

CLASS VIII MATHEMATICS (GANITA PRAKASH)

Chapter 1: A Square and A Cube

Learning Objectives

Understand square and cube numbers.

Identify patterns in square and cube sequences.

Apply concepts in daily life.

Learning Outcomes

Find square and cube numbers.

Solve problems involving squares and cubes.

Pedagogical Strategies

Activity-based learning

Inquiry-based questioning

Think-Pair-Share

Art Integration

Rangoli designs using square numbers

Cube pattern drawings

Experiential Learning

Construct cubes using unit blocks.

Computational Thinking

Pattern recognition and prediction.

STEM Integration

Build 3D cube structures and calculate volume.

Assessment

Oral questions, worksheets, MCQs.

Remedial Measures

Use concrete models and number charts.

*Chapter 2: Power Play

Learning Objectives*

Understand exponents and powers.

Use exponential notation.

Learning Outcomes

Simplify powers and apply exponent rules.

Pedagogical Strategies

Demonstration method

Problem-solving approach

Art Integration

Poster on powers in nature.

Experiential Learning

Repeated multiplication activities.

Computational Thinking

Identify shortcuts and repeated patterns.

STEM Integration

Explore scientific notation used in astronomy and computing.

Assessment

Quiz, worksheets, HOTS questions.

Remedial Measures

Practice with repeated multiplication examples.

Chapter 3: A Story of Numbers

Learning Objectives

Understand the development of number systems.

Learning Outcomes

Explain evolution of numbers and numeral systems.

Pedagogical Strategies

Storytelling method

Collaborative learning

Art Integration

Timeline and historical charts.

Experiential Learning

Research famous mathematicians.

Computational Thinking

Compare and analyze numbering systems.

STEM Integration

Explore coding systems and binary numbers.

Assessment

Project work and presentations.

Remedial Measures

Visual timelines and videos.

Chapter 4: Quadrilaterals

Learning Objectives

Identify and classify quadrilaterals.

Learning Outcomes

Describe properties of quadrilaterals.

Pedagogical Strategies

Demonstration

Discovery learning

Art Integration

Geometric designs and patterns.

Experiential Learning

Survey classroom objects.

Computational Thinking

Compare, classify, and categorize shapes.

STEM Integration

Design house floor plans using quadrilaterals.

Assessment

Drawing activities and worksheets.

Remedial Measures

Shape sorting and paper-folding activities.

Chapter 5: Number Play

Learning Objectives

Explore number patterns.

Learning Outcomes

Solve puzzles using logical reasoning.

Pedagogical Strategies

Puzzle-based learning

Group discussion

Art Integration

Number pattern posters.

Experiential Learning

Magic square activities.

Computational Thinking

Pattern identification and sequencing.

STEM Integration

Coding simple numerical patterns.

Assessment

Puzzle-solving activities.

Remedial Measures

Guided practice with simpler patterns.

Chapter 6: We Distribute, Yet Things Multiply

Learning Objectives

Understand distributive property.

Learning Outcomes

Expand and simplify expressions.

Pedagogical Strategies

Concrete to abstract approach

Guided practice

Art Integration

Algebra concept maps.

Experiential Learning

Algebra tiles activity.

Computational Thinking

Decompose complex expressions.

STEM Integration

Spreadsheet-based algebra exploration.

Assessment

Worksheets and quizzes.

Remedial Measures

Manipulatives and visual aids.

Chapter 7: Proportional Reasoning – I

Learning Objectives

Understand ratios and proportions.

Learning Outcomes

Solve ratio-based problems.

Pedagogical Strategies

Real-life examples

Cooperative learning

Art Integration

Ratio-based drawings and enlargements.

Experiential Learning

Recipe scaling activity.

Computational Thinking

Analyze relationships between quantities.

STEM Integration

Scale models and map reading.

Assessment

Application-based questions.

Remedial Measures

Use concrete examples and visuals.

Term 2

Chapter 8: Fractions in Disguise

Learning Objectives

Understand equivalent fractions.

Learning Outcomes

Simplify and compare fractions.

Pedagogical Strategies

Visual learning

Activity-based teaching

Art Integration

Fraction collage.

Experiential Learning

Paper folding and fraction strips.

Computational Thinking

Recognize equivalence patterns.

STEM Integration

Digital fraction simulations.

Assessment

Worksheets and oral tests.

Remedial Measures

Fraction strips and pictorial representations.

Chapter 9: The Baudhayana–Pythagoras Theorem

Learning Objectives

Verify and apply Pythagoras Theorem.

Learning Outcomes

Find unknown sides of right triangles.

Pedagogical Strategies

Demonstration method

Investigation approach

Art Integration

Pythagoras Tree artwork.

Experiential Learning

Measure school ground diagonals.

Computational Thinking

Apply logical mathematical relationships.

STEM Integration

Architectural and bridge design applications.

Assessment

Practical activities and worksheets.

Remedial Measures

Hands-on demonstrations.

Chapter 10: Proportional Reasoning – II

Learning Objectives

Apply proportional reasoning.

Learning Outcomes

Solve real-life proportional problems.

Pedagogical Strategies

Case-study approach

Inquiry-based learning

Art Integration

Data infographics.

Experiential Learning

Speed-distance investigations.

Computational Thinking

Mathematical modelling.

STEM Integration

Engineering scale models.

Assessment

Real-life problem-solving tasks.

Remedial Measures

Stepwise guided examples.

Chapter 11: Exploring Some Geometric Themes

Learning Objectives

Explore geometric patterns and symmetry.

Learning Outcomes

Create tessellations and geometric designs.

Pedagogical Strategies

Discovery learning

Visual learning

Art Integration

Warli and Madhubani geometric art.

Experiential Learning

Tessellation creation.

Computational Thinking

Analyze repeating patterns.

STEM Integration

GeoGebra exploration and design.

Assessment

Art-integrated projects.

Remedial Measures

Use cut-outs and manipulatives.

Chapter 12: Tales by Dots and Lines

Learning Objectives

Understand coordinate systems.

Learning Outcomes

Plot points and interpret graphs.

Pedagogical Strategies

Demonstration and guided practice

Art Integration

Coordinate art.

Experiential Learning

School map plotting activity.

Computational Thinking

Organize and represent information systematically.

STEM Integration

GPS and digital mapping applications.

Assessment

Graph plotting activities.

Remedial Measures

Additional graph paper practice.

Chapter 13: Algebra Play

Learning Objectives

Understand variables and equations.

Learning Outcomes

Form and solve equations.

Pedagogical Strategies

Problem-solving method

Collaborative learning

Art Integration

Algebra mind maps.

Experiential Learning

Algebra card games.

Computational Thinking

Mathematical modelling and abstraction.

STEM Integration

Coding simple equations and patterns.

Assessment

Worksheets, quizzes, MCQs.

Remedial Measures

Concrete examples before symbols.

Chapter 14: Area

Learning Objectives

Understand and calculate area.

Learning Outcomes

Find areas of regular and composite figures.

Pedagogical Strategies

Demonstration and experiential learning

Art Integration

Design a garden or park layout.

Experiential Learning

Measure classroom and playground areas.

Computational Thinking

Select appropriate formulas and strategies.

STEM Integration

Architecture, land planning, and interior design projects.

Assessment

Practical measurement activities.

Remedial Measures

Grid paper activities and formula charts.