- 3D objects which can be used to teach shapes (e.g. round ball, square box, cylindrical water bottle, etc.)
- A4 sheets
- marker
- chart paper
- colouring pencils/crayons
- scissors
- chalkboard and chalk

Pre-activity preparation

On the board or on any other large surface (such as on chart paper on the display board) which is clearly visible to all the children, draw the shapes given on page 59. Make sure that the name of each shape is written next to the shape in capital letters, so that the children can easily read the words from their own seats without needing to get up and approach the display board.

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

Introduction

Page 59 of the student's book has been provided as a teaching resource, meant to facilitate teachers in getting a better understanding of the topic. It includes complex 3D shapes, as well as their properties, such as faces (the sides of the shapes), vertices (the corners), and edges (where the faces meet). Eight 3D shapes are provided, which the teachers can use throughout the unit to further increase the understanding of the children. These shapes can be presented to the children based on the teacher's discretion and depending upon the comprehension level of the entire class.

Children have already been introduced to the concept of 3D shapes in the previous class. Re-introduce the concept to them by helping them spot 3D shapes in the class. Bring the attention of the children to the new shapes present on the board/display and introduce the concept of 3D shapes. The objects placed on the table can then be used for demonstrations. As each item is picked up, special attention should be brought to the side that best represents the shape being taught. At this stage, faces, vertices, and edges can also be introduced, as needed. Count the number of sides, and then encourage children to count the sides as well.

Shapes all around: To reinforce the idea of 3D shapes, show children things present in the class which are of the shapes being taught. The easiest example is of the books that 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. After that, use the other objects set out for this activity (refer to resource list) and allow children to guess the shape of each object themselves.

Children should also be encouraged to think of things that they can identify in the class which are of a particular shape. Objects that children may point out include the shape of the windows,

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

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

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

Step 3: Pick out an object of a certain shape, e.g. cube. 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 shaped like a cube'.

Step 5: Announce further hints if you believe they will be helpful to the children, such as the colour of the object. For example, if you picked something that is red, say 'I spy with my little eye something that is shaped like a cube 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. They should be asked to name the object, for example, cubed objects can include lunch boxes, etc.

Step 8: Encourage children to guess at a much faster pace if the game is moving at a slow pace.

Student's book activity

Once the children have understood the concept, seat them in small groups to work on page 60. Ask each group to first name each shape, and then find relevant items in their surroundings which represent that shape.

Recapitulation

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

Lesson 2 (page 61)	2D and 3D shapes in Comparison
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Materials required

- chart paper
- marker
- scissors
- colouring pencils/crayons (red and blue)

Pre-activity preparation

On the same chart paper/board used in Lesson 1, draw the relevant 2D shapes given on page 61 of the student's book, in a row next to each corresponding 3D shape (for example, draw a cone next to a triangle, a cube next to a square, and so on). Make sure you write in capital letters the names of each shape right next to the shape itself, so that the children can easily read the words from their own seats without needing to get up and approach the display board.

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

Introduction

The children have already been explained what 2D shapes are. At this stage, review 2D shapes with them. Remind them that a 2D shape is basically a flat shape and does not have any thickness. Inform children that the main difference between 2D and 3D shapes is that 2D shapes are flat, whereas 3D shapes are solid.

Draw the attention of the children to the shapes drawn on the board/display. As you re-introduce each shape, read the name out loud, and encourage the children to repeat the name. Explain to the children how they will use colouring pencils to colour the 2D and 3D shapes given in their student's books accordingly.

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

Student's book activity

Seat each child with a copy of his/her student's book and colouring pencils. Before they begin the activity, ask them whether they can identify each shape by name. Once all the children are able to comprehend what they have to do, allow them to circle the 2D and 3D shapes accordingly.

Recapitulation

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

Lesson 3 (page 62)

IQ Booster

Materials required

- cut-outs used in Lesson 2
- chart paper
- marker
- blank A4 sheets
- colouring pencils/crayons

Pre-activity preparation

Draw the shape of the pentagram given on page 62 of the student's book on a large chart paper using the marker. Draw the star shape drawn within the pentagram as well. Paste this on the display board so that all the children in the class can view it easily.

If resources are available, draw the same shape on A4 sheets and keep a copy for each small group.

Introduction

Bring the attention of the children to the pentagram drawn on the chart paper. Introduce the shape to them and demonstrate how there are multiple triangles present inside the pentagram which need to be counted.

Separate the children into groups, and allow them the chance to count the triangles themselves. Volunteers from each group can be asked to come to the display board and point to each triangle, until all the triangles have been identified.

Using the cut-outs from Lesson 2, count the shapes of each side. Allow the children in small groups to trace the lines of each shape with their fingers so they can also count easily.

Student's book activity

Seat children in small groups with the student's book and allow them to answer the questions on their own, once they have completed the introductory activity.

Tell them that for the second exercise, they need to circle the shape that is being described inside the dialogue boxes. Three options are given, children need to choose the one with the correct number of sides. In groups, children can be encouraged to identify each shape present in the rows before answering the question.

Recapitulation

Encourage children to recall the names of all the shapes, including their sides, until each child present in the class can easily reiterate this information.

Unit 11: More Numbers

Expected learning outcomes

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

- understand and recognise position numbers
- sequence numbers in ascending and descending order
- understand and learn concepts of even and odd numbers
- skip count by 10s

Lesson 1 (pages 63–64)

Position Numbers

Materials required

- chart paper
- markers
- balloons
- colouring pencils/crayons

Pre-activity preparation

On the chart paper, write 1st, 2nd, 3rd and so on till 10th. Draw a border around these numbers and cut them to make badges.

Blow the balloons up, and write the numbers (1st to 10th) on the balloons.

Introduction

Children have already been introduced to numbers, so at this stage they will be studying position numbers. It is important for them to remember the sequence in which numbers come, in order to be able to clearly retain the concept of position numbers.

Badges: Distribute the badges with the position numbers written on them amongst the children. Allow the children to first read the position numbers written on the badges handed out. Then ask children to listen carefully and call out the numbers. Tell children to raise the badge of the number being called out.

Numbers race: Divide the children into groups of ten and take them to the playground. Tell them that they will take part in a race. Note the children who are coming first, second, third, etc., and give them badges at the end of the race. Explain to the class that the child coming first is number one, the one coming second is number two, and so on.

Balloons: Hand out the balloons to the children. Once again, allow the children to read the position numbers written on them. Then, ask the children to come to the front of the class and arrange themselves in order from position numbers 1st till 10th.

Student's book activity

Seat children in small groups with the student's book and allow them to answer the questions on their own, once they have completed the introductory activity.

Tell them that for page 63, they need to match the numbers with their position numbers, and for page 64 they have to fill in the missing colours. Once the exercise on page 64 has been completed, they also need to colour the balloons accordingly.

Recapitulation

Shuffle the badges and share them with the class again. See if children can easily show the correct badge when called out.

Lesson 2 (pages 65–66)

Ascending and Descending Numbers

Materials required

- blank A4 sheets
- marker
- scissors
- tape (or similar adhesive material)
- beads/pearls

Pre-activity preparation

On the blank sheets, write the numbers 1 to 20, and cut them into small squares.

Introduction

Fix the card with the number 1 on the display board and ask the children to take turns to come and fix the next number until the sequence to 20 is complete.

Revise the terms before and after by pointing to a number and children the students to state which number comes before or after it.

Repeat this activity, starting with flashcard 20 and arranging the cards in descending order.

Children can also be taught ascending and descending order by showing objects of varying quantities. Show them how the quantity of beads/pearls increases as the number increases by placing one bead on a table and then adding more. The value increases from smallest to biggest. Start removing beads after 20 have been counted and show them how the numbers are descending in this case.

Student's book activity

Ask the children to open their books to page 65. Explain the task and before the children begin to write, ask them to point to each box and say which number they will write in it.

Give the students a set amount of time to complete the other exercises before checking their work as a class. They can work on the exercise on page 66 in groups or pairs.

Recapitulation

Allow children to keep working with the cards in different combinations (i.e. with different numbers missing) until they can easily recognise the sequence in both ascending and descending order.

Lesson 3 (pages 67–68)

Even and Odd Numbers

Materials required

- blank A4 sheets
- marker
- scissors
- tape (or similar adhesive material)
- beads/pearls

Pre-activity preparation

On the blank sheets, write the numbers 1 to 30, and cut them into small squares. Paste the chart paper which contains the table for 2 (Unit 8, Lesson 3) up on the display board.

Introduction

Introduce the concept of even and odd numbers by writing them on the board and asking the children to notice the difference.

Ensure that children can easily see the table of 2 and bring their attention to the fact that all the numbers in the table of 2 are even numbers. Explain that the remaining numbers are odd numbers.

Group activity: Fix the cards on the board so that only even numbers are present. Split the class into groups, and ask groups to fill in the blanks by supplying the odd numbers. Once all groups can easily complete this activity, change the cards on the board so that only odd numbers are present and ask groups to fill in the missing numbers.

Student's book activity

Ask the children to open their books to pages 67 and 68. Allow the children to attempt the answers themselves first before help is provided.

Recapitulation

Give each child a card, then ask all those holding the even numbers to stand up. Do the same activity for odd numbers.

Lesson 4 (pages 69–70)	Skip Counting (By 2s, 5s, 10s)
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Materials required

- chart paper
- markers
- scissors
- blank A4 sheets

Pre-activity preparation

Use the chart paper to cut circles. Write multiples of 10 from 10 till 100 in the given boxes. Paste these up on the display board, leaving empty circles for the missing numbers.

Using the pattern of the ladders made on page 70 of the student's book, draw similar ladders on A4 sheets to share with the children.

Introduction

Before beginning the exercise, ensure that children can clearly see the display board. At this stage, children have already understood the concept of identifying numbers in order, thus they should be able to fill the empty spaces themselves. However, it is important to call attention to the fact that counting is being done in 10s.

Counting in sequence: Raise all the fingers of both hands and ask the children to say out loud how many fingers are being held up. Once all children can correctly answer 'ten', ask a child to come as a volunteer to the front of the class. Ask this child to raise all their fingers. Now ask the rest of the class how many total fingers are up. Keep asking more volunteers to come to the front of the class and see if children can remember the numbers in sequence.

Ladder activity: Split the children into pairs and share the A4 sheets with me. Explain that they have to skip count by 2s, by 5s, and by 10s in turn. A few children might face some difficulty in answering these questions, thus it will be important to provide assistance where required.

Student's book activity

Open the student's book to pages 69 and 70 and seat each child with their copy. Allow everyone to attempt the answers themselves before the teacher is required to provide assistance. Explain to the children that they are counting by 2s, by 5s, and by 10s, which means that the missing number can be found by adding 2, 5, and 10 to the previous missing number.

Recapitulation

Create more ladders if possible on chart papers where children have to skip count and paste them up on the display board. Allow children to fill in the missing spaces in groups.

Unit 12: Money

Expected learning outcomes

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

- have a clear understanding of the concept of money, and what it is used for
- recognise one, two, and five rupees coins
- recognise ten, twenty, fifty, and hundred rupees notes
- add and subtract sums of money

Lesson 1 (page 71)	Coins and Money Notes
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Materials required

- large images of 1, 2, and 5 rupees coins as well as 10, 20, 50, and 100 rupees notes (drawn on chart paper, or taken from internet)
- various objects (for example toys, old clothes, stationery items, etc.) to set up a shop in the classroom (with price tags for each item)
- sets of fake coins and notes (if easily available)
- baskets (1 per each group)

Pre-activity preparation

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

Introduction

Children have already been introduced to the concept of money in Maths Level 1 and Level 2. The discussion can be started by reminding the children about the times when they have gone shopping with their parents, and how it is necessary to pay for the things we take from the shops, for which money is required. Explain that the shopkeeper will add up the cost of the items we want to buy and the customer has to give him/her that amount of money in order to take the things away.

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

The notes of twenty, fifty, and hundred rupees are new, so spend extra time on introducing those to the children.

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

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

Student's book activity

Ask the children to open their student's books to page 71 and look at the coins and currency notes given. Explain that these are some of the coins and notes used in Pakistan and make sure that each child can see the amount of money stamped on each coin and currency note. Talk about the sizes and colours of the coins and currency notes in order to help the children differentiate between the various types.

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

Recapitulation

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

Lesson 2 (pages 72–73)	Money Sums
------------------------	------------

Materials required

Re-use materials used in Lesson 1.

Pre-activity preparation

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

Introduction

This lesson reinforces the lesson taught previously by allowing children to make value judgements about how many coins/notes are needed to buy items of a certain price. Bring the attention of the children to the notes pasted on the display board and ask them which number is bigger/smaller.

Add the coins/notes: Inform the children that sometimes they would have to add coins/rupee notes in order to pay for something. Using the objects present in the Shopping Day activity for Lesson 1, raise the prices and see if children can calculate which coins/notes need to be added to buy certain items.

Adding and subtracting money: Children should be able to count how much money they have, or how much is left after they have spent a certain amount. Using the images present on the display board, point to any two of the notes/coins and ask children to count the total. Continue the exercise until all children can answer with ease.

Student's book activity

Pair up the children for this activity. First, ask the children to look at page 72. Talk about the objects present on the page and their prices. Go through the list of questions present on the page with the children to ensure that they have understood the concept clearly.

Turn to page 73 and allow the children to do this on their own. Assist them only if they ask for help.

Recapitulation

Different combinations of notes/coins can be given to the children to add and/or subtract and find the final answers.

Unit 13: Fractions

Expected learning outcomes

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

- explain that a whole object can be divided into two and four equal parts.
- identify fractions in terms of half and quarter

Lesson 1 (pages 74–76)

Whole, Half, Quarter

Materials required

- chart paper
- scissors
- play dough and plastic knives (if easily available)
- blank A4 sheets
- image of a pizza
- colouring pencils/crayons

Pre-activity preparation

Using the chart paper, cut it into shapes that can be further folded into half, e.g. square, rectangle, isosceles triangle, circle, etc.

Paste the image of the pizza on the display board and draw lines to split it into half and quarter fractions.

Introduction

Begin the lesson by showing the children the cut square and elicit that it is one whole square. Fold the square in half, ensuring that the children are following the movement, and cut it into two. Elicit that there are now two parts of the square, but do not use the term half at this stage.

Place one of the halves over the other so that the children can see that the two parts are the same. Place them side by side so they can see that the two parts can be joined together to make the square whole again. As this is done, explain that each part is one half of the whole square, and that they are exactly the same size and shape.

Take a second paper square and cut it into two unequal parts. Establish that there are two more parts of the square, but demonstrate by placing them on top of each other, that they are not equal and are therefore not true halves.

Repeat this activity with the other shapes, cutting some into two equal halves and others into two unequal parts so that the children will understand the meaning of half.

Point to the picture of the whole pizza on the display board. Explain to the children that it is a whole, then cover half of it and tell them that the remaining portion is half. Do the same thing to display and explain the quarter portion.

Student's book activity

Seat the children in small groups and ask them to open pages 75 and 76. Explain that on page 75 they just have to colour the given shapes according to the mentioned fractions whereas for page 76 they need to circle the shapes which are divided in half.

Recapitulation

If play dough is available, give some to each child, ask them to make shapes and use the plastic knife to cut them into halves.

Lesson 2 (pages 77–78)	Fractions in Numbers
------------------------	----------------------

Materials required

- blank A4 sheets
- markers
- colouring pencils/crayons

Pre-activity preparation

On the blank sheets, draw various objects (for example, stars, circles, squares, rectangles, hearts, etc.) in groups of four, six, eight, or other multiples of two. Draw only the outlines so that children can colour them in.

Introduction

Pass the sheets to the children. One sheet should be for the teacher so that the concept can be demonstrated before beginning.

Show children the first row of objects, and ask them to count the total. Explain that they only have to colour half of the total number of objects. Once children have carried out this task, ask them to count the remaining number.

Continue this activity for the remaining objects on the sheets until the children have understood the concept clearly.

Student's book activity

Seat the children in pairs and ask them to open pages 77 and 78. Allow them to first attempt to answer themselves before help is provided.

Recapitulation

Create further shapes on sheets which the children can circle or colour in order to demonstrate that they can recognise half or quarter of the total number of objects present. Ensure that the total number is always divisible by two.

Unit 14: Greater Than, Less Than

Expected learning outcomes

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

- easily identify which number is bigger and which one is smaller
- use symbols of less than and greater than

Lesson 1 (page 79)

Greater Than, Less Than

Materials required

- newspapers/magazines
- scissors
- ice cream stick
- glue
- chart paper

Pre-activity preparation

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

Do the same by writing numbers instead of posting images on either side of the line. Ensure that one number is bigger than the other so that children can easily state which one is bigger and which one is smaller.

Using the ice cream sticks, paste images of a crocodile head (use page 79 of the student's book for image reference) to make stick puppets. If socks are easily available, do the same with socks.

Introduction

Introduce the concept to children by first showing them easy examples present in the classroom, such as chairs on one side of the room compared to chairs on the other side. Ensure that there is a clear difference between the things being

compared and allow children to become familiar with the terms 'more' and 'less'. Encourage them to say the words out loud as they give their replies.

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

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

Introduce the stick puppet of the crocodile head to the children and explain what the terms 'less than' and 'greater than' signify. Place the crocodile head in front of the chart paper and ask the pairs to one by one identify which number of objects is bigger. Explain that the crocodile wants to eat the bigger number, and so the open mouth will point towards the bigger number.

Recapitulation

Do the same exercise with the chart paper which only shows numbers. Ensure that each pair has a chance to answer.

Unit 15: Time

Expected learning outcomes

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

- understand that a clock is used to tell time
- recognise the numbers present in the face of a clock
- understand the significance of small and big hands of a clock
- draw hands on a clock to show time
- read time using a clock

Lesson 1 (page 80)

What is the Time?

Materials required

- paper plate with a hole in the centre
- split pin
- marker
- sticks (cut to make the hour and minute hands of a clock, and holes punched in them)
- blank A4 sheets
- markers

Pre-activity preparation

On the paper plate, write the numbers 3, 6, 9, and 12 on the edges in a similar manner to a clock. By poking a hole in the very middle, thread a split pin through the centre, and attach two sticks to the pin which can be used as the hour and minute hands of the clock. Ensure that these are movable.

On the A4 sheets, draw circles and write the numbers 1 to 12 within them in a manner similar to a clock. Ensure that a few numbers are missing from each face. Ensure that there is one sheet for each child present in class.

Introduction

Children have already been introduced to the concept of clocks in Maths Level 2. In this lesson, they will be re-introduced to the concept of telling time through the clock.

Remind the children that the clock is used to represent time throughout the day. Show children the paper clock, point out the numbers 3, 6, 9, and 12, and ask them to fill in the remaining numbers.

Next, re-introduce the terms hour (small or short) hand and minute (big or long) hand. Explain that clocks are used to tell the time and we tell the time by looking at the positions of the hands.

Explain that time is divided into hours and minutes; minutes are shorter than hours. Ask the children to sit still and in silence for the duration of one minute; if there is a clock in the room with a second hand they could watch the hand move round the clock while they do this.

The time when school starts: Pass around A4 sheets to the whole class. Tell them that first they have to fill in the missing numbers on the clock face, and then draw small and big hands to represent the time when school starts. Children can do this activity in pairs as well, since the time when school begins will be same for the whole class.

Student's book activity

Ask children to open their books to page 80 and look at the illustration of the clock. Ask them to first fill in the missing numbers. Then, ask the children to draw small and big hands on the clock to represent the time when school starts. Since they have already practiced this activity during the introduction, they should be able to easily do this without needing any further aid.

Recapitulation

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

Materials required

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

Pre-activity preparation

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

Introduction

Once children are able to read time from a clock, they should be able to draw the short and long hands of the clock on a blank clock face to represent a given time. Explain clearly to the children that the short hand of the clock has to be on the number mentioned and when the time says o'clock, the long hand needs to be on number 12 of the clock.

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

Student's book activity

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

Recapitulation

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

Activity Bank

Activity 1: Handle your own money

Make children conscious of the value of currency. Send a note to parents to take their child to a local convenience store and give them a budget. Mention that they should encourage their child to buy their snacks while staying within the budget and pay the shopkeeper on their own.

Children can be taught further about fractions using money. If they have 10 rupees, ask them how much they will pay for something that costs half that amount? Use the words 'whole', 'half', and 'quarter' when paying so that children also recognise the words and can use them easily. Currency can also be used to teach multiplication or division by asking children how much something will cost if it is 2 times more expensive, or if its price is divided by 2 (and is now half-price).

Skills learnt: Fractions and money, multiplication, division

Activity 2: Addition

Children should be involved in activities in daily life that allow them to use the basics of addition and subtraction, for example, while washing dishes at home parents should take the help of their child by telling them that there were 5 plates to wash and someone has added 3 more. How many plates will be washed altogether? These types of activities are also possible during class hours when children are putting away their things (toys used during activities, stationery items) by asking them how many are present in total.

Skills learnt: Addition, IQ boosters

Activity 3: Hopscotch

Young children love to play hopscotch. Ask children to draw a hopscotch design using a chalk on the floor (you can refer to the internet for examples). Then throw a small plastic toy or a flat stone to land on one of the squares. Ask the children to hop on the squares, skipping the one where the toy or flat stone is present. When they reach the end of the hopscotch, ask them to return to the starting point in a similar manner while picking up the small toy or flat stone on their way back. Then they can pass the toy or flat stone to the next person/sibling.

Encourage them to say the numbers out loud as they jump on them. It is also possible to increase the numbers on the hopscotch; instead of going the traditional 1 to 10 route, keep on increasing the numbers even up to 50.

Skills learnt: Gross motor skills and counting, physical development

Activity 4: Sort out the stationery box

Mix up all the stationery items together, for example: colour pencils, markers, pencils, erasers, rulers, etc. Ask children to separate them as per their group. All the colours would go together, all of the markers separately, etc.

Children can be further asked to separate the items in terms of shapes, e.g. rubbers can be sorted into rectangles, sharpeners into squares, etc. Ensure that multiple shapes are present for children to practice with.

Skills learnt: Classification and grouping, geometric shapes

Activity 5: Put objects in a row

Gather small objects from the classroom or the rooms at home and ask children to place them as per their heights (ascending or descending order) in a straight line. First, try the ascending manner and then the descending. The objects can be a decorative pillow, TV remote, a building block, etc. at home or pencils, rulers, or toys at school. After the arrangement is done, ask the children to count them. How many are there in total?

Skills learnt: Sequencing and classification, measurement

Activity 6: Count everything

Make use of your young one's energy and ask them to count. For example: while serving dinner, ask the child to count the number of family members and then count the plates (help them in the process if they are not plastic plates).

Skills learnt: Counting

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. They may need to step back and observe performance; 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

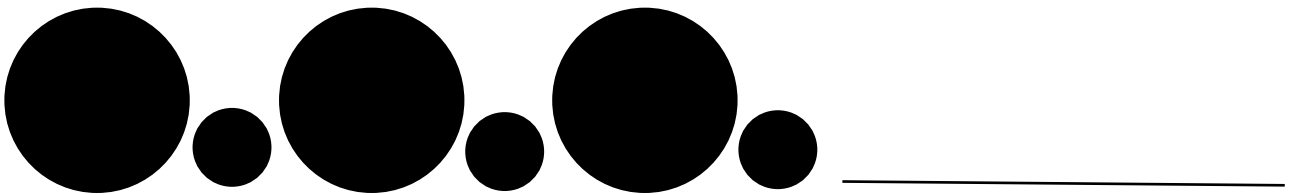
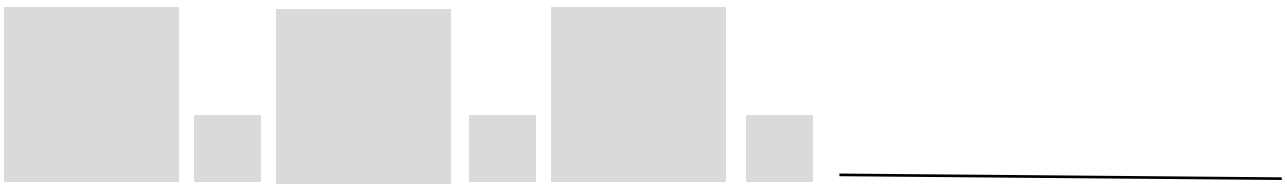
The Assessment Guide contains:

- 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

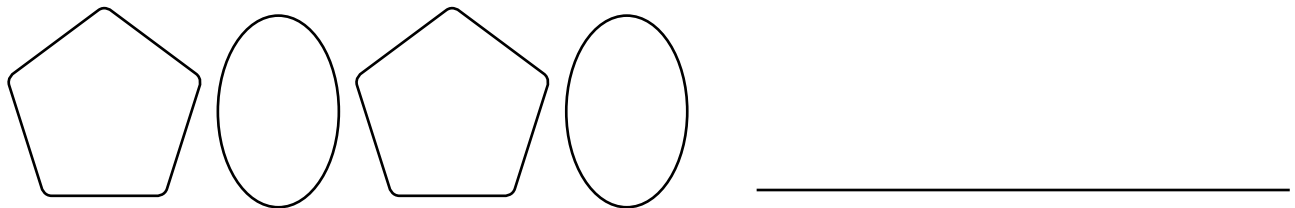
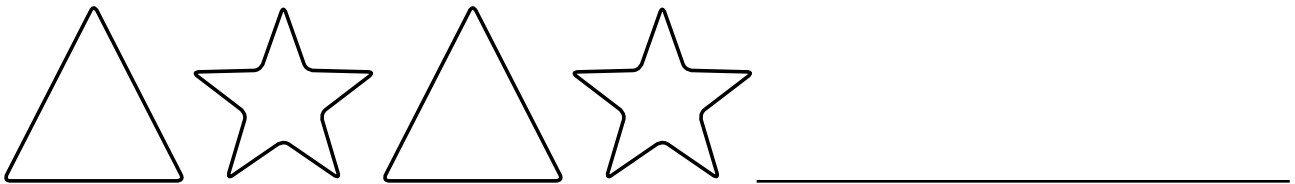
Worksheet – 1: Patterns by Size

Look at the given pattern carefully. Draw the shape and its size which will come next.




Worksheet – 2: Patterns by Shape

Look at the given pattern carefully. Draw the shape which will come next.



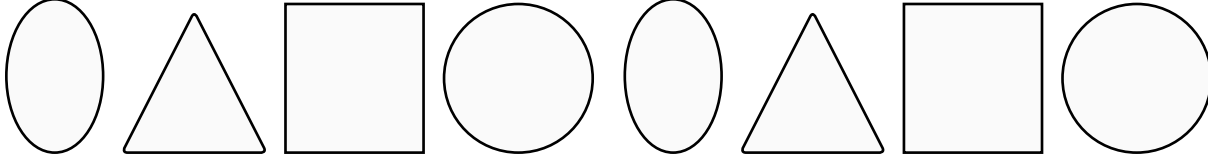
Worksheet – 3: Classification by Size

Draw and sort the balloons according to their size

	
Big balloons	Small balloons

Worksheet – 4: Classification by Shape

Draw and sort the shapes separately.

			
Circles	Triangles	Squares	Ovals

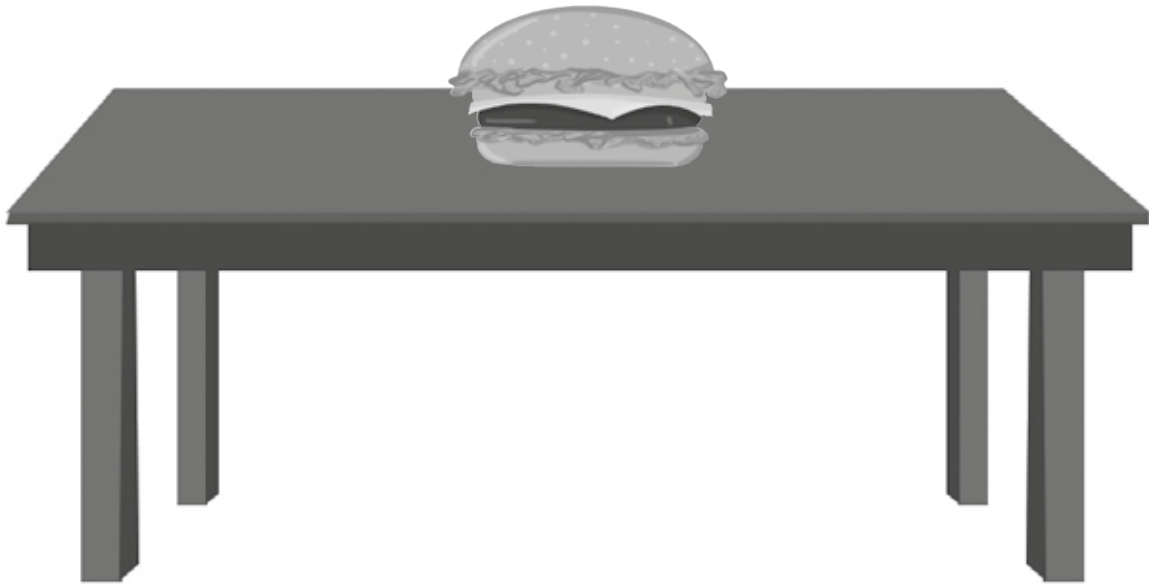
Worksheet – 5: Inside and Outside

Circle the image with the beans inside the jar.



Worksheet – 6: Top and Bottom

Name the object on top of the table. Draw a balloon below the table so that it is at the bottom.



Worksheet – 7: Numbers

Fill in the missing numbers from 1 to 50.

1	2		4	
6	7	8		
	12	13		15
16		18		20
	22	23		
26	27		29	
31		33		35
36			39	40
41		43		45
46			49	50

Worksheet – 8: Addition

$$\begin{array}{r} 15 \\ + 5 \\ \hline \end{array}$$

$$\begin{array}{r} 12 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} 14 \\ + 7 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \\ + 6 \\ \hline \end{array}$$

$$\begin{array}{r} 17 \\ + 2 \\ \hline \end{array}$$

$$\begin{array}{r} 21 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ + 5 \\ \hline \end{array}$$

$$\begin{array}{r} 35 \\ + 4 \\ \hline \end{array}$$

Worksheet – 9: Subtraction

$$\begin{array}{r} 9 \\ - 5 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ - 7 \\ \hline \end{array}$$

$$\begin{array}{r} 10 \\ - 8 \\ \hline \end{array}$$

$$\begin{array}{r} 29 \\ - 7 \\ \hline \end{array}$$

$$\begin{array}{r} 30 \\ - 0 \\ \hline \end{array}$$

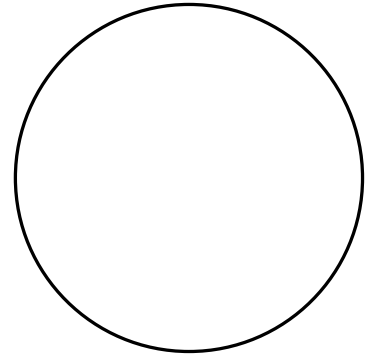
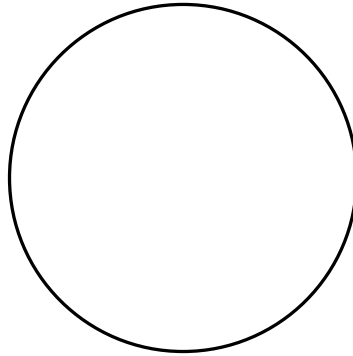
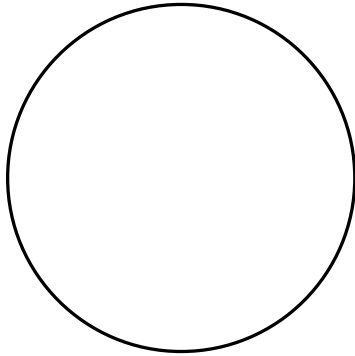
$$\begin{array}{r} 25 \\ - 2 \\ \hline \end{array}$$

$$\begin{array}{r} 18 \\ - 6 \\ \hline \end{array}$$

$$\begin{array}{r} 22 \\ - 1 \\ \hline \end{array}$$

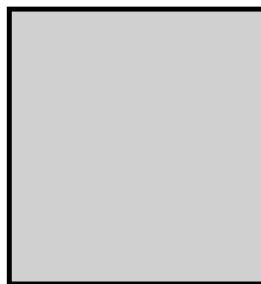
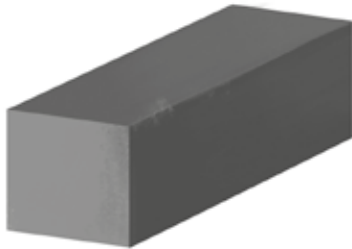
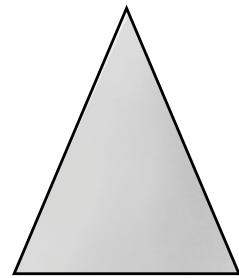
Worksheet – 10: Division

Share 6 mangoes equally between the 3 circles given below.



Worksheet – 11: 2D and 3D shapes

Circle the 2D shapes with a red crayon.



Worksheet – 12: Position Numbers

Fill in the missing position numbers.

1st

2nd

4th

6th

8th

9th

Worksheet – 13: Ascending and Descending Numbers

Fill in the empty boxes with ascending numbers.

1

2

3

4

5

6

Fill in the empty boxes with descending numbers.

10

9

8

7

6

5

Worksheet – 14: Even and Odd Numbers

Circle the even numbers and tick the odd numbers in the list below.

1

2

3

4

5

6

7

8

9

10

Worksheet – 15: Money

How much do you have? Write the total amount of money in the blanks.



and



makes Rs _____.



and



makes Rs _____.



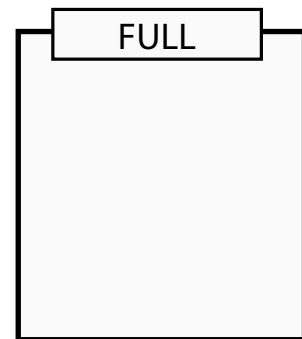
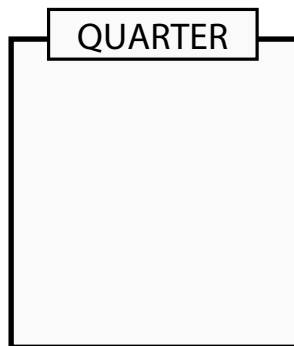
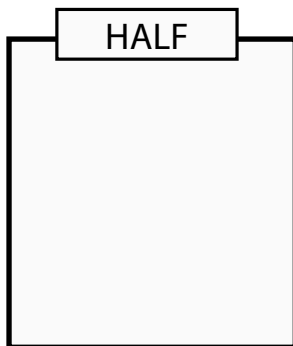
and



makes Rs _____.

Worksheet – 16: Fractions

Colour the given shape according to the mentioned fractions.



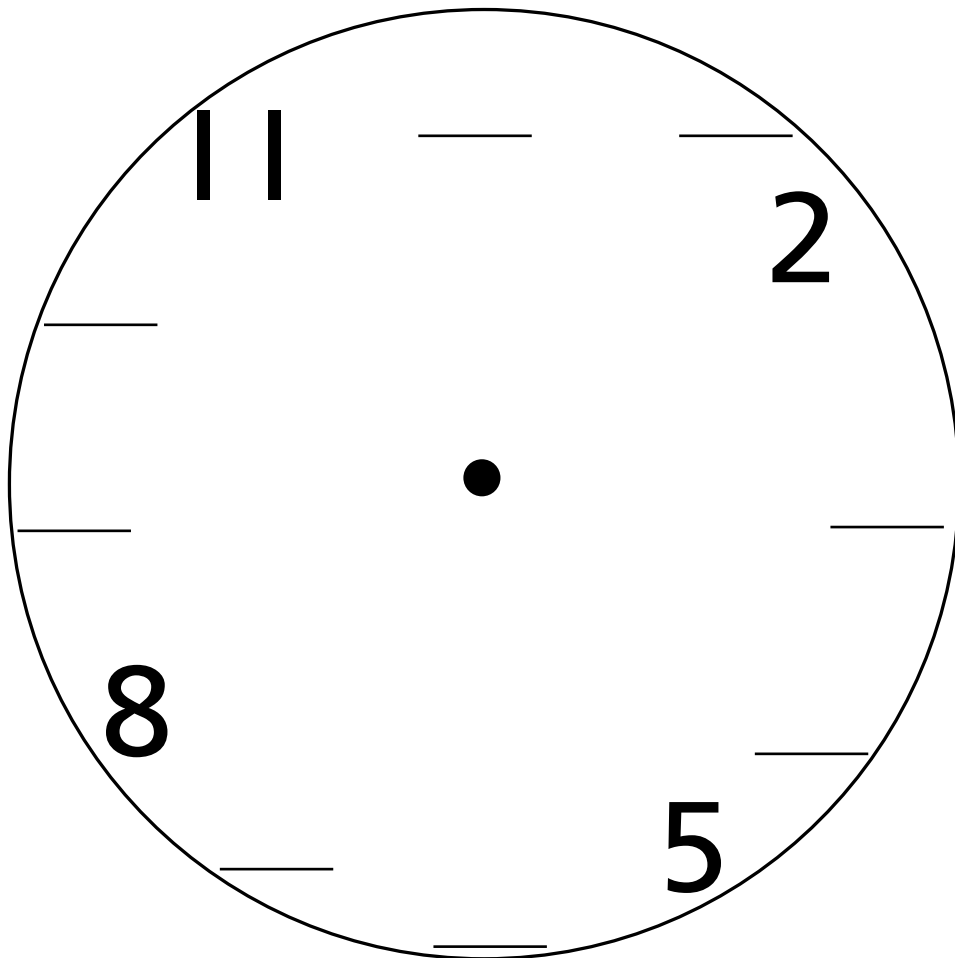
Worksheet – 17: Greater Than, Less Than

Use the signs $<$ or $>$ to indicate the number that is greater.

3		6
8		2
4		9
7		5




Worksheet – 18: Time

Fill in the missing numbers and draw hands on the clock to show the time when you wake up.



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			
Compares and determines different sizes of objects			
Uses vocabulary indicating position of an object (top, bottom, left, right)			
Counts, recognises, and writes numbers introduced in the book			
Performs addition and subtraction sums with minimal facilitation			
Uses units to measure small objects			
Makes groups of 2s, 5s, and 10s			
Divides objects equally in 2s and 5s			
LANGUAGE DEVELOPMENT			
Reads, speaks, and writes short sentences with minimal support			
Listens and follows instructions (left, right, up, and down)			
FINE MOTOR DEVELOPMENT			
Apt in gripping a pencil and is able to control movement independently			
GROSS MOTOR DEVELOPMENT			
Runs and a throws a ball in a specific direction, and catches a ball with good hand-eye coordination			
Walks in a straight line and changes direction easily; knows their way around school premises			
TEAMWORK AND GROUP BEHAVIOUR			
Interacts appropriately with class fellows			
Maintains friendliness with most peers and adults			
SOCIAL DEVELOPMENT			
Recognises the importance of personal space and knows when to ask for help			

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			
Compares and determines different sizes of objects			
Uses vocabulary indicating position of an object (top, bottom, left, right)			
Counts, recognises, and writes numbers introduced in the book			
Performs addition and subtraction sums with minimal facilitation			
Uses units to measure small objects			
Makes groups of 2s, 5s, and 10s			
Divides objects equally in 2s and 5s			
Recognises position numbers, even and odd, ascending and descending order			
Recognises full, half, and quarter fractions			
Identifies symbols used for greater than (>) and less than (<)			
Reads what hour it is on a clock			
LANGUAGE DEVELOPMENT			
Reads, speaks, and writes short sentences with minimal support			
Listens and follows instructions (left, right, up, and down)			
FINE MOTOR DEVELOPMENT			
Apt in gripping a pencil and is able to control movement independently			
GROSS MOTOR DEVELOPMENT			
Runs and a throws a ball in a specific direction, and catches a ball with good hand-eye coordination			
Walks in a straight line and changes direction easily; knows their way around school premises			
TEAMWORK AND GROUP BEHAVIOUR			
Interacts appropriately with class fellows			
Maintains friendliness with most peers and adults			
SOCIAL DEVELOPMENT			
Recognises the importance of personal space and knows when to ask for help			

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
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.	a. Recognise, name and differentiate between colours.	Covered in other books in the series.
	b. Differentiate between the objects on the basis of size, weight, length, width and textures (smooth & rough).	Covered in other books in the series.
	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.	Covered in other books in the series.
	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.	Covered in other books in the series.
	e. Match and compare one object with another on the basis of similar attributes.	Covered in other books in the series.
	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. 5-9
	g. Observe, identify and extend patterns developed with various concrete materials.	Covered in TG
	h. Observe, identify and extend the given picture/symbol patterns.	pp. 2-4
	i. Group objects together according to their shapes and colours.	Covered in other books in the series.

BASIC MATHEMATICAL CONCEPTS	Expected learning outcomes	Book reference
	j. Sequence objects according to their size, shapes and colours	Covered in other books in the series.
	k. Identify and differentiate between broad and narrow	Covered in other books in the series.
	l. Identify that 'some' is less than 'all'. Differentiate between 'more', 'less' and 'equal'.	p. 79
	n. Differentiate between half and full.	Covered in other books in the series.
	o. Create own patterns using concrete materials and pictures and then explain them.	Covered in TG 3
	p. Observe and identify the 'odd one out' from the given set of concrete material or pictures and explain the answer.	pp. 15-16
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.	Covered in other books in the series.
	b. Understand one to one correspondence.	Covered in other books in the series.
	c. Count up to 100 orally.	Covered in TG 3
	d. Use numbers to represent quantities in daily life interaction.	pp. 71-73
	e. Compare quantities of objects in different sets and describe which sets are equal, which have more objects, and which have lesser objects than another.	p. 79
	f. Begin to develop an understanding of the concept of zero (meaning nothing).	Covered in other books in the series.

BASIC MATHEMATICAL CONCEPTS	Expected learning outcomes	Book reference
	g. Identify and write correct numerals to represent numbers from 0-50.	pp. 18-26
	h. Sequence numerals correctly from 0-50.	pp. 63-70
	i. Identify which numeral represents a bigger quantity or lesser quantity.	Covered in other books in the series.
	j. Identify ordinal numbers up to ten.	p. 63
	k. Tell number stories to build the concept of 'more' and 'less' using concrete objects.	Covered in other books in the series.
	l. Use concrete objects to develop the concept of addition and subtraction.	pp. 29, 35-38
	m. Substitute numerals for concrete objects during the process of addition.	pp. 32-33
	n. Use the concept of addition in their daily lives with oral examples.	pp. 71-73
	o. Remove the identified number of objects from a given set, and tell how many objects are left in the set.	pp. 39, 74-78
	p. Substitute numerals for concrete object during the process of subtraction.	pp. 40-45
	q. Use the concept of subtraction in their daily lives with oral examples.	Covered in other books in the series.
	r. Identify the signs of addition and equals to.	Covered in other books in 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 in 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 Unit 6 and 7

BASIC MATHEMATICAL CONCEPTS	Expected learning outcomes	Book reference
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.	Covered in other books in the series.
	b. Recognise and name 3-D shapes such as sphere, cube, cuboid cylinder and cone using features such as number of faces, flat or curved faces.	p. 59
	c. Identify the shapes in their environment.	pp. 60-61
	d. Draw object of their own choice using various shapes.	Covered in TG 3
	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.	pp. 10-14
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.	Covered in other books in the series.
	b. Observe various objects and estimate their weight and length.	Covered in other books in the series.
	c. Verify their estimations using simple tools.	pp. 27-28
	d. Understand informal time units and know that clocks and calendars mark the passage of time.	pp. 80-81
	e. Sequence events in time and anticipate events.	Covered in other books in the series.

Note: SNC alignment tables at the end of each Teaching Guide represent the alignment of the book at that level, hence the competencies not covered in this table are all adequately represented in the other books in this series. The SNC alignment tables of Maths Level 1 and Level 2 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.