

GRADE 7 MATHEMATICS

The Seventh Grade Mathematics curriculum features an in-depth, integrated preparation for algebra and geometry. Concepts include basic operations with fractions, decimals, percents and integers, number theory, measurement, data interpretation, geometry and algebraic concepts. A variety of problem-solving techniques, real-world applications and technology will be used when applying these concepts. This course is designed to prepare students for eighth grade mathematics or Algebra I.

NUMBER SENSE AND OPERATIONS

- 7.N1 Compare, order and estimate positive fractions, positive decimals, and percents.
- 7.N1 Translate among fractions, decimals, and percents.
- 7.N7 Add, subtract, multiply and divide fractions, decimals, and percents.
- 7.N1 Compare, order, estimate and compute integers.
- 7.N3 Represent numbers using standard form, exponential, and scientific notation (positive powers of ten).
- 7.N4 Understand the meaning of absolute value.
- 7.N5 Understand and apply the Order of Operations including positive integer exponents.
- 7.N7 Identify and use properties of arithmetic operations on positive rational numbers.
- 7.N2 Understand, apply, and explain ratios and proportions.
- 7.N2 Be able to solve proportions by a variety of methods.
- 7.N6 Use inverse relationships of addition and subtraction, multiplication and division to simplify computation.
- 7.N9 Use powers of ten to multiply and divide decimals.
- 7.N9 Apply and explain a variety of math concepts, skills, and processes to solve problems.

PATTERNS, RELATIONS AND ALGEBRA

- 7.P1 Describe and extend patterns and sequences, including arithmetic and geometric.
- 7.P2 Evaluate simple algebraic expressions.
- 7.P3 Translate between simple algebraic expressions and verbal phrases.
- 7.P4 Solve linear equations using the addition, subtraction, multiplication and division properties of equality with integer solutions.
- 7.P5 Identify, describe and analyze linear relationships between two variables.
- 7.N6 Use algebraic concepts to solve problems.

GEOMETRY

- 7.G1 Identify polygons to ten sides.
- 7.G2 Classify and compare the properties of quadrilaterals.
- 7.G2 Classify triangles by sides and angles.
- 7.G3 Locate and identify angles formed by parallel lines cut by a transversal.
- 7.G2 Identify congruent segments, angles, and polygons.
- 7.G2 Identify corresponding parts in similar polygons.
- 7.G7 Identify three dimensional figures.
- 7.G7 Develop relationships of faces, vertices, and edges of 3-dimensional figures.
- 7.G4 Graph points and identify coordinates of points on the Cartesian coordinate plane.
- 7.G6 Perform transformations (reflections and translations) of figures on the coordinate plane.
- 8.G4 Develop and apply the Pythagorean Theorem to find missing sides of right triangles.

MEASUREMENT

- 7.M1 Convert within a standard measurement system
- 7.M2 Given the formula, convert from one system of measure to another.
- 7.M3 Find perimeter and area of polygons.
- 7.M3 Find circumference and area of circles.
- 7.M3 Find surface area and volume of rectangular prisms and cylinders.

DATA ANALYSIS, STATISTICS AND PROBABILITY

- 7.D1 Collect, organize, display and interpret data using frequency tables, histograms, line plots, stem-and-leaf plots, scatter plots, bar, line and circle graphs.
- 7.D1 Interpret Venn diagrams.
- 7.D2 Determine measures of central tendency including range, mean, median, mode and outlier.
- 7.D3 Determine theoretical or experimental probability by using tree diagrams, tables, organized lists and area models for simple compound events.

TECHNOLOGY RESOURCES

- Calculators
- Graphing calculators
- Computer software
- Online resources

RESOURCES

Charles, Randall I. et al. Mathematics, Course 2, Upper Saddle River, New Jersey; Prentice Hall, Inc., 2004.

Online MCAS Preparation Program: www.studyisland.com

Software: Understanding Math

Online: www.phsuccessnet.com

ASSESSMENT STRATEGIES

- Student work samples
- Teacher observation
- Class participation, written and oral
- Class work
- Homework
- Math Journal
- Class projects and presentations
- Quizzes
- Tests