

E-Vidya Mathematics Curriculum: Complete Learning Journey

Comprehensive Mathematics Program for Classes 6-12

Overview

E-Vidya's innovative mathematics curriculum transforms traditional learning into an engaging, gamified educational experience. Each class level features a unique game-based approach designed to master specific mathematical concepts while maintaining student interest and motivation.

Class 6: Number Quest - Island Adventure

Game Theme: Number Quest

Adventure Setting: Players sail between mystical islands, each harboring mathematical mysteries and challenges.

Core Learning Objectives:

- **Prime Numbers & Factorization:** Discover the building blocks of all numbers
- **Least Common Multiple (LCM):** Find common ground between different numbers
- **Greatest Common Divisor (GCD):** Identify shared factors efficiently
- **Multiples & Patterns:** Recognize numerical relationships and sequences
- **Divisibility Rules:** Master quick mental math techniques

Game Mechanics:

Students navigate their ship between islands, each presenting unique mathematical puzzles. Success in solving factorization challenges unlocks valuable resources needed for their journey. Pirates guard treasure chests filled with prime number secrets, while mysterious caves hide LCM and GCD puzzles that must be solved to progress.

Key Skills Developed:

- Mental arithmetic speed and accuracy
- Pattern recognition abilities
- Logical reasoning with numbers
- Problem-solving persistence

- Basic number theory understanding

Class 7: Geometry Builder - City Construction

Game Theme: Geometry Builder

Construction Setting: Students become master architects, designing and building magnificent cities using geometric principles.

Core Learning Objectives:

- **Angles & Their Relationships:** Understand complementary, supplementary, and vertical angles
- **Perimeter Calculations:** Master measurement of boundaries
- **Area Computation:** Calculate space within geometric shapes
- **Basic Geometric Theorems:** Introduction to mathematical proofs
- **Pythagorean Theorem Introduction:** Foundation for advanced geometry

Game Mechanics:

Players receive construction contracts requiring specific geometric shapes and measurements. Each building project demands precise angle calculations and area computations. Materials are unlocked by solving perimeter puzzles, while advanced structures require understanding of basic theorems. The city grows more magnificent with each geometric challenge conquered.

Key Skills Developed:

- Spatial visualization abilities
- Measurement precision and accuracy
- Introduction to mathematical reasoning
- Real-world application of geometry
- Foundation for trigonometry concepts

Class 8: Algebra Arena - Mathematical Battles

Game Theme: Algebra Arena

Combat Setting: Students engage in strategic mathematical duels against AI opponents in an epic arena.

Core Learning Objectives:

- **Linear Equations:** Master single-variable problem solving
- **Quadratic Factoring:** Understand polynomial relationships
- **Systems of Equations:** Solve multiple variable problems
- **Substitution Method:** Strategic problem-solving technique
- **Elimination Method:** Alternative solution strategies

Game Mechanics:

Each mathematical battle requires solving algebraic equations to execute moves. Correct solutions drain opponent's health points, while errors leave players vulnerable. Advanced techniques unlock powerful combination attacks. Tournament progression depends on mastering increasingly complex equation systems.

Key Skills Developed:

- Abstract mathematical thinking
- Strategic problem-solving approaches
- Equation manipulation techniques
- Variable relationship understanding
- Preparation for advanced algebra

Class 9: Trigonometry Tower - Angle Mastery

Game Theme: Trigonometry Tower

Climbing Challenge: Students scale a mysterious tower by solving increasingly complex angle problems.

Core Learning Objectives:

- **Trigonometric Ratios:** Master sine, cosine, and tangent
- **Right Triangle Solutions:** Apply trigonometry to real problems
- **Angle Calculations:** Precision in angular measurements
- **Unit Circle Introduction:** Foundation for advanced trigonometry
- **Practical Applications:** Real-world problem solving

Game Mechanics:

Each tower level presents angle-based challenges that must be solved to climb higher. Trigonometric ratios unlock special tools and pathways. Right triangle puzzles guard treasure rooms, while unit circle knowledge opens secret passages. Reaching the tower's peak requires mastering all trigonometric concepts.

Key Skills Developed:

- Angular thinking and visualization
- Trigonometric function understanding
- Calculator proficiency for complex calculations
- Bridge between algebra and advanced mathematics
- Preparation for calculus concepts

Class 10: Probability Ludo - Strategic Thinking

Game Theme: Probability Ludo

Card Strategy Game: Students master probability through strategic card game mechanics.

Core Learning Objectives:

- **Basic Probability Theory:** Understanding chance and likelihood
- **Expected Value Calculations:** Predicting long-term outcomes
- **Combinations:** Counting without regard to order
- **Permutations:** Counting with order significance
- **Statistical Decision Making:** Using math for strategic choices

Game Mechanics:

Players make strategic decisions based on probability calculations. Each card play requires evaluating expected outcomes and risk assessment. Combination and permutation challenges unlock special abilities, while statistical thinking determines optimal strategies for victory.

Key Skills Developed:

- Statistical reasoning abilities
- Risk assessment and management
- Strategic decision-making skills
- Real-world application of probability
- Foundation for data science concepts

Class 11: Calculus Ramp - Motion Mastery

Game Theme: Calculus Ramp

Physics Engineering: Students design ramps and trajectories using calculus principles.

Core Learning Objectives:

- **Limits:** Understanding approaching values
- **Derivatives:** Rate of change calculations
- **Slope Interpretation:** Physical meaning of mathematical concepts
- **Basic Integration:** Area under curve calculations
- **Optimization Basics:** Finding maximum and minimum values

Game Mechanics:

Engineering challenges require designing optimal paths using calculus. Derivative calculations control vehicle speeds and trajectories. Integration problems determine fuel consumption and distance traveled. Optimization techniques ensure mission success with limited resources.

Key Skills Developed:

- Advanced mathematical reasoning
- Real-world engineering applications
- Understanding of rate and accumulation
- Bridge between geometry and advanced mathematics
- Preparation for higher-level calculus

Class 12: Matrix Lab - Transformation Science

Game Theme: Matrix Lab

Scientific Laboratory: Students conduct mathematical experiments using matrix operations.

Core Learning Objectives:

- **Matrix Operations:** Addition, subtraction, and multiplication
- **Determinants:** Understanding matrix properties
- **Matrix Inverses:** Solving complex equation systems
- **Linear Transformations:** Geometric applications of matrices
- **System Solutions:** Advanced problem-solving techniques

Game Mechanics:

Laboratory experiments require precise matrix calculations to unlock equipment and progress research. Determinant computations control experimental parameters, while inverse matrices solve complex system puzzles. Transformation challenges reveal hidden patterns and relationships.

Key Skills Developed:

- Advanced algebraic manipulation
- System thinking and organization
- Preparation for linear algebra
- Engineering and physics applications
- Abstract mathematical reasoning

Program Benefits

Comprehensive Skill Development:

- **Progressive Difficulty:** Each level builds upon previous knowledge
- **Real-World Applications:** Practical use of mathematical concepts
- **Gamified Learning:** Maintains engagement and motivation
- **Adaptive Pacing:** Students progress at their own speed
- **Achievement Recognition:** Celebration of mathematical milestones

Educational Outcomes:

- Improved mathematical confidence and competence
- Enhanced problem-solving abilities
- Stronger foundation for higher education
- Better preparation for competitive examinations
- Development of logical thinking skills

Assessment and Progress Tracking

Continuous Evaluation:

- Real-time performance monitoring
- Adaptive difficulty adjustment
- Detailed progress reports for students and parents
- Identification of learning gaps and strengths

- Personalized learning recommendations

Achievement System:

- Level completion certificates
- Skill mastery badges
- Progress milestone rewards
- Competitive leaderboards
- Portfolio of completed challenges

This comprehensive curriculum ensures students develop strong mathematical foundations while enjoying their learning journey through innovative game-based education.