



समग्र शिक्षा
Samagra Shiksha



TOUCH, TRY AND TRANSFORM

HANDBOOK FOR MATHEMATICS TEACHERS AT PREPARATORY STAGE



State Council of Educational Research & Training
Varun Marg, Defence Colony, New Delhi - 110024

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HANDBOOK *for* MATHEMATICS TEACHERS AT PREPARATORY STAGE SESSION 2025-26



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STATE COUNCIL OF EDUCATIONAL RESEARCH & TRAINING
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PREFACE

Dear Educators

The State Council of Educational Research and Training (SCERT), in its ongoing journey to impact quality education has developed this handbook for teachers of mathematics for classes III to V that focuses on exploring various mathematical concepts and art forms.

To make education more meaningful, relevant, enjoyable and versatile, the resolve of NEP-2020 is fulfilled by the continuous endeavour of SCERT.

Development of versatility and competencies would equip with the 21st century skills as envisioned by NEP-2020 and NCFSE-2023.

This handbook presents a bunch of mathematical concepts from the curriculum to inculcate aesthetic attitude, respect towards hands on work, habit of sharing and team spirit.

The art forms applied require students to recall, explore and apply the concepts learnt in the curriculum. As students will be engaged with these art forms, they would not only strengthen mathematical skills and competencies but also appreciate the art integration with concepts.

Dialogue and collaboration with peers and teachers would facilitate a deeper understanding with creativity.

Most art forms involve multiple disciplines often across academic parts and rote learning.

ABOUT THE BOOK

INTRODUCTION

The National Education Policy 2020 envisions an education system that is holistic, experiential, inclusive, and deeply rooted in Indian culture and knowledge traditions, emphasizing joyful learning, flexibility, and competency-based development over rote memorization while focusing on the empowerment of learners as confident participants in their own learning journeys. At the Preparatory Stage (Classes III–V), children are in a crucial formative period where curiosity, imagination, and active exploration shape their understanding, and they need the freedom of using their senses and mind to explore concepts and construct knowledge through real experiences. Mathematics education at this stage must move beyond textbooks to become meaningful, engaging, and connected to real life, supporting processes of accommodation and assimilation so learners can build new understanding on prior experiences. Integrating Indigenous Games and Art-Integrated Learning provides a powerful pathway to encourage exploration, creativity, and joyful participation, nurturing children as independent thinkers who can question, reason, and solve problems confidently while also allowing space for the expression of feelings and ideas. In this way, classrooms that value participation and creativity truly meet the depth of the policy’s vision by strengthening foundational numeracy along with confidence, curiosity and a lifelong love for learning.

UNDERSTANDING ENGAGEMENT IN THE CONTEXT OF NEP 2020

In the framework of NEP-2020, engagement is understood as the complete involvement of learners in the educational process—intellectually, emotionally, socially, and physically. It is not limited to answering questions or completing assignments but includes curiosity, enthusiasm, collaboration, and active participation. When children are engaged, they are not passive recipients of information; instead, they construct knowledge through interaction, experimentation, and reflection. Engagement ensures that learning is experienced rather than imposed. It shifts the focus from teacher-centered instruction to learner-centered exploration, where the teacher acts as a facilitator guiding meaningful experiences.

Engagement also involves connecting learning with children’s everyday lives, cultural backgrounds, and natural surroundings. When mathematical concepts are introduced through familiar materials such as grains, clay, flowers, threads, fruits, and local games, children perceive learning as relevant and enjoyable. This alignment with cultural and environmental contexts strengthens motivation and reinforces a sense of belonging. Thus, engagement becomes central to achieve the holistic vision outlined in NEP-2020.

THE NEED FOR ENGAGEMENT

The need for engagement in mathematics at the preparatory level arises from the nature of both

the subject and the learner. Engagement through hands-on activities addresses this developmental requirement. When children count and group seeds to understand numbers, model shapes with clay to explore geometry, or use thread to measure perimeter, they experience mathematics physically and visually. These activities help them internalize concepts naturally. Furthermore, many children develop anxiety toward Mathematics due to rigid teaching methods focused on memorization. Engaging approaches or art-based tasks transform mathematics into a joyful and exploratory subject.

Engagement promotes inclusivity in classrooms that requires deep sensitivity to the uniqueness of every child's learning journey, recognizing neural fluidity and plasticity, which remind us that each brain grows and adapts differently when provided with the right experiences, encouragement, and supportive environments. Offering varied ways to explore mathematical concepts through movement, touch, visuals, conversation, and creativity honours diverse abilities and learning pathways, enabling every child to build meaningful understanding. Simple blindfold activities, where learners identify shapes or objects through touch, engage multiple senses and deepen conceptual understanding, making Mathematics more physical, experiential, and accessible while strengthening trust in their own abilities. Through such experiences, learners begin to realise that learning can go beyond sight and that understanding can be constructed through different sensory pathways. Blindfold activities strengthen tactile learning, develop spatial imagination, improve estimation and reasoning, build confidence and teamwork, and enhance mathematical vocabulary. They also nurture tactile intelligence, spatial visualization, logical thinking, communication skills, confidence, and collaboration, while fostering empathy and respect for diverse ways of learning, ultimately creating an environment where engagement truly becomes inclusion and every learner feels valued and capable.

THE IMPORTANCE OF ENGAGEMENT

Engagement plays a vital role in ensuring meaningful and lasting learning. Cognitively, it enhances understanding by encouraging students to question, analyze, and apply concepts. Instead of memorizing concepts, engaged learners comprehend the reasoning behind them. This deep understanding forms a strong foundation for advanced mathematical learning. Emotionally, engagement fosters confidence and reduces fear. Joyful experiences create positive associations with Mathematics helping children overcome anxiety and develop resilience.

Socially, engagement promotes collaboration and communication. When children participate in group games or art-based projects, they learn to share ideas, respect different perspectives, and work cooperatively towards common goals. Such interactions nurture empathy and teamwork, essential skills for holistic development. Physically, engagement through movement-based activities supports kinesthetic learning. Activities such as measuring playground distances, forming geometric patterns, or participating in counting games combine physical energy with intellectual growth, which is particularly beneficial at this stage of development.

Engagement also strengthens socio-emotional well-being. Children who actively participate feel valued and capable. Success in hands-on activities builds self-esteem and encourages persistence in problem-solving. By transforming classrooms into interactive and inclusive spaces, engagement ensures that every learner feels motivated and supported.

FROM PARTICIPATION TO UNDERSTANDING: POWER OF ENGAGEMENT IN MATHEMATICS

An engagement-centered approach offers numerous advantages in Mathematics Education. One significant benefit is enhanced conceptual clarity. Concrete experiences allow students to visualize and understand abstract ideas. For example, dividing fruits to represent fractions or arranging flowers to demonstrate symmetry provides tangible representations that deepen comprehension. Such clarity reduces misconceptions and strengthens foundational learning.

Another advantage is improved retention. Multisensory experiences—seeing, touching, hearing, and moving—create stronger neural connections, enabling students to remember concepts more effectively. Engagement also nurtures critical thinking and creativity. Strategy-based games encourage logical reasoning and decision-making, while Art-Integrated activities stimulate imagination and innovative expression.

Inclusivity is another major benefit. Children possess diverse learning styles and intelligences. Engagement through varied methods ensures that visual, auditory, and kinesthetic learners all find meaningful entry points into Mathematics. This inclusiveness reduces learning gaps and supports equity in education. Additionally, manipulating materials develops fine motor skills and coordination, contributing to overall development.

Engagement enhances motivation by making learning enjoyable and relevant. Students participate willingly, driven by curiosity rather than compulsion. As they experience success, their confidence grows, reducing Mathematics anxiety and fostering a growth mindset. This positive attitude encourages lifelong learning and sustained interest in the subject.

CONCLUSION

Engagement is not an optional addition to Mathematics instruction but a fundamental requirement for meaningful education at the preparatory stage. Rooted in the vision of the National Education Policy 2020, an engagement-centered approach transforms classrooms into dynamic spaces of exploration, creativity, and collaboration. By integrating art-based activities with locally available materials, teachers can make Mathematics accessible, enjoyable, and culturally relevant, and it can be used to fill the gap between street Mathematics and classroom Mathematics by connecting everyday experiences with formal concepts. Such practices strengthen conceptual understanding, enhance retention, build confidence, and promote holistic development. Ultimately, engagement ensures that Mathematics becomes a joyful journey of discovery rather than a source of fear, laying a strong foundation for lifelong learning and intellectual growth.

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ENGAGEMENT WITH CLAY/DOUGH

MATERIAL REQUIRED

- Clay or dough (homemade or store-bought)
- Chart paper for display

1.1 CLASS III

Concept Focus

- Shapes and forms
- Big–small, thick–thin
- Part–whole relationship

LEARNING OUTCOMES

After Engagement with Clay/Dough, Students will be able to

- Identify and describe different textures (smooth, rough, soft, hard).



- Observe and explain changes in shape and size (big-small, thick-thin, long-short, heavy-light) when pressure is applied.
- Identify and create basic 2D and 3D shapes (ball, cube-like, flat circle, snake/rope etc).
- Recognize that objects can be divided into parts and put back to make a whole.
- Use appropriate words to describe observations (soft, hard, bigger, smaller, flat, round).

EXPLORE WITH BLINDFOLD

Children sit in a circle with small portions of clay or dough. With blindfold they explore the material only through touch—pressing, rolling, pinching and feeling its softness, edges and curves. They try to recognise simple shapes like ball, roll or flat piece made by a partner and describe what they feel using words such as smooth, round, long or cornered.



EXPLORE/EXPERIENCE

Students are provided with small portions of soft clay or dough. They are encouraged to explore the material freely using their hands and fingers. During the activity, students roll the dough to make long or round shapes, press it to feel how pressure changes its form, flatten it to make flat surfaces, tear it into smaller pieces to observe part-whole relationships and join separate pieces to make a bigger shape.

REFLECTION ON EXPERIENCE



While engaging with the material, students carefully touch, feel, and observe the changes in texture, size, thickness, and shape. They notice how the clay becomes thin when flattened, thick when gathered together, big when pieces are joined, and small when pieces are torn apart. The teacher facilitates by asking guided questions such as, “What happens when you press harder?”, “Which piece is bigger?”, and “How can you make it thick or thin?”

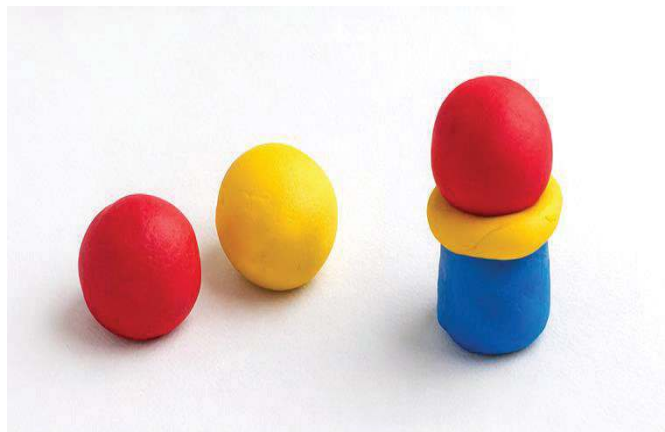
NOTE: - No correction is given at this stage; the focus is sensory exploration.

EXPERIMENT

The teacher facilitates the activity by demonstrating and guiding students to create basic shapes using clay/dough. Students are shown how to:

- Roll the dough into a ball, helping them understand the idea of a sphere.
- Press and flatten the dough to form a flat disc, helping them recognize a circle.

Through guided questioning and demonstration, the teacher encourages students to observe the properties of shapes, such as roundness, flatness, and length. The teacher then introduces the idea that objects are made of parts. Students are encouraged to break shapes into smaller pieces and observe that each piece is a part and when joined together, they form a whole. This helps students develop an early understanding of part-whole relationships.



Students are further guided to join two or more shapes to create simple and familiar objects, such as:

- An ice cream (cone shape + ball/scoop)
- A fruit (round shapes joined together)
- Simple toys, animals, or household items

CELEBRATION OF LEARNING

Students will present their models using simple sentences, such as:

- I made a ball.
- I joined two shapes.
- This is big.

FORMATIVE ASSESSMENT

The teacher assesses whether the students can:

- Identify a ball as a sphere.
- Recognize a roll as a cylinder.
- Identify a flat disc as a circle.
- Point out shapes in their own models and in their peers' work.

1.2 CLASS IV

Concept Focus

- Patterns and repetition
- Equal units
- Basic symmetry

LEARNING OUTCOMES

After participating in clay/dough activities, students will be able to:

- Design their own clay patterns using at least two or three repeating elements.
- Divide clay into equal parts using rolling, pressing, and cutting.
- Make equal-sized clay balls, strips, or shapes for fair sharing and measurement.
- Create symmetrical clay models by making two matching halves.
- Identify the line of symmetry in simple clay shapes and objects.

EXPLORE WITH BLINDFOLD

Students, in pairs, blindfolded child feels objects or portions of dough and tries to identify their form, size and equal parts by breaking or dividing them into halves and quarters using estimation. They describe textures and thickness verbally,

EXPLORE/EXPERIENCE

Students are provided with clay or dough in two or more colours to encourage hands-on exploration. They roll the dough to make equal and unequal balls and freely arrange different shapes. Through these activities, students observe similarities and differences in size, colour, and form, helping to develop fine motor skills, creativity, and basic mathematical and observation skills.

REFLECTION ON EXPERIENCE

The teacher observes students while they work with clay/dough to assess their participation, ability to roll and form shapes, and understanding of equal and unequal sizes. Students' skills are evaluated based on their ability to identify similarities and differences in shapes, colours, and sizes. Oral responses, peer interaction, and the level of engagement are used to assess fine motor development, creativity, and early mathematical concepts such as comparison and classification.

EXPERIMENT

The teacher introduces a simple repeating pattern like pink–white–pink–white and explains the

ideas of repetition, order, and equal units through discussion and demonstration with concrete examples.

Students are then encouraged to create their own patterns, such as decorative borders, rangoli-like designs, and repeating arrangements using clay shapes. These activities help them understand how patterns are made and continued.

Links are also made with real-life and cultural examples like traditional rangoli, jewellery designs, and brick patterns. This help students to connect mathematical ideas with their daily life and surroundings, making learning meaningful and enjoyable.



CELEBRATION OF CREATION

Students joyfully express their happiness by proudly showing their creations to the teacher and peers. They say things like:

- I made a pattern that repeats again and again.
- When I repeat one shape or colour, my pattern becomes complete.
- One small unit helped me make a big design

FORMATIVE ASSESSMENT

The teacher assesses the students' explanations to check their understanding of repetition and pattern rules. Based on students' responses, the teacher provides immediate feedback.

1.3 CLASS V

Concept Focus

- Structure and stability
- Symmetry and balance

LEARNING OUTCOMES

After participating in clay modeling activities, students will be able to :

- Construct simple stable structures (e.g., towers, houses, bridges, animals with legs) using clay.

- Describe in simple words why some clay models are more stable than others. Create clay models that show symmetry (e.g., butterfly, face, flower, leaf).
- Identify symmetrical and non-symmetrical clay shapes.
- Understand that equal size and equal placement of parts helps in balance.

EXPLORE WITH BLINDFOLD

Learners work in small groups where one child blindfolded, explores clay by shaping and restructuring it while listening to peers' verbal guidance. Through touch, they attempt to form and recognise 3D structures like sphere, cylinder or cube, focusing on flat faces, curves and edges.

EXPLORE/EXPERIENCE

Through hands-on experimentation, students test how different shapes can be balanced, joined, and supported to form simple structures. This helps them understand basic ideas of stability and connection. As students repeat the same unit multiple times, they observe how the repetition changes the overall form and appearance of their creation.

EXPERIMENT



When the teacher supports students in repeating the same unit, it helps them understand the concept of structure, symmetry, and balance in a meaningful way. For example, while making flowers, students may first create one simple petal and then repeat it around a central point. Through this repetition, they observe how equal placement and spacing create a balanced and symmetrical form.

The links are made with the real world/ surroundings e.g. temple carvings, pottery, and

traditional crafts.

CELEBRATION OF CREATION

- I made one petal and repeated it all around.
- I made triangles and joined them together.
- I rotated each triangle to make a star.
- I made a strong base to make a Temple so it does not fall.

FORMATIVE ASSESSMENT

The teacher focuses on process, understanding, creativity and presentation, rather than only the final product.

Precautions

- Use only non-toxic clay/dough.
- Wash hands before and after use.
- Do not put dough in your mouth or eyes.
- Work on mats/trays only.
- No throwing or rough play.
- Store material properly after use.

Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.





ENGAGEMENT WITH WOOL / THREAD/ SUTLI

MATERIAL REQUIRED

- Wool (different colors)
- Cotton thread
- Sutli/jute twine
- Chart paper/cardboard base
- Fevicol/tape
- Safety scissors (teacher supervised)
- Trays/mats for work

2.1 CLASS III

Concept Focus

- Lines (curved and straight lines), patterns
- Long–short, thick–thin, Big–small



- Part-whole relationship
- Simple shapes using thread

LEARNING OUTCOMES

After Engagement with Wool/Thread/Sutli, students will be able to:

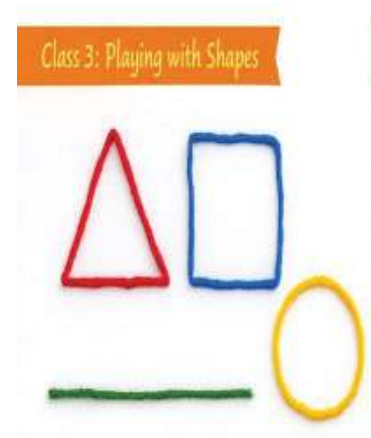
- Identify and describe different textures (soft wool, thin thread, rough sutli).
- Differentiate between thick-thin, long-short using threads.
- Recognize straight and curved lines.
- Create simple 2D shapes using thread/ rope (circle, square, triangle).
- Understand part-whole by joining small pieces of thread to make a longer one.
- Use simple descriptive words (soft, rough, long, short, thick, thin).

EXPLORE WITH BLINDFOLD

Students work in pairs. One student is blindfolded.

The blindfolded student:

- Touch wool, thread, and sutli to feel texture (soft/rough).
- Compares thick-thin and long-short by touch.
- Makes straight and curved lines on the mat.
- Join two small pieces to make one long piece.
- Describes what they feel using simple words.



EXPLORE/EXPERIENCE

Students are given small pieces of wool, thread, and sutli. They freely touch, feel, stretch, bend, twist, and join the materials. They compare softness, thickness, and length. Students try to lay threads on the table or chart paper to make straight and curved lines. They join small pieces to make a longer strand and cut long pieces into smaller ones to observe changes.

REFLECTION ON EXPERIENCE

Students enjoyed touching and exploring the different materials. They learned to compare thickness and length, understood the difference between straight and curved lines and observed that joining pieces makes them longer and cutting makes them shorter.

Note: No correction is given at this stage; focus is on free exploration.

EXPERIMENT

The teacher demonstrates to:

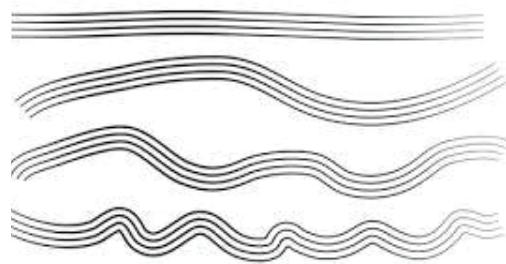
- Make straight and curved lines using thread.
- Form simple shapes like circle, square, and triangle by placing thread on chart paper.
- Join pieces to make a longer line (part to whole).

The teacher uses simple language to connect actions with concepts like long–short, thick–thin, straight–curved, and shapes.

CELEBRATION OF CREATION

Students display their thread shapes and patterns. They describe using simple sentences like:

- I made a circle.
- This is a long line.
- I joined two threads.



2.2 CLASS IV

Concept Focus

- Types of lines (parallel, intersecting, curved)
- Patterns and designs
- Perimeter using thread
- Measurement (comparing length)
- Shapes and boundaries

LEARNING OUTCOMES

After Engagement with Wool/Thread/Sutli, students will be able to:

- Compare and measure lengths using thread.
- Identify and create parallel, curved, and intersecting lines.
- Make repeated patterns using colored wool.
- Use thread to outline shapes and find perimeter informally.
- Recognize symmetry in simple thread designs.

EXPLORE WITH BLINDFOLD

Students work in pairs with one blindfolded.

The blindfolded student:

- Identifies material by texture.
- Arranges thread to form parallel or intersecting lines using touch.
- Outlines a book or shape using thread to feel the boundary.
- Compares lengths by placing threads side by side.
- Creates simple repeated patterns (e.g., thick–thin–thick).

EXPLORE/EXPERIENCE

Students use wool and thread to make patterns on chart paper or desk. They outline books or shapes using thread to observe boundaries and length. They place threads side by side to notice parallel lines and cross them to make intersecting lines. They experiment with creating rangoli-like or border pattern

REFLECTION ON EXPERIENCE

- Students enjoyed arranging and exploring the threads.
- They compared which thread was longer.
- They noticed whether the lines were parallel or intersecting.
- They counted how many pieces were needed to go around a shape.

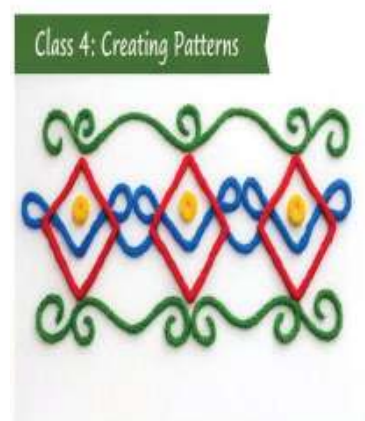
The teacher's questions helped them observe and think carefully.

EXPERIMENT

The teacher demonstrates:

- how to make borders using thread/ rope to show perimeter.
- how to place threads / ropes to show parallel and intersecting lines.
- how to create repeating patterns (red–blue–red–blue).

Connections are made between hands-on work and mathematics concepts like measurement, patterns, and shapes.



CELEBRATION OF CREATION

Students present their designs and explain:

- This is my pattern.
- I made parallel lines.
- I used thread to go around the shape.

FORMATIVE ASSESSMENT

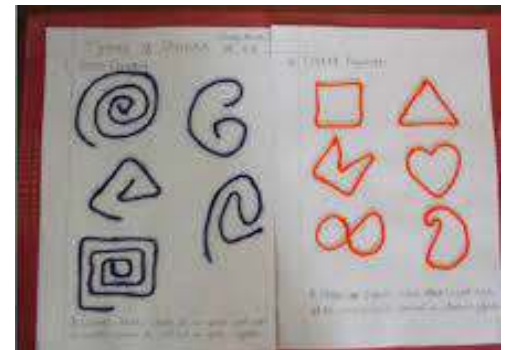
- Can you show me the longer thread?
- Which thread is shorter?
- Can you make a curved line?
- Are these two lines parallel?
- Can you join two pieces to make a longer one?
- How many pieces did you use to go around the shape?



2.3 CLASS V

Concept Focus

- Angles and shapes using thread
- Area and perimeter (informal)
- Geometrical designs
- Symmetry and mirror images



LEARNING OUTCOMES

After Engagement with Wool/Thread/Sutli, students will be able to:

- Create geometrical shapes using thread.
- Identify and show angles using intersecting threads.
- Outline figures to understand perimeter conceptually.
- Recognize and create symmetrical designs.

EXPLORE WITH BLINDFOLD

Students work in pairs; one is blindfolded. The blindfolded student:

- Forms shapes (triangle, rectangle) using thread by touch.

- Identifies corners and angles by tracing with fingers.
- Outlines shapes to explore perimeter conceptually.

EXPLORE/EXPERIENCE

Students design shapes, patterns, and figures using wool and sutli on chart paper. They use thread to show corners and angles. They outline rectangles, triangles, and irregular shapes to explore boundaries. Students try to make symmetrical designs by folding chart paper or placing mirror-image thread patterns.

REFLECTIONS ON EXPERIENCE

The student observes and describes:

- Where is the angle?
- Which side is longer?
- Is the design symmetrical?

EXPERIMENT

The teacher asks students to demonstrate how thread can represent:

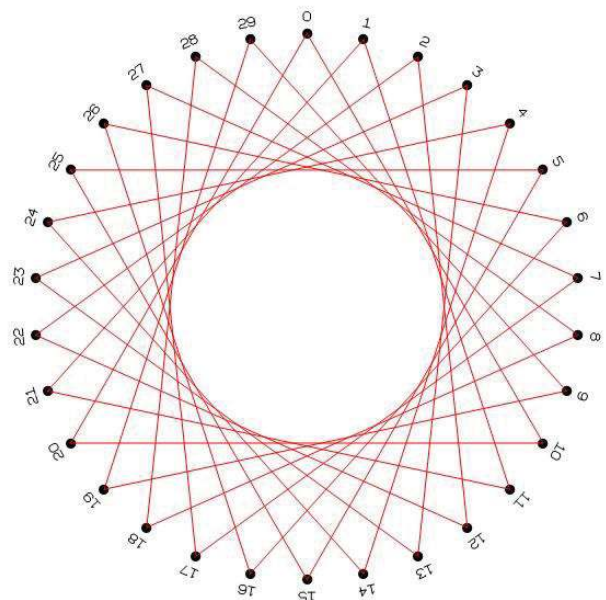
- Sides of shapes
- Corners and angles
- Boundaries for perimeter
- Symmetry using mirror designs

The teacher links activity to geometry concepts and encourages correct use of mathematical terms.

CELEBRATION OF CREATION

Students present their work and explain:

- This is my symmetrical design.
- These are the sides of my shape.
- This is the angle.
- I made the boundary using thread.



FORMATIVE ASSESSMENT

The teacher asks simple questions to check understanding of the students.

Precautions

- Use sutli carefully (rough texture).
- Do not tie thread tightly around fingers.
- Use safety scissors only with teacher supervision.
- Do not put thread in your mouth.
- Work neatly on mats/trays.
- Collect and store materials properly after use.

Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.





ENGAGEMENT WITH GRAINS

MATERIAL REQUIRED

- Grains (wheat, rice, maize)
- Pulses (different daal varieties)
- Chart paper/floor space
- Chalk for outline

3.1 CLASS III

Concept Focus

- Basic 2D Shapes
- Counting objects
- Colours and arrangement



LEARNING OUTCOMES

After Engagement with grains and pulses, students will be able to:

- Identify basic shapes (circle, square, triangle) formed using grains.
- Count objects accurately while creating simple designs.
- Recognize colours and arrangement patterns in Rangoli designs.
- Use mathematical vocabulary such as more, less, equal, circle, line, and pattern.

EXPLORE WITH BLINDFOLD

Children sit in a circle with small bowls of grains. One child wears a blindfold and explores the grains only through touch—scooping, pinching, rubbing, and letting them flow through fingers. They describe what they feel using sensory words: size, shape, texture and weight.



EXPLORE/EXPERIENCE

When children touch grains for the first time, they will observe the different colours—red, yellow, green, brown, white or mixed shades. As students get engaged, they start enjoying the feel, movement and visual appeal of the grains. They then use grains to form simple shapes such as circles, triangles and lines on chart paper or floor outlines. Students arrange grains to create simple Rangoli designs by placing similar grains in sequence.

REFLECTION ON EXPERIENCE

As students explore the grains and describe:

- How does it feel?
- Which grain is bigger?

NOTE: No correction is given at this stage; the focus is sensory exploration and participation.

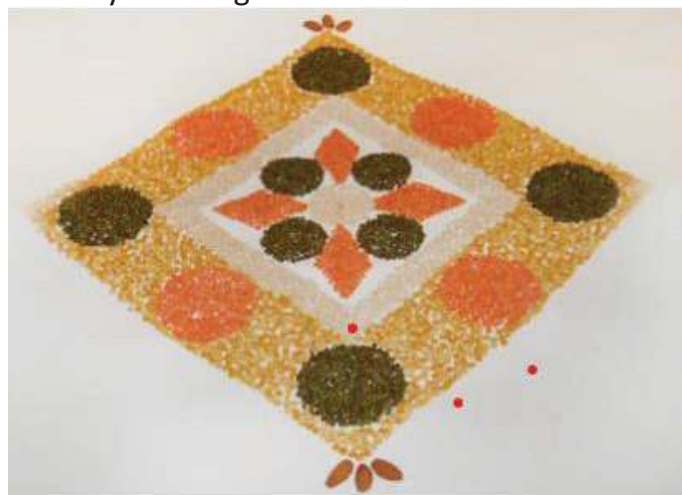
EXPERIMENT

The teacher guides students to recognize shapes formed using grains . The teacher connects students' hands-on actions with mathematical ideas by showing how rice can form circles and pulses can create lines or borders. Students identify repeated colours and shapes in their own work and in peers' designs.

CELEBRATION OF CREATION

Each student presents their Rangoli design and describes it using simple sentences such as:

- I made four circles.
- My pattern repeats rice and daal.
- My design is colourful.



FORMATIVE ASSESSMENT

The teacher assesses whether students can:

- Identify and name basic shapes formed using grains.
- Count shapes accurately in their designs.

3.2 CLASS IV

Concept Focus

- Symmetry
- Line of symmetry
- Geometric patterns
- Fractions

LEARNING OUTCOMES

After participating in grain-based Rangoli activities, students will be able to

- Identify and draw lines of symmetry in designs.
- Create symmetrical Rangoli patterns using grains.
- Recognize repeating geometric arrangements.
- Represent fractions such as one-half using coloured grains.

EXPLORE WITH BLINDFOLD-MAKING PATTERNS WITH GRAINS

- Children sit in a circle with small bowls of grains. One child wears a blindfold and uses touch to arrange grains on a tray—pressing, placing, and tracing simple patterns (lines, circles, rows). They explore how grains feel while creating patterns and describe sensations such as smooth, rough, tiny, round, flowing, or bumpy.
- A partner may create a simple pattern for the blindfolded child to feel and continue.

EXPLORE /EXPERIENCE

Students create Rangoli designs using rice and pulses and explore how designs can be divided into equal halves. They draw vertical or horizontal lines of symmetry and carefully decorate both sides using similar grains and colours. Through observation, they notice that symmetrical designs look the same on both sides and that equal parts represent fractional values.

REFLECTION ON EXPERIENCE

Students connect this experience to patterns found in everyday surroundings such as decorative surfaces, rangoli designs, and handcrafted objects and describes symmetry in his/her words.

EXPERIMENT

The teacher explains the concept of symmetry using students designs and demonstrates how equal halves and quarters are formed. Students learn that balanced arrangement and equal division create symmetry. They see symmetry in the repeating patterns around them.



CELEBRATION OF CREATION

Students present their designs and share observations such as

- My design has one line of symmetry.
- Both sides are equal.

Precautions

- Use eco-friendly and clean materials.
- Use clean and dry grains and pulses.
- Do not put grains in your mouth or eyes.
- Do not spill the materials.
- Clean the area after completing the activity.
- Store unused materials properly.

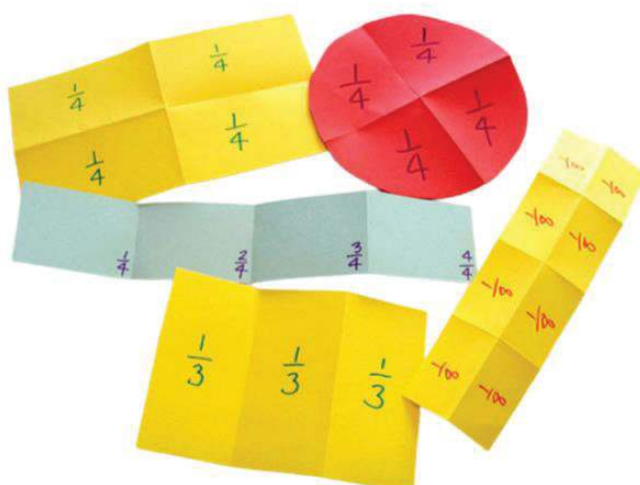
Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.

4

ENGAGEMENT WITH

MATERIAL REQUIRED

- Old magazines/Newspapers
- Different type of papers- Colored paper sheets, scrap paper, handmade sheets, glaze paper, crepe paper, grid paper
- Ruler and pencil
- Scissors (child-safe)
- Glue
- Sketch Pens/Crayons
- Chart paper for display



4.1 CLASS III

Concept Focus

- Shapes and forms (flat, long, round, twisted, rolled)
- Texture (smooth, rough, soft, thin, thick, shiny)
- Change in shape by folding, tearing, crumpling and curling

LEARNING OUTCOMES

After Engagement with Paper, students will be able to

- Identify and describe different textures (rough, smooth and slippery).
- Identify different forms (smooth, crumpled, curled, folded).
- Observe and explain changes in shape and size when paper is folded, crumpled, or torn.
- Identify and create basic 2D shapes (triangle, square, rectangle, circle) and simple forms like cones or strips.

EXPLORE WITH BLINDFOLD

A few students are gently blindfolded and given different papers. They touch, fold, tear, crumple, roll, and curl the paper to feel the texture and change in shape. They identify through touch: smooth/rough/soft/thick/thin/flat/folded/crumpled/long/short.

EXPLORE/EXPERIENCE

Students are provided with colored paper sheets and scrap paper. They are encouraged to explore freely using their hands. Students fold the paper into different shapes during the activity. They tear, curl, crumble or cut paper strips.

REFLECTION ON EXPERIENCE

As students manipulate the paper, they carefully observe changes in shape, size, thickness and form and describe:

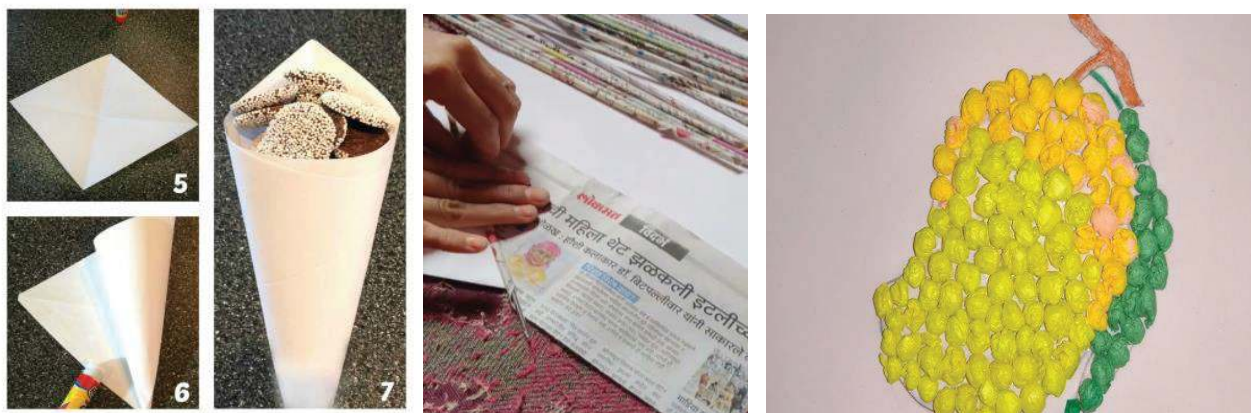
- What happens when they fold it again?
- Which piece is bigger or smaller?
- Can a new shape be made from the pieces?

NOTE: No correction is given at this stage; the focus is on sensory exploration and creativity.

EXPERIMENT

The teacher demonstrates and guides students to explore basic shapes and forms using paper.

- Show how to fold a square to make a triangle.
- Demonstrate rolling paper into a cone.
- Use simple language to connect actions with shape names and forms.
- Students are encouraged to experiment further and to make simple daily use objects like, e.g, waffle cones, straw, mango etc.



CELEBRATION OF CREATION

Each student proudly presents their paper creations, promoting confidence and a sense of achievement.

Students are encouraged to describe their work using simple sentences:

- I made a triangle.
- My cone is tall and round.
- I made a mango.

The teacher appreciates and displays their creations on chart paper, celebrating their imagination and creativity.

FORMATIVE ASSESSMENT

The teacher observes whether students can:

- Identify folded, curled, or rolled shapes and recognize basic 2D shapes they created.
- Describe the changes in shape and form.



- Explain the process of how they transformed the paper.

4.2 CLASS IV

Concept Focus

- Fraction as equal parts of a whole.
- Understanding and comparing $\frac{1}{2}$ and $\frac{1}{4}$.
- Representation through paper folding/shading.
- Application in daily life (equal sharing).

LEARNING OUTCOMES

After Engagement with Paper, Students will be able to :

- Understand the concept of fraction as a part of a whole divided into equal parts.
- Identify and represent one-half ($\frac{1}{2}$) by folding paper or shading one out of two equal parts.
- Identify and represent one-quarter ($\frac{1}{4}$) by folding paper or shading one out of four equal parts.
- Differentiate between equal and unequal parts and explain why equal division is important in fractions.
- Relate fractions to real-life situations,.

EXPLORE WITH BLINDFOLD

Students are blindfolded and given a square paper. They fold the paper into two and four equal parts by feeling the edges and matching the sides carefully. They feel and compare the folded parts to explore that both parts are equal and four parts make one whole.

EXPLORE AND EXPERIENCE

Students are given square or rectangular coloured paper and allowed to explore it by folding and observing. They fold the paper into equal parts (any number) open it and mark different parts with the pen on crease. By counting students explore fractions as equal parts of a whole.

REFLECTION ON EXPERIENCE

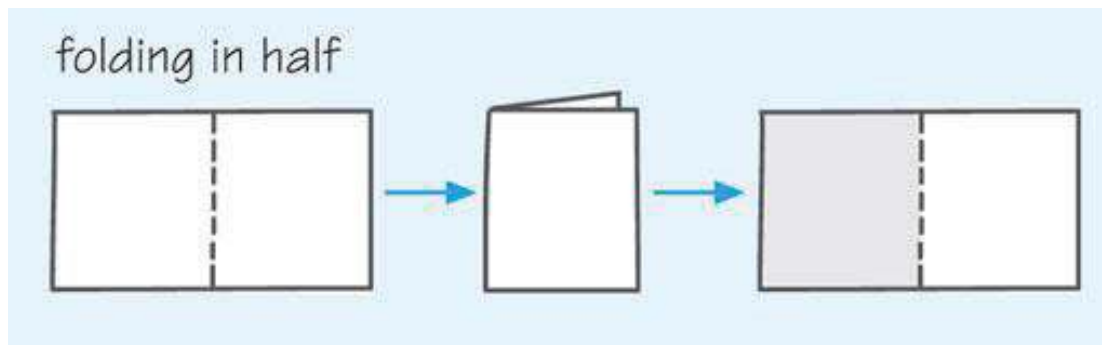
As students fold and shade the paper, they carefully observe the size, number, and equality of the parts formed. They compare and observe each other's work.

NOTE: No correction is given at this stage; the focus is on observation, thinking, and exploration rather than right or wrong answers.

EXPERIMENT

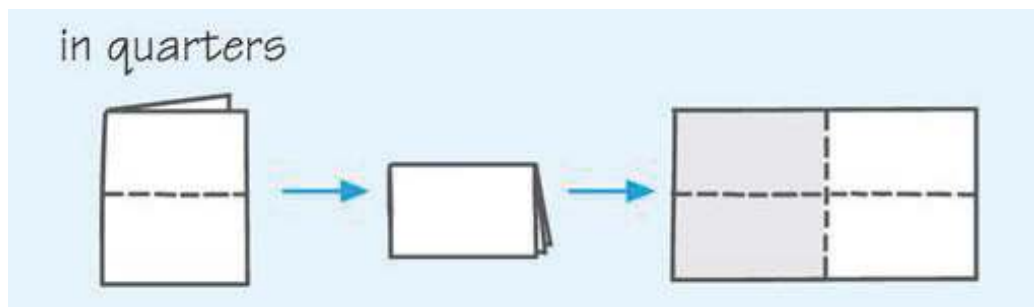
The teacher facilitates the activity by demonstrating and guiding students to fold paper into equal parts. Students are shown how to:

Fold the paper into two equal parts, helping them understand the idea of one-half ($\frac{1}{2}$). Open the fold and observe that the paper is divided into two equal sections. Shade one part to clearly see that one out of two equal parts is called one-half.



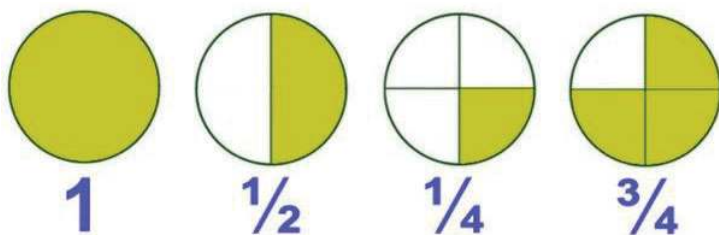
Next, the teacher demonstrates folding the same paper again to form four equal parts. Students observe the new fold lines and are guided to:

Count the four equal sections. Shade one section to understand that one out of four equal parts is called one-quarter ($\frac{1}{4}$).



Students are further guided to create simple and familiar fraction models, such as:

- A paper pizza divided into two or four equal slices.
- A chocolate bar drawn and divided into equal pieces.
- A paper roti or cake cut into halves and quarters.



CELEBRATION OF CREATION:

Students are encouraged to describe their work using simple sentences, such as:

- I made one-half of the paper.
- Two halves make one whole.
- Four quarters make one whole.

4.3 CLASS V

Concept Focus

- Equivalent fractions
- Part-whole relationship
- Equal sharing
- Comparing fractions through area

LEARNING OUTCOMES

After Engagement with paper folding, students will be able to:

- Show the same fraction in different ways using paper folding.
- Understand that equal parts of the same whole make equivalent fractions.
- Identify fractions like $\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$ through visual models.
- Use simple words such as same, equal, half, one-fourth, more parts, same size.

EXPLORE WITH BLINDFOLD

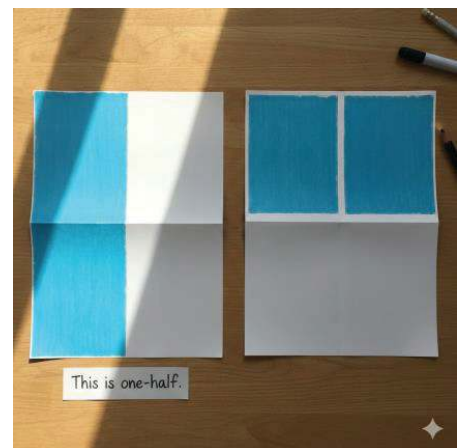
Students are blindfolded and given a square paper. They fold the paper into two and four equal parts by feeling the edges and matching the sides carefully. They feel and compare the folded parts to explore.

EXPLORE/EXPERIENCE

Each child gets one paper sheet.

Let them:

- Fold the paper into two equal parts → colour one part → say: This is one-half.
- Take another paper → fold into four equal parts → colour two parts.



- Place both papers together and observe freely.

ENCOURAGE THEM TO:

- Open and refold in different ways.
- Tear along the fold and rearrange.
- Match one half with two fourths.
- Discover on their own: It covers the same area!

NOTE: No correction is given at this stage; the focus is on observation, thinking, and exploration rather than right or wrong answers.

REFLECTION ON EXPERIENCE

Children observe whether folded parts are equal or not by placing papers one over the other.

EXPERIMENT

The teacher demonstrates:

Take one sheet:

- Fold into 2 parts → colour 1
Take another sheet:
- Fold into 4 parts → colour 2
Place one on top of the other.

ASK:

Does the coloured part cover the same area?

Teacher introduces gently:

$$1/2 = 2/4$$

“This is called an equivalent fraction — different numbers, same amount.”

REPEAT WITH:

- $1/2 = 4/8$
- $1/3 = 2/6$ (using folding strips)

CELEBRATION OF CREATION

Each child presents:

- This is one-half.
- This is two-fourths.
- Both are the same.

FORMATIVE ASSESSMENT

The teacher observes whether the child can:

- Show two equivalent fractions using folding.
- Identify matching coloured areas.
- Use simple explanations in their own words.

Precautions

- Do not tear others' work.
- Use paper properly (no wastage).
- Keep the workspace clean.

Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.





ENGAGEMENT WITH COLOURED POWDER/SAND

MATERIAL REQUIRED

- Coloured sand/rangoli powder
- Plain chart paper/cardboard sheets
- Trays/plates for powder
- Small spoons/paper cones
- Glue (optional, for fixing designs)
- Aprons/newspaper sheets for floor
- Tissues/hand wipes

5.1 CLASS III

Concept Focus

- Colors and patterns
- Big–small

- Thick–thin
- Shapes and outlines
- Part–whole relationship
- Sensory exploration

LEARNING OUTCOMES

After Engagement with Coloured Powder/Sand, students will be able to:

- Identify and name different colors.
- Create and recognize basic shapes (circle, square, triangle).
- Differentiate between thick and thin lines made with powder.
- Understand big–small designs and patterns.
- Explore part–whole by filling shapes with sand.
- Use simple words to describe designs (big, small, red, yellow, thick, thin).

EXPLORE WITH BLINDFOLD

Students work in pairs; one student is blindfolded.

The blindfolded student:

- Touch small amounts of coloured powder to feel texture (smooth/fine).
- Make straight, curved lines and simple shapes on powder evenly scattered on a tray using fingers.
- Compares small–big piles of powder already made.
- Creates geometric shapes (triangle, rectangle) using powder.

EXPLORE/EXPERIENCE

Students are given small trays of coloured sand/powder. They freely touch, spin chart paper or trays. Students observe how designs change when more or less powder is used and how colors mix when placed close together. Ankle, spread, and pour powder using fingers or spoons. They make simple dots, lines, and curves.

REFLECTION ON EXPERIENCE

Students enjoyed touching and playing with the colored sand. They were curious to see how the powder moved when they tilted or spun the tray. They noticed that using more powder made thicker designs. They observed that colors mixed when placed close together. They tried making dots, lines, and curves in different ways.



Teacher asks:

- Which color is this?
- Is your line thick or thin?
- Which shape is big?
- What happens if you add more powder?

NOTE: No correction is given at this stage; focus is on sensory exploration.

EXPERIMENT

The teacher demonstrates how to:

- Sprinkle powder carefully to make lines and shapes.
- Fill a simple outline to make a solid shape.
- Make small and big designs using more or less powder.

The teacher connects activity with math ideas like shapes, size, and patterns using simple language.

CELEBRATION OF CREATION

Students show their work and say:

- I made a circle.
- This is red.
- This is big.
- My line is thick.

5.2 CLASS IV

Concept Focus

- Patterns and borders
- Symmetry (introductory)
- Shapes and designs
- Repeating patterns
- Neatness and control
- Color combinations

LEARNING OUTCOMES

After Engagement with Coloured Powder/Sand, students will be able to:

- Create repeating and growing patterns.
- Make borders and rangoli-type designs.
- Recognize simple symmetry in designs.
- Identify and outline geometric shapes.
- Use colors meaningfully in designs.

EXPLORE WITH BLINDFOLD

Same as Classs III

EXPLORE/EXPERIENCE

Students experiment with making borders, flower patterns, and simple rangoli designs. They try repeating color sequences (red–blue–red–blue). They observe how symmetry is created by repeating the same design on both sides. They fill shapes neatly using spoons or cones.

REFLECTION ON EXPERIENCE

- Students explored how to make designs look the same on both sides.
- They observed that repeating colors and patterns helps create symmetry.
- They noticed that careful placement of sand or powder keeps the design balanced.
- They enjoyed making symmetrical borders, flowers, and simple rangoli patterns.
- The activity helped them understand symmetry and improve their control and coordination.

EXPERIMENT

The teacher demonstrates how to:

- Make a simple rangoli or border design.
- Repeat a pattern using colors.
- Create a balanced (symmetrical) design.

The teacher links the activity with math concepts like patterns, symmetry, and shapes.

CELEBRATION OF CREATION

Students explain:

- This is my pattern.
- These colors are repeating.
- My design is the same on both sides.



FORMATIVE ASSESSMENT

Teacher asks:

- What is your pattern?
- Is your design the same on both sides?
- Which colors are repeating?
- How can you make it neater?

5.3 CLASS V

Concept Focus

- Symmetry and mirror images
- Area and filling space (informal)
- Measurement by estimation
- Geometrical rangoli designs
- Fractions through color parts

LEARNING OUTCOMES

After Engagement with Coloured Powder/Sand, students will be able to:

- Create symmetrical and geometrical designs.
- Plan and design structured rangoli patterns.
- Divide a design into equal parts using colors.
- Understand the area informally by filling spaces.
- Apply fraction ideas using colored parts (half, quarter).

EXPLORE/EXPERIENCE

Students design structured rangoli patterns using geometric shapes. They divide circles or squares into equal parts and fill them with different colors. They experiment with mirror-image designs and balanced layouts. They estimate how much space is filled with each color.

REFLECTION ON EXPERIENCE

Students enjoyed creating structured rangoli patterns with geometric shapes.

They learned to divide shapes into equal parts and fill them with colors.

They explored mirror-image designs and balanced layouts.

They noticed how symmetry and careful color placement make designs look neat.

The activity helped improve their creativity, observation, and understanding of space.

EXPERIMENT

The teacher asks to demonstrate how to:

- Draw and fill symmetrical designs.
- Use color to show fractions and balance.
- Divide a shape into equal parts.

Connections are made with geometry, fractions, and area concepts.

CELEBRATION OF CREATION

Students present and say:

- This is my symmetrical rangoli.
- These two sides are equal.
- I divided it into four parts.
- This color covers more area.

FORMATIVE ASSESSMENT

Teacher asks:

- Is your design symmetrical?
- Which color covers more area?
- How many equal parts did you make?
- Is your design balanced?

Precautions

- Use masks if powder is very fine (optional).
- Clean hands and workspace properly.
- Do not touch eyes or mouth.
- Do not throw and inhale powder.
- Store powders safely after use.
- Work on trays/newspapers only.

Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.





ENGAGEMENT WITH BALL/

MATERIAL REQUIRED

- Soft ball/Football (child-safe)
- Measuring tape (in meters and centimeters)/ruler (class IV and V)
- Chalk or floor markers
- Stopwatch/timer (mobile timer may be used) (class V)
- Two different surfaces (smooth floor & rough surface like grass/carpet) (class IV and V)
- Open space for movement

6.1 CLASS III

Concept Focus

- Shapes and forms (sphere, round)
- Position and direction (near–far, left–right, forward, backward)



- Movement (roll, bounce, fast–slow)
- Big–small, heavy–light, soft- hard

LEARNING OUTCOMES

After Engagement with Ball/Football, students will be able to :

- Identify and describe the shape of a ball as round /sphere.
- Observe and explain how a ball moves when pushed, rolled, thrown, or hit.
- Describe direction of movement (forward, backward, left, right).
- Differentiate between Big–small, heavy–light, soft- hard.

BLINDFOLD EXPLORATION ACTIVITY

Before the free exploration, students are blindfolded and given a ball or football. Without looking, they use only their hands to feel the ball and explore:

- Its shape (roundness, smoothness)
- Its size (big–small)
- Its weight (heavy–light)
- Its texture (soft–hard)

EXPLORE/EXPERIENCE

Students are given a soft ball/football and allowed to explore freely. They hold the ball, roll it on the floor, gently hit it with their hand, throw and catch it.

During exploration, students observe:

- The ball rolls straight when pushed forward.
- It changes direction when hit from the side.
- It moves far when hit hard and near when pushed gently.
- It stops after some time.

REFLECTION ON EXPERIENCE

As students explore, the teacher observes and asks questions such as:

- What happens when you hit the ball harder?
- In which direction did the ball move?

- Is the ball near or far from you now?

Students are encouraged to carefully observe the movement of the ball.

NOTE: No correction is given at this stage; focus is on observation and experience.

EXPERIMENT

The teacher demonstrates how a ball moves when force is applied.

- When we push or hit the ball forward, it moves forward.
- When we hit it from the right side, it moves left.
- When we hit it from the left side, it moves right.
- When we hit it harder, it moves faster and goes farther.
- When we hit it gently, it moves slowly and travels a shorter distance.

The teacher explains that the ball rolls easily because it is round and has no edges or corners.

GUIDED ACTIVITY

Students work in pairs and are given a ball and a football:

- One student rolls the ball while the other observes its direction, and movement.
- Students take turns standing at different positions (near/far) and rolling the ball to each other.
- While engaging in this activity, students compare the objects in terms of size (big–small), weight (heavy–light), and texture (soft–hard).



CELEBRATION OF LEARNING

Each student shares their observations using simple sentences.

- The ball moved forward.
- I hit it hard and it went far.
- The ball is round in shape.

FORMATIVE ASSESSMENT

The teacher assesses whether students can:

- Identify the ball as a sphere (round shape).
- Describe direction (left, right, forward, backward).
- Explain position (near, far, in front, behind).
- Differentiate between big–small, heavy–light and soft–hard.
- Understand that more force makes the ball move faster and farther.

6.2 CLASS IV

Concept Focus

- 3D Shape (sphere) and properties (no edges, no vertices)
- Force and motion (Effect of force simply on speed and distance).
- Friction (why the ball slows down and stops)
- Deformation and flexibility (press and release)
- Measurement (estimating and measuring distance)
- Comparison (big–small, heavy–light, soft–hard)

LEARNING OUTCOMES

After engagement with Ball/Football, students will be able to:

- Identify a ball as a sphere and describe its properties (round, no edges, no corners).
- Measure and compare distances travelled by the ball.
- Describe motion using correct vocabulary (force, direction, distance).
- Explain why the ball slows down and stops (friction).
- Observe that soft balls show temporary shape change due to pressure (flexibility).

BLINDFOLD EXPLORATION ACTIVITY

Before the free exploration, students are blindfolded and given a ball or football. Without looking, they use only their hands to feel the ball and explore. Encourage them to focus on these points while exploring:

- Feel the surface — is it smooth or rough?
- Check the shape — does it have edges or corners or is it round?

- Compare size — does it feel big or small in your hands?
- Press gently — does the shape change when you press it?
- Roll the object — does it roll easily or slowly?

After the exploration, students remove their blindfolds and briefly share what they experienced.

EXPLORE/OBSERVE

Students are divided into small groups. Each group is given a soft ball. They are asked to:

- Roll the ball gently and observe the distance.
- Roll the ball with more force and compare the distance.
- Roll the ball on different surfaces (floor, grass, carpet).
- Press the ball using both hands and observe the shape.
- Try bouncing the ball and observe height difference when bounced gently vs strongly.

REFLECTION ON EXPERIENCE

The teacher observes and asks questions:

- While rolling the ball gently or firmly, in which case the ball travelled the longer distance? Why?
- Why did the ball stop?
- How does the nature of surface affect the movement?
- What difference did you notice between height of the bounce with gentle or strong force?
- Is the shape change while pressing permanent or temporary?

Students are encouraged to think, predict, and explain.

NOTE: No immediate correction. Focus remains on reasoning and observation.

EXPERIMENT

The teacher demonstrates:

- A ball is a sphere, which means it has no edges or corners. That is why it rolls easily.
- When force is applied, the ball moves in that direction.
- Greater force makes ball to move fast means more distance is covered in less time.
- The ball slows down due to friction between the ball and the surface.

- Softer balls show more flexibility — they change shape when pressed but return to original shape when released.

GUIDED ACTIVITY

- Students work in pairs. Each student rolls the ball with different force. Measure and record distance. Compare results and discuss.
- Students roll the ball on Smooth floor and Rough surface. They observe which surface causes the ball to stop faster and why?
- Students press the ball for 5 seconds. Release and observe shape recovery. Discuss whether the change is temporary or permanent.

CELEBRATION OF LEARNING

Students present their findings:

- When I used more force, the ball travelled farther.
- On a rough surface, it stopped quickly.
- The soft ball shows flexibility.

FORMATIVE ASSESSMENT

The teacher checks whether students can:

- Define the sphere and describe its properties.
- Explain the relationship between force and motion.
- Measure and compare distances accurately.
- Identify the role of friction.
- Describe flexibility correctly.
- Use scientific vocabulary properly.

6.3 CLASS V

Concept Focus

- 3D Shape – Sphere and its properties
- Relationship between Force, Distance and Time
- Friction and surface resistance

- Gravity (Simple idea why the ball comes down when thrown up)
- Flexibility
- Measurement and comparison
- Data Handling — Data collection, tally marks

LEARNING OUTCOMES

After engagement with Ball/Football, students will be able to:

- Explain why a ball (sphere) rolls more easily than objects with edges.
- Investigate how increasing force affects distance, time.
- Measure distance and time to compare speed informally (without calculation).
- Understand that friction slows down motion.
- Recognize the role of gravity when throwing or bouncing a ball.
- Record data in a simple table (tally marks).

BLINDFOLD EXPLORATION ACTIVITY

Before the free exploration, students are blindfolded and given a ball or football. Without looking, they use only their hands to feel the ball and explore. Encourage them to focus on these points while exploring:

- Feel the surface — is it smooth or rough?
- Check the shape — does it have edges or corners or is it round?
- Compare size — does it feel big or small in your hands?
- Press gently — does the shape change when you press it?
- Roll the object — does it roll easily or slowly?

After the exploration, students remove their blindfolds and briefly share what they experienced.

EXPLORE/EXPERIENCE

Students work in small groups, roll the ball gently, with medium force, and with strong force from the same starting point, measure the distance, and record results. Next, they roll the ball on a smooth floor and a rough surface and compare how far it travels. Students throw the ball upward and observe it comes back down, and try gentle and strong bounces. They press the ball and release it to see if it returns to its original shape.

REFLECTION ON EXPERIENCE

Teacher asks questions:

- Why should we keep the starting point same in every trial?
- Why did the ball slow down?
- How do you know which roll was faster?
- What happens when you bounce the ball strongly or gently?
- What happens when you throw the ball upward?

NOTE: No correction is given at this stage; the focus is on observation, thinking, and exploration rather than right or wrong answers.

EXPERIMENT

The teacher demonstrates:

- A ball is a sphere, which helps it roll easily.
- Greater force causes more speed and distance.
- Friction between the ball and surface slows motion.
- Gravity pulls the ball downward when thrown up.
- Flexibility allows temporary shape change.
- Data can be collected, organized and represented using tally marks.

GUIDED ACTIVITY

- Students create a table and record the observations of distance travelled and time taken while rolling with force (gentle, medium, strong). Students roll the ball on a smooth floor and then on a rough surface like a mat or carpet. They note the time when the ball stops and compare how quickly the ball stops on each surface .
- Students gently throw the ball upward and notice that the ball always comes back down.
- Students press the ball with their hands and observe whether its shape changes. When they release it, they notice it returns to its original shape. They repeat the same activity with a hard ball. Students observe that some materials are flexible and can temporarily change shape.
- Students will be divided into groups of 8 to 10 students. Place visible target or goal area on the floor at a short distance using chalk, tape or a hoop. Each student gets one turn to gently roll the ball and try to hit the target. The group recorder keeps track of results

using tally marks under two headings: Hit Target and Missed Target. After all turns are completed, groups count their tally marks and share which outcome happened more often.

CELEBRATION OF LEARNING

Students present conclusions:

- Time decreases when more force is applied.
- Gravity pulls the ball back to the ground.
- tally marks helped us compare results easily.

FORMATIVE ASSESSMENT

The teacher assesses whether students can:

- Explain the relationship between force and motion.
- Measure and compare distance and time accurately.
- Describe friction and gravity correctly.
- Explain what happened while pressing the ball.
- Represent data using tally marks .

Precautions

- Use only soft and safe balls.
- Maintain safe distance between groups.
- Do not throw the ball towards anyone's face.
- Use stopwatch and measuring tools carefully.
- Avoid running into other groups.
- Store equipment properly after use.

Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.





ENGAGEMENT WITH RING/

MATERIAL REQUIRED

- Cardboard discs (circles cut from chart paper, coin plate, roti, pancake, lid)
- Rings (plastic rings, bangle rings, doughnut, keyring, bottle cap ring, curtain rings, cardboard rings, hoopla)
- Chart paper
- Sketch pens/ Crayons
- Glue

7.1 CLASS III

Concept Focus

- Place value (Ones and Tens)
- Grouping in tens
- More-less



LEARNING OUTCOMES

After engagement with rings and discs, students will be able to:

- Group objects in tens and ones.
- Understand that 10 ones make one ten.
- Represent numbers using rings (tens) and discs (ones).
- Compare bigger and smaller numbers.

EXPLORE WITH BLINDFOLD — RINGS AND DISCS

Children sit in a circle with rings and discs. One by one they wear a blindfold and explore the objects only through touch—holding, tracing edges, stacking, and feeling surfaces and thickness. They try to recognise shapes and features such as hole/no hole, flatness, size, and edges, and describe what they feel using words like smooth, round, thick, thin, open, or solid.

EXPLORE/EXPERIENCE

Let children hold and observe the cardboard discs and rings.

They put a finger in the middle.

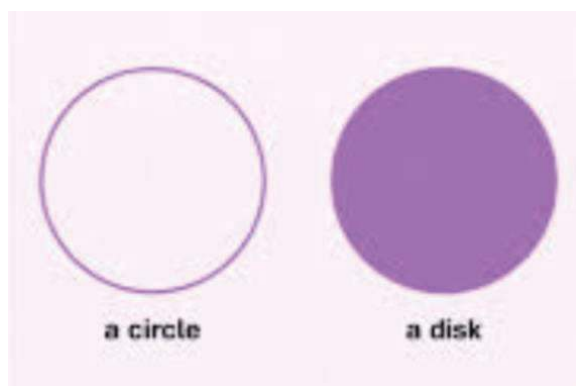
Finger goes through = Ring

Finger cannot go through = Disc

They observe that:

A ring has an empty space in the middle.

A disc is filled in the middle.



NOTE: No correction at this stage — only observing.

REFLECTION ON EXPERIENCE

Where do we see these in daily life?

Teacher shows different objects → students say

“Ring” if it has a hole

“Disc” if it is filled



GUIDED ACTIVITY:

Give the child many loose discs.

Now Teacher explains

Every time they collect 10 discs, they will count them as 1 ring.

Ask them to show a number (like 23) → 2 rings (tens) + 3 loose discs (ones).

This shows that rings = tens and loose discs = ones.

They can see:

One ten = ten ones

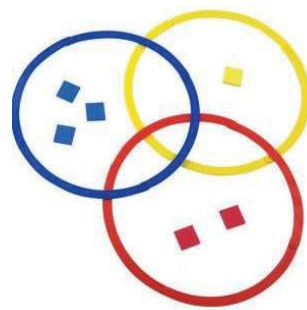


FUN CREATION TIME

- Make your age
- Make your roll number
- Make the biggest number using 3 rings

Each child gets some discs and a few rings.

No correction now — only counting, grouping, and observing.



CELEBRATION OF CREATION

Students say:

- I made 34.
- I have 3 tens and 4 ones.

Display as “Place Value Number Garden”.

7.2 CLASS IV

Concept Focus

- Even and odd numbers
- Pairing
- Equal grouping

LEARNING OUTCOMES

After engagement with rings and discs, students will be able to:

- Make pairs using discs.
- Identify even and odd numbers through pairing.
- Understand that even numbers have no disc left.
- Understand that odd numbers have one disc left.
- Explain their observations in simple words.

EXPLORE WITH BLINDFOLD

Children sit in a circle with rings and discs. One child wears a blindfold and explores the objects through touch—holding, counting, and grouping them into pairs. They arrange objects in pairs to identify even groups or notice a leftover object for odd groups, describing what they feel while pairing.

EXPLORE/EXPERIENCE

Students take any number of discs and:

- Make pairs
- Put each pair inside one ring
- Observe what is left outside

Teacher Asks:

“Is any disc left alone?”

“How many pairs did you make?”

“Which number has no disc left?”

NOTE: No correction — only pairing and observing.

REFLECTION ON EXPERIENCE

Teacher observes whether the child can:

- Identify even and odd through pairing
- Explain using the idea of leftover
- Say in their own words: “Nothing is left”, “One is alone”

EXPLAIN

Teacher shows:

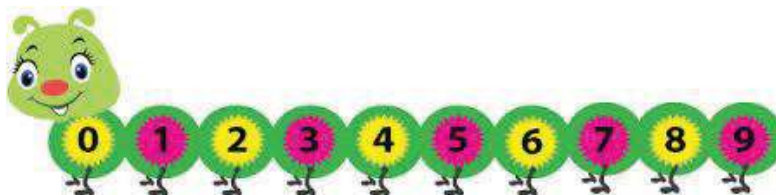
8 → all discs in pairs → EVEN

9 → one disc left → ODD

Students test different numbers themselves.

FUN CREATION TIME

- Even-odd caterpillar (each ring = one number)
- Even-odd tower
- Find whether your roll number is even or odd



CELEBRATION OF CREATION

Students say:

- 12 is even because nothing is left.
- 15 is odd because one disc is alone.

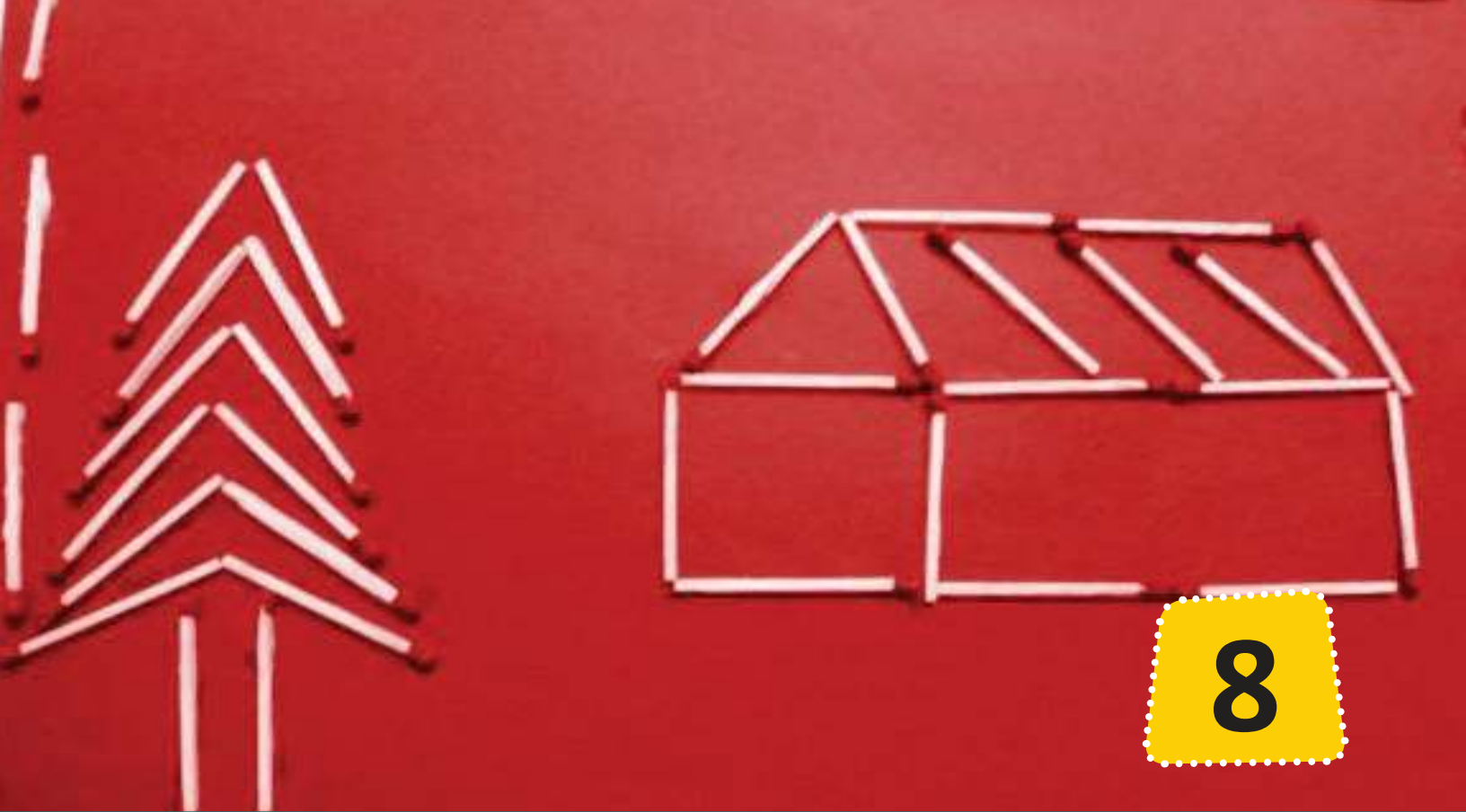
Display as “Even–Odd Discovery Wali”

Precautions

- Use material carefully.
- Work in the given space.
- Do not throw the discs.
- Keep the material in a tray after use.



Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.



ENGAGEMENT WITH

MATERIAL REQUIRED

- Matchsticks
- Coloured matchsticks (if available)
- Scrap paper/old newspaper (as base)
- Glue
- Child-safe scissors (optional for paper base)
- Chart paper for display

9.1 CLASS III

Concept Focus

- Shapes and forms (lines, corners, closed shapes)
- Digit and Alphabet formation



LEARNING OUTCOMES

After engagement with matchsticks, students will be able to:

- Identify and create simple shapes like square, rectangle, triangle etc. using matchsticks.
- Understand that many small sticks join to make a big shape.
- Recognize open and closed shapes.
- Use simple words like line, side, corner, long, short, triangle, square.
- Share their ideas and explain what they made.

EXPLORE WITH BLINDFOLD

A few students are gently blindfolded and given matchsticks on a paper base. Using touch, they arrange the sticks to make lines and simple shapes. The child traces the shape already made to feel whether it is open or closed and counts the sticks used.

EXPLORE/EXPERIENCE

Students are provided with matchsticks and a paper base. They are encouraged to explore freely.

During the activity students:

- Arrange matchsticks in different ways.
- Make standing, sleeping and slanting lines.
- Join sticks to make long lines.
- Create open and closed shapes.
- Break one shape and rearrange to form a new shape.

REFLECTION ON EXPERIENCE

As students manipulate the matchsticks, they observe length, number and shape.

Teacher asks:

- Which line is longer?
- How many sticks did you use?
- Can you make a different shape with the same sticks?

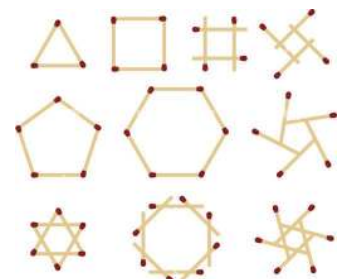
NOTE: No correction is given at this stage; the focus is on exploration and creativity.

EXPERIMENT

The teacher demonstrates:

- 3 matchsticks → triangle
- 4 matchsticks → square

Students count sides and corners by touching the sticks.



Teacher helps students observe:

- Small sticks join to make a bigger shape.
- One shape can change into another by rearranging the same sticks.



Students make familiar objects like:

- Hut
- Ice-cream
- Fish
- Kite

CELEBRATION OF CREATION

Each student proudly presents their creation.

They say:

- I made a triangle.
- My line is long.
- I used four sticks to make a square.

The teacher displays their work as a “Matchstick Shape Garden.”

FORMATIVE ASSESSMENT

The teacher observes whether students can:

- Make a closed shape
- Count sides using matchsticks
- Describe their creation

Precautions

- Do not throw matchsticks.
- Work on the base sheet only.
- Store properly after use.

Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.

ENGAGEMENT WITH BLOCKS (WOODEN BLOCKS / BUILDING)

MATERIAL REQUIRED:

- Wooden blocks/plastic building blocks (various shapes and sizes)
- Unit cubes
- Rectangular blocks
- Base plates/mats
- Chart paper
- Scale (for higher classes)
- Pencil
- Tray for storage



9.1 CLASS III

Concept Focus

- Shapes (2D and 3D awareness)
- Long–short, tall–short, big–small
- More–less
- Part–whole relationship
- Simple patterns using blocks

LEARNING OUTCOMES

After engagement with blocks, students will be able to:

- Identify different shapes (cube, cuboid, rectangular block).
- Compare height (tall–short) and size (big–small).
- Understand part–whole (small blocks joining to make a bigger structure).
- Use simple descriptive words (tall, short, big, small, more, less).

EXPLORE WITH BLINDFOLD

One student is blindfolded. The teacher places a block in the student's hand. The student touches and describes it. The student guesses the shape and tries to stack 3–4 blocks to make a small tower while blindfolded.

EXPLORE/EXPERIENCE

Students are given different blocks. They:

- Touch and stack blocks.
- Build towers of different heights.
- Join small blocks to make a bigger structure.
- Compare two towers (Which is taller?).
- Arrange blocks in a line (long–short comparison).
- Make simple repeated patterns (red–blue–red–blue).

EXPERIMENT

Teacher asks to demonstrates:

- Stacking blocks to show tall–short.
- Placing blocks in a row to show long–short.
- Joining blocks to form a bigger structure (part–whole).
- Making simple shapes (square using 4 blocks).
- When we join small blocks, we make a big one.
- This tower is taller because it has more blocks.

CELEBRATION OF CREATION

Students present their work:

- I made a tall tower.
- This is a square.
- I made a red-blue pattern.

FORMATIVE ASSESSMENT

Teacher asks:

- Which tower is taller?
- Which block is bigger?
- How many blocks did you use?
- What happens when you add one more block?



9.2 CLASS IV

Concept Focus

- Types of lines (vertical, horizontal)
- Perimeter (informal)
- Area (covering space)
- Patterns and symmetry
- Measurement (counting units)

LEARNING OUTCOMES

After engagement with blocks, students will be able to:

- Build shapes using blocks.
- Identify vertical and horizontal arrangements.
- Outline shapes using blocks to understand perimeter.
- Cover a surface using blocks to explore the area.
- Create symmetrical block designs.
- Compare lengths using the number of blocks.

EXPLORE WITH BLINDFOLD

The student is blindfolded. Teacher gives instructions-Place 5 blocks in a straight line. Now place 5 blocks parallel to the first row and join the ends to form a rectangle. The student builds using touch only. The student traces the boundary with finger.

EXPLORE/EXPERIENCE

Students:

- Arrange blocks in straight rows (horizontal).
- Stack blocks (vertical).
- Use blocks to outline a book (boundary).
- Fill a small rectangular space with unit cubes.
- Create mirror designs using colored blocks.

They count how many blocks are used along the boundary.

EXPERIMENT

Teacher demonstrates:

- Perimeter as boundary using blocks around an object.
- Area as space covered by blocks.
- Symmetry by folding paper and copying block placement.
- Patterns like red–yellow–red–yellow.

Connections are made:

- Boundary → Perimeter
- Covered space → Area
- Same on both sides → Symmetry

CELEBRATION OF CREATION

Students present:

- This is the boundary of my rectangle.
- I covered this space using 12 blocks.
- My design is symmetrical.
- These are vertical blocks.



9.3 CLASS V

Concept Focus

- Angles formed by blocks
- Area and perimeter (conceptual understanding)
- 3D shapes (cube, cuboid)
- Volume (informal – filling space)
- Symmetry and geometric designs

LEARNING OUTCOMES

After engagement with blocks, students will be able to:

- Create geometric shapes using blocks.

- Identify right angles formed at corners.
- Understand perimeter by counting outer blocks.
- Explore the area by counting blocks covering a surface.
- Explore volume by building 3D structures.
- Create symmetrical geometric designs.

EXPLORE WITH BLINDFOLD

The student is blindfolded and teacher instructed to build a rectangle or square using 16 blocks. The student feels corners, counts blocks and describes the shape.

EXPLORE/EXPERIENCE

Students:

- Build rectangles and count outer boundary blocks.
- Count blocks inside the structure (area concept).
- Build cube structures using unit cubes.
- Identify corners (angles).
- Create mirror-image block structures.

REFLECTION ON EXPERIENCE

They compare two shapes

- Same area but different shapes.
- Same number of blocks but different arrangements.

EXPERIMENT

Teacher demonstrates:



CELEBRATION OF CREATION

Students explain:

- These are the sides of my rectangle.
- This is a right angle.
- I used 16 blocks for the area.
- My structure is symmetrical.
- I built a cube.

Precautions

- Do not throw blocks.
- Build carefully to avoid collapse.
- Keep blocks away from the mouth.
- Arrange and store blocks properly after activity.
- Work on mats/trays to avoid scattering.
- Handle wooden blocks carefully to avoid injury.

Note:- Anecdotes/picture/craft can be recorded in the portfolio/e-portfolio of the student and it can be a very significant evidence of learning for the Holistic Progress Card.



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