International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

# Analysis of Real-Life Applications in the Newly Developed Grade 6 Mathematics Textbook.

**Dr. Rishikesh Kumar**

Assistant Professor, Desm, Ncert

**INTRODUCTION:**

NEP 2020 redefines the teaching and learning of Mathematics at the Grade 6 level by shifting the focus from rote memorization to conceptual understanding, reasoning, and problem-solving. Under the new 5+3+3+4 structure, Grade 6-8 form the Middle Stage, where students are developmentally ready for abstract and logical thinking. Mathematics learning at this stage emphasizes exploration, use of real-life situations, activity-based methods, and the development of computational thinking as an essential life skill. The policy also recommends continuous and formative assessment to evaluate understanding and application rather than relying only on high-stakes examinations.

Building on this vision, NCF 2023 provides guidance on how Mathematics should be taught in classrooms. It presents mathematics as a joyful, creative, and meaningful subject connected to students' daily lives and experiences. The framework encourages discussion, hands-on activities, interdisciplinary learning, and inclusive practices to reduce fear and anxiety related to mathematics. Assessment is competency-based, focusing on reasoning, critical thinking, and real-world application.

**About the Grade 6 Mathematics textbook Ganita Prakash:**

The NCERT Grade 6 Mathematics textbook Ganita Prakash is the first in the series of Mathematics textbooks designed for middle stage. Ganita Prakash literally means "The Light of Mathematics", symbolizing the aim of the book to enlighten students about mathematical concepts. It aims to build a strong mathematical foundation in learners by combining conceptual clarity, logical reasoning, and real-life application.

The cover features a complex, radial geometric pattern resembling a Rangoli or a mandalic design. The concept behind this is to introduce students to symmetry (both reflective and rotational) and to the use of geometric constructions, where multiple circles and arcs intersect to create complex polygons and star shapes.

The following icons and labels are used in the Grade 6 Ganita Prakash textbook:

| **Icon/Label** | **What it Represents** | **Impotence for the Teacher** |
|---|---|---|
| Colourful, real-life photos/scenes | Concept Introduction | Ask: "What do you notice? What do you wonder?" |
| Character dialogue bubbles | Logical Transition | Use these for "Role Play" or class discussions. |
| Figure It Out | Stop and think | These are strategically placed "stop-and-think" checkpoints. They appear immediately |

| | | |
|---|---|---|
| | | after a new concept is introduced but before the formal exercise. |
| Spiral Icon | Problem-Solving Opportunity | Use these to kickstart a process of exploration. These are your primary entry points for new concepts. |
| Math Talk | Classroom Discussion | Facilitate a group dialogue. These questions are specifically designed to be debated and discussed by the whole class. |
| Try This | Activity/Lab | Move to the maths lab or use physical manipulatives. |
| Summary/Glossary | "What have we discussed?" | Use for student self-assessment and reflection. |
| A Pinch of History | Historical Context | Use these snippets to show maths as a global human endeavour; highlight ancient Indian contributions to normalize the evolution of ideas. |

**Competencies which are cover in Ganita Prakash:**

The NCERT Class 6 Mathematics textbook Ganita Prakash focuses on developing strong foundational competencies by emphasizing conceptual understanding, reasoning, and real-life application of mathematics. Students build a clear understanding of numbers, patterns, fractions, decimals, and basic algebraic ideas while learning to think logically and solve problems meaningfully. The textbook encourages learners to analyze situations, identify patterns, justify their answers, and apply mathematical ideas to everyday contexts such as measurement, data handling, and shapes, making mathematics practical and relevant. At the same time, Ganita Prakash supports the development of communication, exploration, through math talk and preparedness for higher learning. Students learn to explain their mathematical thinking through written steps, diagrams, and graphs, while activities and hands-on tasks promote curiosity and confidence. Foundational geometry, data interpretation, and problem-solving skills help build spatial reasoning and analytical thinking. This Mathematics textbook Ganita Prakash is designed with activities-based, learner-centred and constructivist pedagogy, in line with the vision of NEP 2020 and NCF 2023. It emphasizes deep conceptual understanding, reasoning, and meaningful application of mathematics rather than rote memorization. Mathematical ideas are introduced through familiar situations, patterns, and problem contexts, enabling students to actively construct knowledge based on prior learning. This approach helps learners develop clarity of concepts in numbers, geometry, data handling, and algebraic thinking while nurturing logical reasoning and problem-solving abilities.

**Pedagogy in Ganita Prakash:**

The pedagogy adopted in Ganita Prakash strongly emphasizes activity-based and experiential learning, ensuring that students learn mathematics by doing, exploring, and reflecting. Concepts are introduced through hands-on tasks such as measuring lengths and angles, constructing geometrical figures, exploring symmetry, collecting and organizing data, working with grids, and identifying numerical and visual patterns. These experiences help learners build concepts from concrete experiences before moving towards

abstract representations.

Real-life contexts and inquiry-based questions are thoughtfully integrated to encourage students to observe, question, explore, and justify their thinking. Such contexts make mathematics meaningful and relevant to students' everyday lives, while open-ended tasks allow for multiple approaches and solutions. Visual representations play a key role in the pedagogy, with extensive use of diagrams, pictures, tables, graphs, and models to support understanding. Classroom discussions and opportunities to explain reasoning in words, symbols, and drawings strengthen mathematical communication and conceptual clarity.

The textbook follows a spiral, inclusive, and flexible pedagogical design, revisiting key ideas at increasing levels of depth and complexity. This supports continuous learning and accommodates diverse learners, including those with varying learning speeds and styles. Scaffolder activities, guided questions, and differentiated tasks help ensure that all students can participate meaningfully and progress with confidence.

A strong emphasis on formative assessment, collaboration, and joyful exploration helps reduce fear and anxiety often associated with mathematics. Group activities, games, puzzles, and creative tasks foster peer learning, cooperation, and a positive classroom environment. By integrating reasoning, communication, and real-world application, Ganita Prakash not only strengthens mathematical understanding but also nurtures curiosity, confidence, and independence. In alignment with NEP 2020 and NCF 2023, the pedagogy prepares learners for higher mathematical learning and supports the development of competent, thoughtful, and self-directed problem-solvers.

**Assessment in Ganita Prakash:**

The Grade 6 NCERT Mathematics textbook Ganita Prakash adopts a competency-based and learner-centred assessment framework that is fully aligned with the vision of NEP 2020 and NCF-SE 2023. Assessment is seamlessly integrated into the teaching-learning process and is designed to support learning rather than merely judge performance. The focus is on students' conceptual understanding, mathematical reasoning, problem-solving skills, and the ability to apply ideas in meaningful contexts, instead of rote procedures or only correct final answers.

Formative and continuous assessment is embedded throughout the chapters in the form of in-text questions, activities, reflective prompts, and exercises. These enable teachers to regularly monitor students' progress, identify misconceptions at an early stage, and provide timely feedback and appropriate support. Such ongoing assessment helps address diverse learning needs and bridges learning gaps effectively.

Assessment in Ganita Prakash strongly emphasizes real-life application, exploration, and multiple solution strategies. Learners engage with open-ended questions, puzzles, hands-on activities, projects, data-handling tasks, and investigations that assess not only accuracy but also creativity, logical thinking, and depth of understanding. Students are encouraged to explore different approaches, justify their methods, and compare solutions, fostering higher-order thinking skills.

The textbook also values mathematical communication as an essential component of assessment. Students are prompted to explain their reasoning using words, diagrams, tables, graphs, and symbols, thereby strengthening clarity of thought, confidence, and analytical ability. This focus on expression helps learner's articulate ideas and develop a deeper understanding of concepts.

Overall, the assessment practices in Ganita Prakash are inclusive, flexible, and activity-oriented. They promote a positive attitude towards mathematics, support holistic development, and respect individual

learning styles. By emphasizing understanding, application, reasoning, collaboration, and communication, Ganita Prakash ensures that assessment becomes a powerful tool for learning, preparing students to grow into confident, independent, and competent problem-solvers.

**Illustration of real-life experience of the child:**

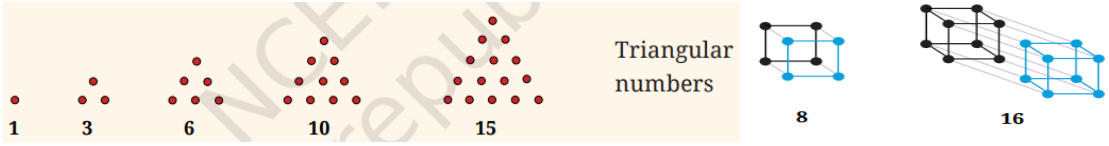
Newly develop mathematics textbook Ganita Prakash for grade 6 includes a wide range of real-life experiences, thoughtfully integrated chapter-wise to make mathematical concepts meaningful and relatable for students. Each chapter begins with familiar situations drawn from students' everyday lives-such as food items, travel items, games, animals, nature, art, and surroundings-which helps in building intuitive understanding before introducing formal concepts.

These real-life contexts encourage observation, discussion, and hands-on exploration, enabling students to connect abstract mathematical ideas with practical experiences. Activities, illustrations, puzzles, and open-ended questions are carefully designed to reflect students' social and cultural environments, thereby promoting joyful learning and conceptual clarity. This chapter-wise integration of real-life experiences not only enhances engagement and retention but also helps students appreciate mathematics as a living and useful discipline closely linked to their daily lives.

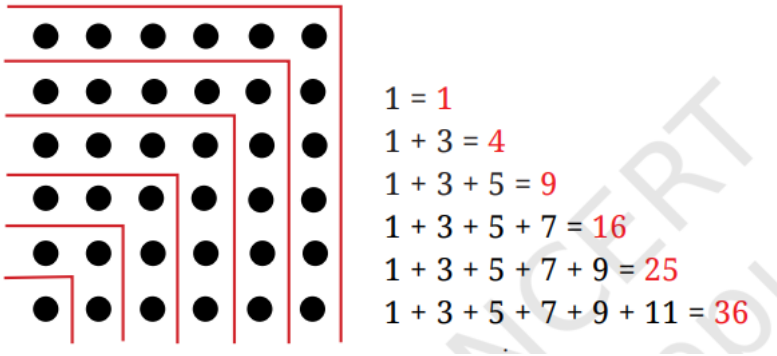
**Chapter- 1 Patter in Mathematics:**

In this chapter, pictorial representations of various number sequences are presented, including odd numbers, even numbers, triangular numbers, square numbers, cube numbers, and hexagonal numbers. These visual models help learners move from abstract numerical ideas to concrete understanding by seeing how numbers grow and relate to one another. Through dot patterns, arrays, and geometric arrangements, students can recognise regularities, observe patterns, and make meaningful connections between numbers and shapes.

The chapter also introduces the idea of visualising the sequence of powers of 2 using structured representations. Such visualisation supports an intuitive understanding of doubling, exponential growth, and recursive patterns. By engaging with these representations, learners are encouraged to explore, predict, and generalise number patterns, thereby strengthening their number sense and laying a foundation for algebraic thinking.

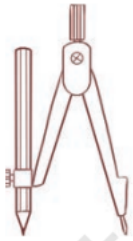



The figure below shows how consecutive odd numbers are added and arranged to form a pattern.



**Chapter- 2 Lines and Angles:**

Points are illustrated using real-life experiences drawn from familiar objects and situations. Examples such as the tip of a pencil, a dot made on paper, the corner of a book, or a star seen in the sky help learners relate the abstract idea of a point to concrete experiences. These illustrations emphasise that a point represents a position or location and has no size or shape. By connecting the concept of a point with everyday observations, students develop a clearer and more intuitive understanding of this fundamental geometric idea.



The tip of a compass

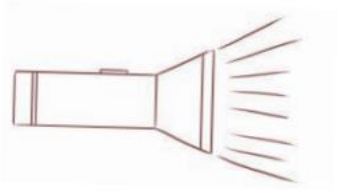
The sharpened end of a pencil



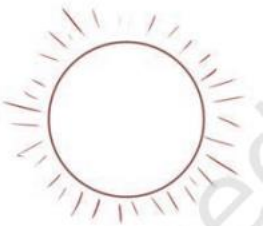
The pointed end of a needle

The rays are explained with the help of pictures that are closely related to students' real-life experiences. Such visual representations make the abstract concept more concrete and meaningful for learners. By connecting rays to familiar objects and situations from everyday life, students are able to visualize the idea more clearly, develop intuitive understanding, and retain the concept for a longer time. This approach also increases students' interest and engagement, encourages active observation, and helps them relate classroom learning to the world around them, thereby strengthening conceptual clarity.

Beam of light from a lighthouse

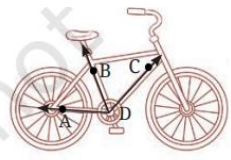


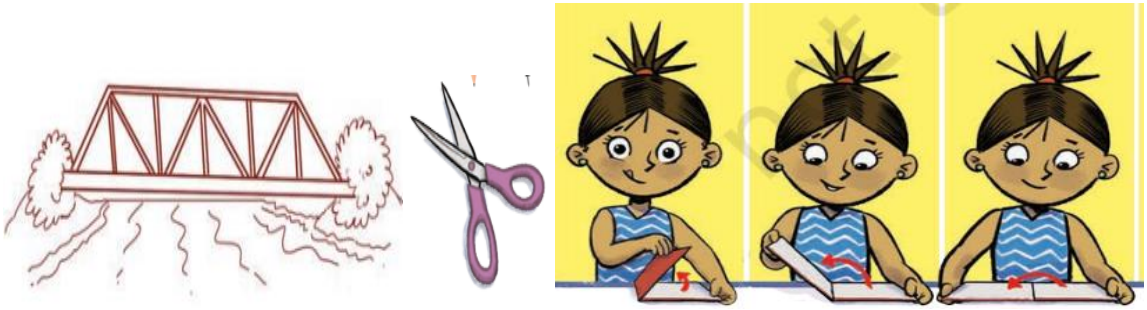
Ray of light from a torch



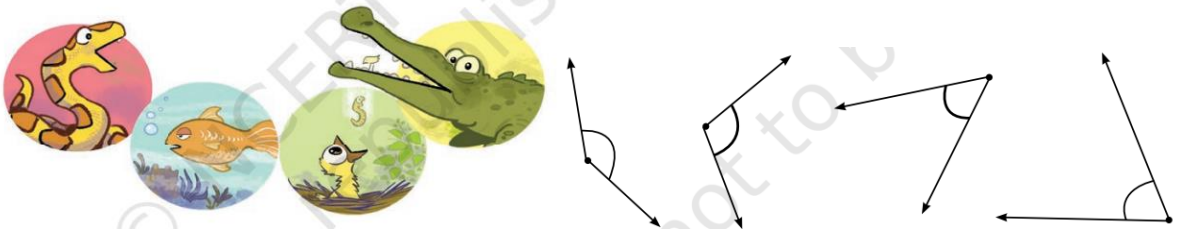
Sun rays

Angles and their different types can be identified through these objects, allowing students to gain first-hand experience with familiar and similar items from their surroundings. By observing and exploring real-life objects, students are able to recognize acute, right, obtuse, straight, and reflex angles in a natural and meaningful context. This hands-on approach promotes active learning, enhances observational skills, and helps students connect geometric concepts with everyday life. As a result, learning becomes more engaging, experiential, and conceptually strong, enabling students to understand angles not merely as abstract ideas but as practical and visible elements of their environment.



These pictures help students to identify and arrange angles by closely observing their measures. By carefully looking at the angles shown in the picture, students are encouraged to compare them visually and think critically about their relative sizes. Questions such as "Can you arrange the following angles in this picture from smallest to largest?" prompt students to analyze, estimate, and order the angles meaningfully. Through this process, learners compare different types of angles such as acute, right, obtuse, and reflex and develop a clearer understanding of how angles differ in magnitude. This activity strengthens conceptual clarity, promotes logical reasoning, and builds students' confidence in classifying and comparing angles based on real-life visual contexts.

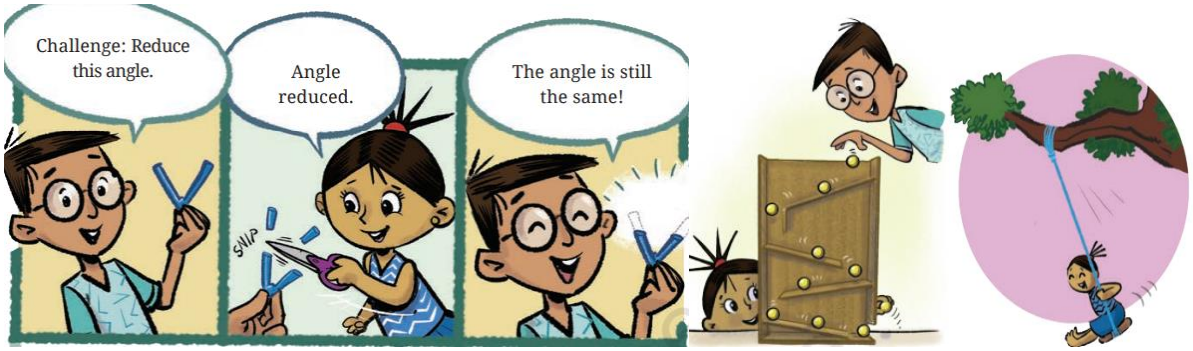


With the help of a paper clip, two rotating arms can be illustrated to model the formation of angles in a simple and effective way. By opening and closing the arms of the paper clip, students can clearly observe how an angle is formed at the point where the two arms meet. This hands-on activity allows learners to rotate the arms freely and explore different types of angles, such as acute, right, obtuse, straight, and reflex angles.

Further discussion can focus on the effect of the lengths of the rotating arms on the angles. Students will observe that changing the length of the arms does not change the measure of the angle; instead, it only affects the appearance or size of the arms. This helps students understand that an angle depends on the amount of rotation between the two arms, not on their lengths. Such an activity encourages experimentation, conceptual understanding, and active participation, making the learning of angles more concrete and meaningful.

The concepts are presented in a challenging yet engaging manner and are explored through a variety of fun, activity-based tasks to enhance students' understanding. These activities encourage learners to think critically, ask questions, and actively participate in the learning process rather than passively receiving information. By solving problems, performing hands-on experiments, and working collaboratively, students are able to explore concepts deeply and meaningfully. This approach not only strengthens

conceptual clarity but also builds confidence, curiosity, and problem-solving skills, making learning enjoyable while ensuring long-term retention of mathematical ideas.




There is an insect and its rotated version shown in the picture. This situation helps students explore whether angles can be used to describe the amount of rotation and how this can be done. By comparing the original position of the insect with its rotated position, students can observe that the turning movement can be measured using an angle. The amount of rotation is represented by the angle through which the insect has turned.

In this context, the two arms of the angle can be taken as the imaginary lines joining a fixed point of the insect (such as its centre or head) in its initial position and its final, rotated position. The fixed point about which the insect turns acts as the vertex of the angle. Through this visual and contextual example, students understand that angles are not limited to static figures but are also useful in describing rotation and movement in real-life situations. This strengthens their ability to apply the concept of angles meaningfully beyond textbook diagrams.

**Chapter- 3 Numbers play:**

Some children in a park are standing in a line, and each child says a number according to specific rules. This activity provides students with a real-life context to understand number patterns and rules in an engaging way. By observing and participating in the activity, students learn how numbers change based on given conditions, helping them develop logical thinking and reasoning skills.

In addition, a fun way of digit detection is illustrated through this situation. Students are encouraged to listen carefully, identify specific digits, and recognize patterns within the numbers being spoken. Such an activity makes learning interactive and enjoyable, promotes attentiveness, and helps students grasp abstract number concepts through familiar, everyday experiences. This real-life and playful approach strengthens conceptual understanding and makes mathematics more meaningful and memorable.


A magic number, 6174, is introduced with clear examples to help students understand how a solution can be found in any situation by following a fixed set of steps. Through this activity, students observe that starting with almost any four-digit number (with at least two different digits) and repeatedly applying the same procedure leads to the same result. This creates curiosity and excitement, as learners discover a surprising and consistent pattern in numbers.

Later, the number 6174 is identified as the Kaprekar constant, named after the Indian mathematician D. R. Kaprekar. Introducing this concept not only strengthens students' understanding of number operations and patterns but also highlights an important contribution from Indian mathematics. Such an example promotes problem-solving skills, logical reasoning, and mathematical curiosity, while showing students that mathematics can be both magical and meaningful.

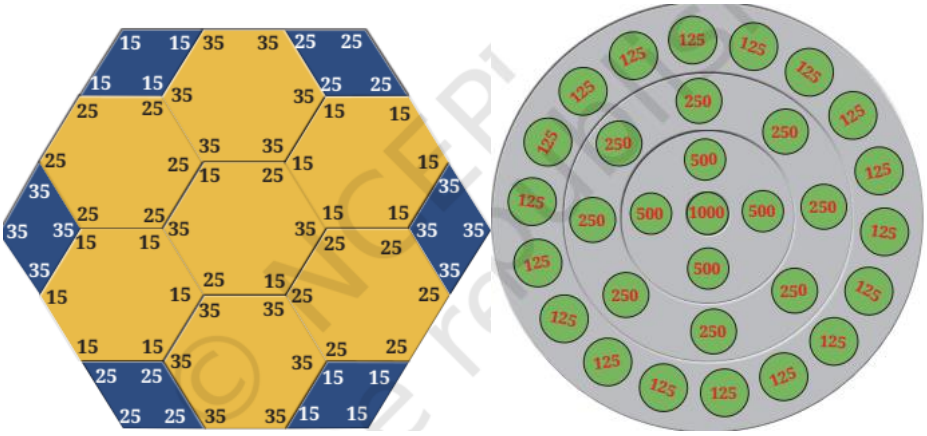
A = 8632
B = 2368
C = 8632–2368
= 6264

A = 6642
B = 2466
C = 6642–2466
= 4176

A = 7641
B = 1467
C = 7641–1467
= 6174

An open situation was provided for students to share and discuss different methods in the class. This encourages learners to think independently and explore multiple ways of approaching the same problem. By presenting and explaining their own strategies, students develop confidence in their thinking and improve their mathematical communication skills.

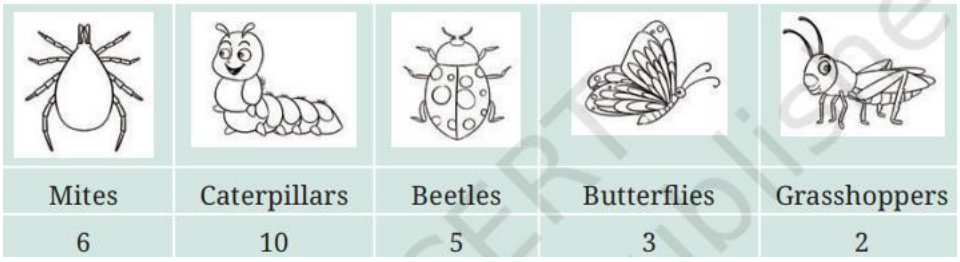
Class discussions based on varied student responses help learners compare methods, identify similarities and differences, and understand that a problem can have more than one valid solution path. Such an open-ended approach promotes collaborative learning, critical thinking, and respect for diverse ideas, making the classroom environment more interactive and inclusive while deepening conceptual understanding.



**Chapter- 4 Data Handling and Presentation:**

In the presentation, meaningful situations are created to enable students to collect data from their daily experiences, such as their favourite games, preferred sweets, and the modes of transport they use to reach school. By using familiar and relatable contexts, students find it easier to understand the purpose of data collection and see its relevance in real life.

For example, Samantha visited a tea garden and collected data on the insects and critters she observed there. This example helps students understand how data can be gathered through observation in natural settings. Such activities encourage curiosity, careful observation, and systematic recording of information. They also introduce students to the basic ideas of data handling collecting, organizing, and interpreting data through engaging, real-life situations, thereby making learning experiential and meaningful.



| Mites | Caterpillars | Beetles | Butterflies | Grasshoppers |
|---|---|---|---|---|
| 6 | 10 | 5 | 3 | 2 |

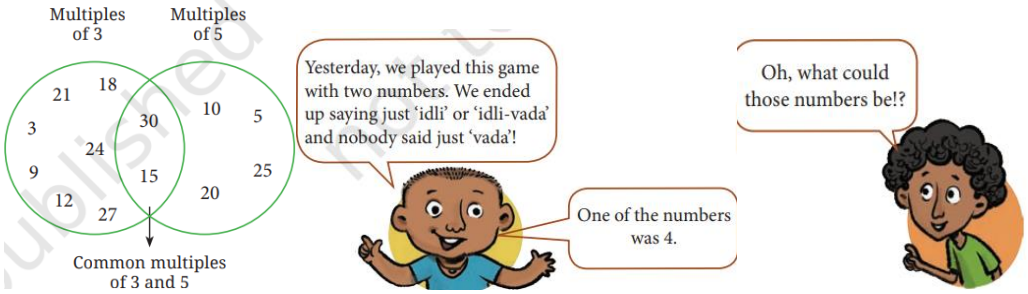
Pictographs use different pictures or symbols to indicate and represent objects in a simple and visually appealing manner. While organizing the data, due attention is given to artistic and aesthetic aspects, which makes the representation attractive and easy to understand for students. The use of pictures helps learners quickly interpret information and compare quantities without relying only on numbers.

In addition, real-life information such as the height of each mountain is included in the data, helping students connect mathematical representation with geographical knowledge and everyday experiences. This integration of visuals, numerical data, and real-world context enhances comprehension, improves data interpretation skills, and makes learning more engaging and meaningful. Students not only learn how to read pictographs but also appreciate their usefulness in presenting information clearly and creatively.

**Chapter- 5 Prime Time:**

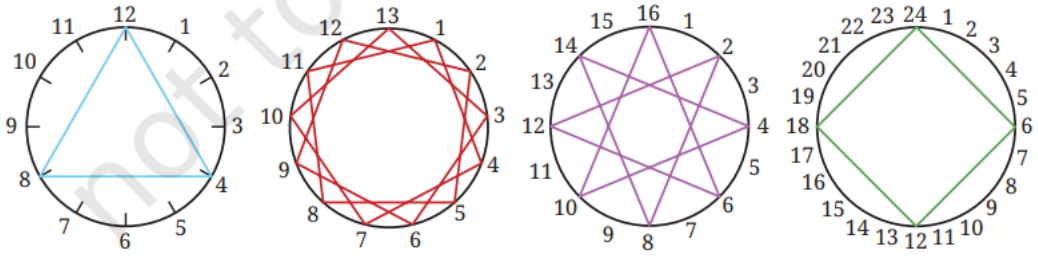
Prime Time starts with the Idli-Vada game, an engaging and activity-based introduction to the chapter. In this game, children sit in a circle and take turns saying numbers according to given rules. Based on multiples and common factors, students respond with “Idli” or “Vada” instead of certain numbers, making the activity lively and enjoyable.

Through this playful number game, students experience key concepts such as multiples, factors, and common factors in a natural and intuitive way. The familiar context of Idli and Vada, drawn from everyday life, helps learners relate abstract mathematical ideas to real-life experiences. This activity promotes active participation, quick thinking, and peer interaction, while also laying a strong conceptual foundation for understanding number properties in an enjoyable manner.



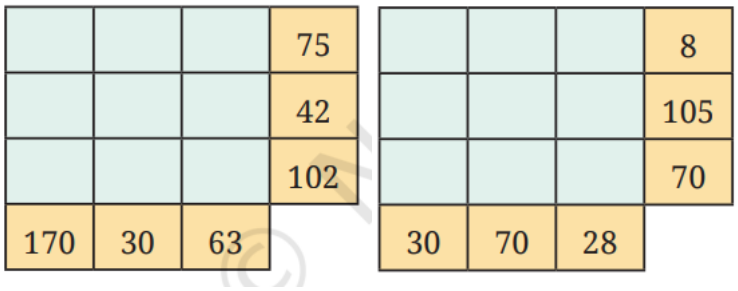
Co-prime numbers are explained using co-prime art created with threads and pegs, making the concept visual, concrete, and engaging. By fixing pegs on a board and connecting them with threads according to given number pairs, students can clearly see the relationships between numbers. When only one common factor (1) exists, the pattern formed helps children visually recognize co-prime numbers.

Using this hands-on activity in the classroom allows children to explore mathematics joyfully and creatively. It encourages experimentation, discussion, and collaborative learning, while reducing the abstractness of number theory. Such artistic and tactile experiences help students develop deeper conceptual understanding, improve retention, and foster a positive attitude toward learning mathematics.



Puzzles are used in this section to make learning enjoyable and stimulating for students. These puzzles present challenges that spark curiosity and motivate learners to engage actively with the concepts. Instead of simply applying given procedures, students are encouraged to explore patterns, test ideas, and think logically.

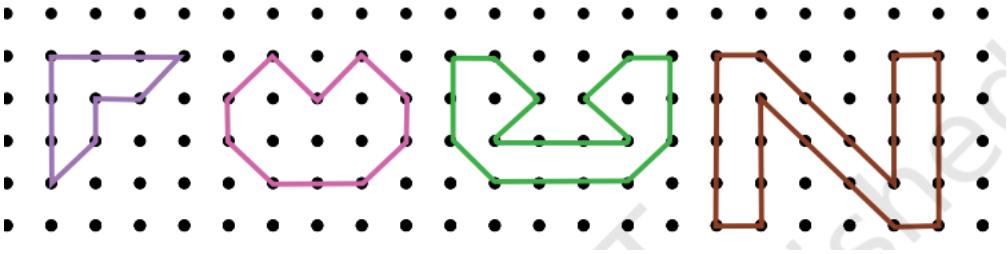
Open-ended questions are also provided so that students can reflect on the rules and strategies needed to solve the puzzles. This allows multiple approaches and solutions, promoting creative thinking and deeper understanding. Such an approach helps students develop problem-solving skills, reasoning abilities, and confidence, while making the learning of mathematics both meaningful and enjoyable.




**Chapter- 6 Perimeter and Area:**

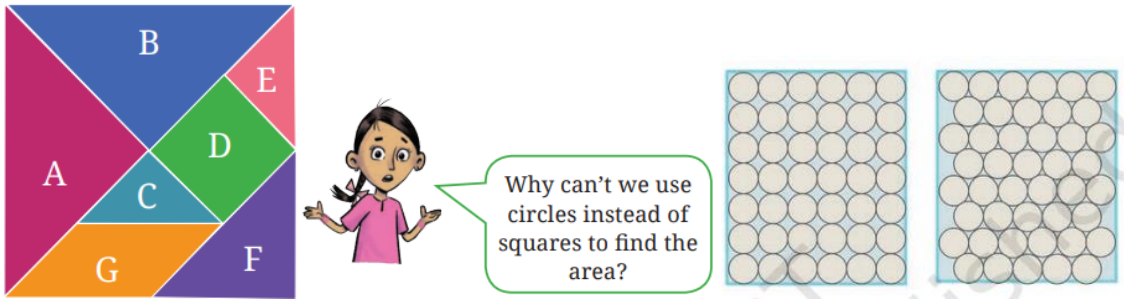
Perimeter and area are illustrated on grid paper using the given figures, with measurements expressed in terms of straight and diagonal units. By working on grid paper, students can clearly see how boundaries are traced to find the perimeter and how enclosed spaces are counted to determine the area. Considering both straight and diagonal units helps learners develop a more flexible understanding of measurement.

This approach builds on children's drawing experiences and their familiarity with grids, making the concepts easier to grasp. As students draw, count, and compare units themselves, abstract ideas become concrete and visual. Such activities strengthen spatial reasoning, improve accuracy, and help students understand perimeter and area in an intuitive and meaningful way.



Tangrams are used to help students create new shapes drawn from real-life experiences and calculate their areas in an enjoyable and exploratory way. By rearranging tangram pieces, children discover how different shapes can be formed using the same set of parts, helping them understand the idea of conservation of area. This activity strengthens spatial reasoning, creativity, and problem-solving skills while making the concept of area more concrete and visual.

To further support hands-on learning, tangram cut-outs are provided at the end of the textbook, allowing students to actively engage in classroom and home activities. Open-ended questions are also included to encourage deeper thinking for example, asking students to explore whether circles can be used instead of squares to find area. Such questions promote curiosity, experimentation, and discussion, helping learners move beyond fixed methods and develop a flexible and meaningful understanding of area through exploration and real-life connections.

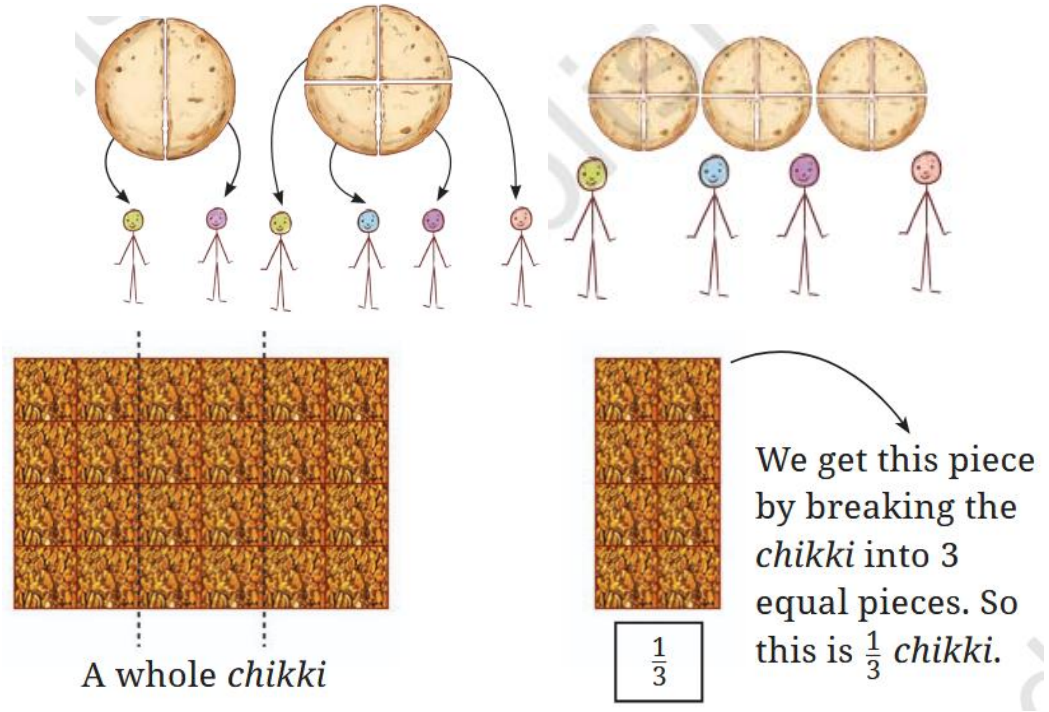



Questions are designed to relate closely to students' day-to-day experiences, helping them see the practical relevance of mathematical concepts. By using familiar contexts from their surroundings, learners are able to connect abstract ideas with real situations they encounter in everyday life.

**Chapter- 7 Fractions:**

Fractions are introduced using a roti and its pieces, creating a joyful, interactive, and meaningful classroom atmosphere that directly connects with children's daily lives. By sharing and dividing a familiar food item, students naturally understand ideas such as equal parts, halves, quarters, and other fractional units. This concrete experience helps reduce the abstractness of fractions and builds a strong conceptual foundation. Similarly, chikki is used to illustrate fractional units, further reinforcing learning through everyday experiences that students easily relate to. Such examples encourage active participation, discussion, and

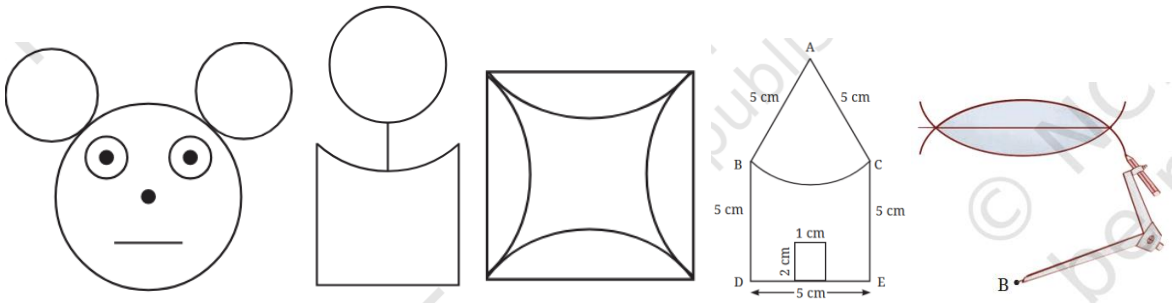
curiosity, making learning both enjoyable and memorable. The entire chapter is thoughtfully arranged in a gradual and learner-friendly manner, moving from concrete experiences to pictorial representations and then to symbolic forms. This structured approach supports clear understanding, strengthens retention, and helps students develop confidence in working with fractions.




**Chapter- 8 Playing with Constructions:**

The chapter begins with freehand drawing using a variety of figures, allowing learners to express their ideas freely and develop confidence in drawing shapes. This initial activity helps students connect their creativity with mathematical thinking and prepares them for more structured geometric concepts. It is followed by the construction of squares and rectangles, giving learners hands-on opportunities to explore properties such as equal sides, right angles, and parallel lines through active involvement.

As the chapter progresses, students engage in rich and imaginative activities such as the falling square, shading a square with one hole and with multiple holes, and drawing a square with curves and eyes. These tasks encourage visualisation, experimentation, and creative reasoning while deepening understanding of shape, space, and area. The chapter concludes with house construction, where students integrate all the ideas learned to design meaningful structures. This sequence of activities promotes creativity, spatial sense, problem-solving skills, and joyful learning, making geometry an engaging and accessible experience for all learners.



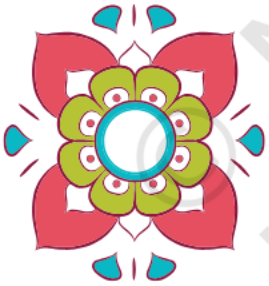
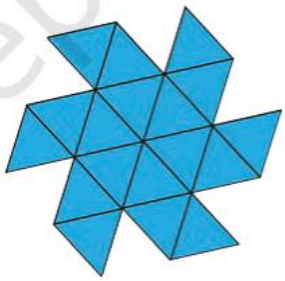

**Chapter- 9 Symmetry:**

Symmetry is introduced through a rich set of pictures drawn from everyday life, such as objects, patterns,

and natural forms that students commonly encounter. These familiar visuals help learners observe, identify, and recognize symmetry in a natural and intuitive way. By first noticing symmetry in their surroundings, students develop an informal understanding of the concept without the pressure of technical terms.

This experiential approach makes the idea of symmetry meaningful and relatable, allowing students to connect mathematics with real-world aesthetics and balance. Once students are comfortable identifying symmetry visually, the chapter gradually moves on to formal definitions, properties, and structured activities. This progression from observation to abstraction supports deeper conceptual understanding, strengthens visual reasoning, and helps students retain the concept more effectively.



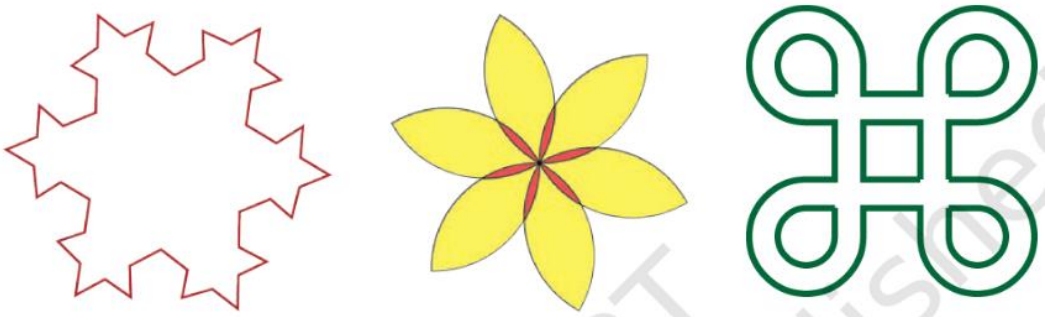



The symmetries observed in these beautiful structures are also explored in this chapter, helping learners connect geometry with art and architecture. Through carefully chosen real-world examples, students are encouraged to observe, identify, and draw lines of symmetry in various architectural forms such as monuments, buildings, and decorative designs. This visual exploration sharpens their observational skills and deepens their understanding of symmetrical patterns.

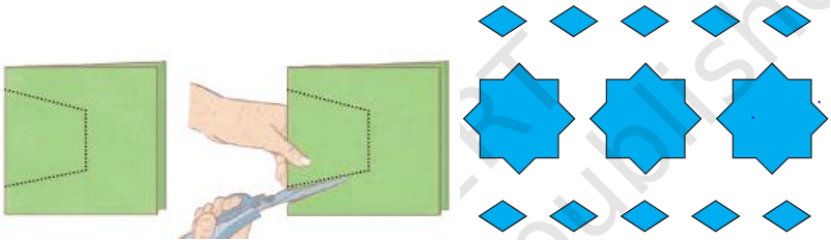
By engaging with such examples, learners also appreciate how symmetry contributes not only to aesthetic beauty but also to balance, stability, and harmony in structures. This integrated approach enables students to see symmetry as a functional and artistic concept, reinforcing the idea that mathematics plays an important role in design and construction. As a result, learning becomes richer, more meaningful, and closely connected to real-life experiences.



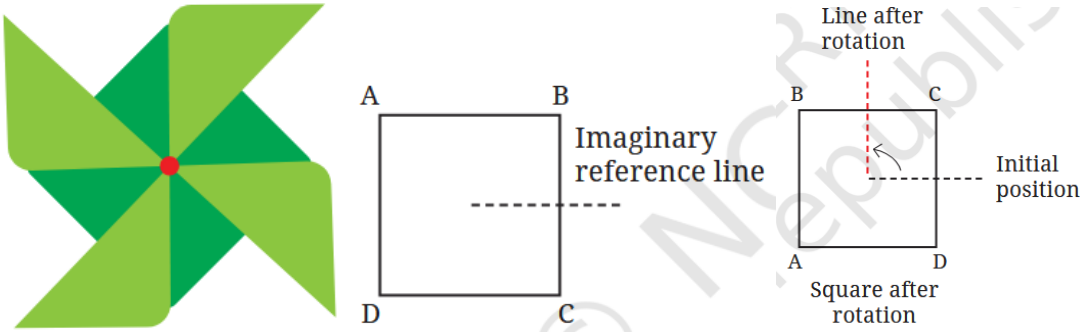
Some figures shown in the chapter involve multiple lines of symmetry. These examples encourage learners to explore and identify more than one line of symmetry in a single figure, thereby enhancing their visualisation skills, logical thinking, and overall understanding of symmetry.



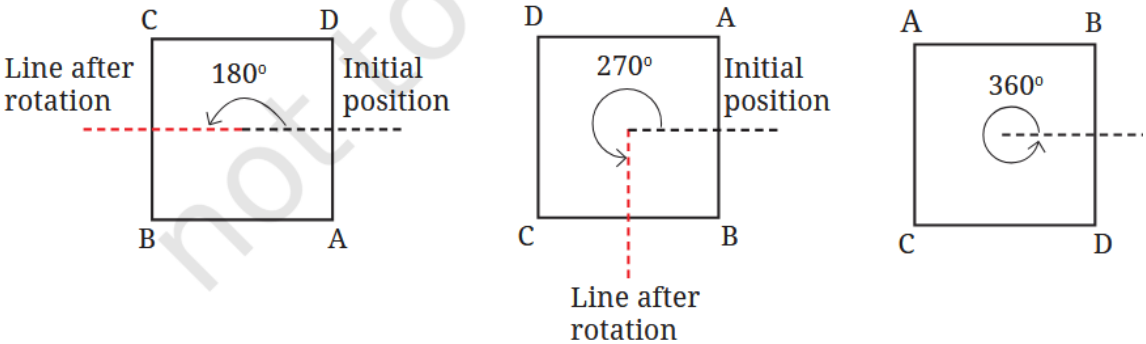
Through activities such as paper folding and cutting, students create symmetric patterns through hands-on exploration. These experiences actively engage learners and help them connect the idea of symmetry with real-life situations, thereby deepening their understanding and making learning more meaningful.



Rotational symmetry is explained with the help of a windmill and other illustrated figures. These familiar examples enable learners to observe how a figure looks the same after being rotated through certain angles, helping them understand the concept of rotational symmetry in an intuitive and visual manner.



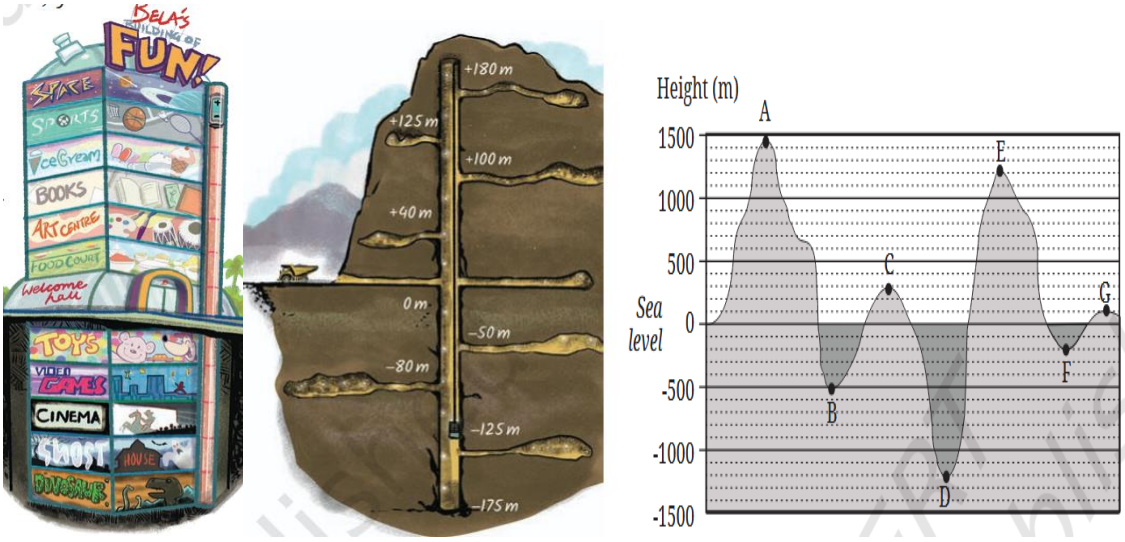

The angle of rotational symmetry is illustrated through the following figure. By observing the rotation of the figure through different angles, learners can identify the smallest angle at which the figure matches its original position, thereby developing a clear understanding of the concept of rotational symmetry.




**Chapter- 10 The Other Side of Zero:**

Integers are introduced through Bela's Building of Fun, an engaging context that makes the concept interactive and interesting for learners. This approach helps students relate abstract ideas to meaningful

situations. Other examples presented in the chapter are also creative and thoughtfully designed to sustain students' interest and promote better understanding of integers.




The concept of integers is visualised through these representations to support better understanding. Such visual models help learners grasp the ideas of addition and subtraction of integers in a concrete manner. The use of green and red tokens further supports learning by clearly representing positive and negative integers, making operations on integers simple, intuitive, and engaging for students. Snakes and Ladders games are given for play the integer

**Conclusion:**

The Grade 6 NCERT Mathematics textbook Ganita Prakash exemplifies the vision of NEP 2020 and NCF-SE 2023 by meaningfully integrating real-life applications into the teaching and learning of mathematics. Moving away from rote memorization, the textbook emphasizes conceptual understanding, logical reasoning, exploration, and problem-solving through familiar contexts drawn from students' everyday experiences. Across all 10 chapters, mathematical ideas are introduced using food items, animals, games, nature, art, architecture, travel, and social settings, enabling learners to naturally connect abstract concepts with the real world. This approach not only enhances engagement and motivation but also helps students perceive mathematics as a living, useful, and enjoyable discipline.

The learner-centred and constructivist pedagogy of Ganita Prakash is reflected in its rich use of hands-on activities, visual representations, open-ended questions, puzzles, discussions, and projects. Concepts are developed progressively through observation, experimentation, and reflection, supported by a spiral design that revisits ideas with increasing depth. Inclusive and flexible teaching strategies, along with collaborative learning opportunities, help address diverse learner needs while reducing fear and anxiety associated with mathematics. The strong focus on communication through explanations, diagrams, tables, and graphs—further strengthens clarity of thought and confidence among learners.

Assessment in Ganita Prakash is seamlessly embedded within the learning process and focuses on competencies such as understanding, reasoning, application, and communication. Through formative, continuous, and activity-based assessment practices, students are encouraged to explore multiple strategies, justify their thinking, and apply mathematics in meaningful contexts. Ganita Prakash lays a strong foundation for higher mathematical learning by nurturing curiosity, creativity, and independence, preparing students to become confident, thoughtful, and competent problem-solvers who can effectively use mathematics in both academic and real-life situations.

**References:**

1. Freudenthal, H. (1973). Mathematics as an educational task. Reidel Publishing.
2. Kaprekar, D. R. (1955). An interesting property of the number 6174. Indian Mathematical Society.
3. Ministry of Education, Government of India. (2020). National Education Policy 2020. Government of India.
4. National Council of Educational Research and Training. (2023). Ganita Prakash: Mathematics textbook for Class VI. NCERT.
5. National Council of Educational Research and Training. (2023). Learning outcomes at the elementary stage. NCERT.
6. National Council of Educational Research and Training. (2023). National Curriculum Framework for School Education (NCF 2023). NCERT.
7. Polya, G. (1957). How to solve it: A new aspect of mathematical method. Princeton University Press.
8. Skemp, R. R. (1976). Relational understanding and instrumental understanding. Mathematics Teaching, 77, 20–26.