Spark Learn Tutoring
Digital Learning Center

Syllabus	CCSS Pre-Algebra

The eighth-grade mathematics course, aligned with the Common Core State Standards, offers students a comprehensive and in-depth exploration of key mathematical concepts and skills. Through a combination of problem-solving activities, investigations, and collaborative projects, students will delve into topics such as linear equations, functions, geometric transformations, data analysis, and probability. By emphasizing critical thinking, mathematical reasoning, and application of mathematical models, this course aims to provide students with a strong foundation in mathematics, preparing them for the challenges of high school mathematics and beyond.

Time Commitment: This 31-week (62 lesson) course includes 2 in-class hours each week and 1-2 hours of homework each lesson, corresponding to a full-year course.

Grading: 5% Class Participation, 10% Homework, 15% Classwork, 33% Quizzes, 37% Assessments.

Content: *Note: An extra class is added at the end of each unit for review and assessment of the material learned.*

Course Pacing Guide:

Unit	Name	Lessons	Length
1	Algebra of One Variable	• Lesson 1-1: Signed Numbers, Variables, and Expressions • Lesson 1-2: Combining Like Terms & 2 Step Equations • Lesson 1-3: Multi Step Equations • Lesson 1-4: More Multi Step Equations and Modeling • Lesson 1-5: More Equation Modeling & Identities	3 weeks
2	Tools of Geometry	• Lesson 2-1: Starting Concepts & Angles • Lesson 2-2: Angle Pairs and Geometric Terminology • Lesson 2-3: Parallel Lines • Lesson 2-4: Coordinate Geometry and Congruent Figures • Lesson 2-5: Congruent Triangles	3 weeks
3	Transformations	• Lesson 3-1: Introduction to Transformations & Reflections • Lesson 3-2: Horizontal, Vertical Lines, and Reflection in CP • Lesson 3-3: Rotations • Lesson 3-4: Translations • Lesson 3-5: Transformations, Congruent Figures, and Rigid Motions • Lesson 3-6: Angle Sums and Exterior Angles in a Triangle • Lesson 3-7: Isosceles Triangles & Modeling Geometry with Algebra	4 weeks
4	Similarity and Dilations	• Lesson 4-1: Dilations and Proportional Variables • Lesson 4-2: Dilations • Lesson 4-3: Similar Figures • Lesson 4-4: Mapping Similarity & Angle-Angle Criteria for Triangles • Lesson 4-5: Similar Triangles and Parallel Lines	3 weeks

5	Linear Expressions	• Lesson 5-1: Proportional Relationships • Lesson 5-2: Slope, Similarity, and Equations of Lines • Lesson 5-3: Slopes and Negative Numbers • Lesson 5-4: Finding the Slope of a Line & Systems of Equations • Lesson 5-5: Solving Systems Algebraically & Parallel Lines in the CP	3 weeks
6	Linear Equations and Inequalities	• Lesson 6-1: Introduction to Functions • Lesson 6-2: Average Rate of Change & Linear Functions • Lesson 6-3: Linear and Non-Linear Functions • Lesson 6-4: Solving Word Problems with Two Step Equations • Lesson 6-5: Properties and Modeling of Inequalities	3 weeks
7	Exponents and Roots	• Lesson 7-1: Exponents • Lesson 7-2: Simplifying Fractions & Exponent Rules • Lesson 7-3: Exponent Practice & Square Roots • Lesson 7-4: Square Roots and Cube Roots	2.5 weeks
8	Probability	• Lesson 8-1: Pythagorean Theorem & Converse • Lesson 8-2: Pythagorean Theorem & Distance in the CP • Lesson 8-3: Understanding the Pythagorean Theorem	2 weeks
9	Volume and Surface Area of Solids	• Lesson 9-1: Volume/SA of Prisms and Circumference/Area of Circle • Lesson 9-2: Volumes and Surface Area of Cylinder • Lesson 9-3: Cones and Spheres	2 weeks
10	Scientific Notation	• Lesson 10-1: Multiplying by Powers of 10 & Scientific Notation • Lesson 10-2: Operations with Numbers in Scientific Notation • Lesson 10-3: Applications of Scientific Notations	2 weeks
11	Systems of Equations	• Lesson 11-1: Systems of Equations & Substitution • Lesson 11-2: Solving by Elimination and Modeling Systems	1.5 weeks
12	Statistics of Two Variables	• Lesson 12-1: Scatter Plots and Lines of Best Fit • Lesson 12-2: The Strength of a Linear Fit & Categorical Data • Lesson 12-3: Understanding Associations in Categorical Data	2 weeks