

Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Fundamentals of Algebra

Time Allotment: 18 Days

Unit Sequence: 1

Major Concepts to be learned:

- Variables & Expressions (1-1)
- Write algebraic expressions (1-2)
- Solve one-step equations and inequalities using addition, subtraction, division, and multiplication (1-3, 1-4, 1-5)
- Combining Like Terms (1-6)
- Write solutions of equations in two variables as ordered pairs. (1-7)
- Graph points and lines on a coordinate plane. (1-8)

Expected Skills to be demonstrated:

- Evaluate algebraic expressions
- Write algebraic expressions
- Solve equations using addition, subtraction, multiplication, & division
- Solve & graph inequalities
- Combine like terms in an expression
- Write solutions of equations in two variables as ordered pairs
- Graph points and lines on the coordinate plane

PA Standards/Anchors:

CC.2.2.7.B.1
CC.2.2.7.B.3

Eligible Content:

M07.B-E.1.1.1 A.1.1.1.4.1
M07.B-E.2.1.1
M07.B-E.2.2.1
M07.B-E.2.2.2
M07.B-E.2.3.1

Instructional Strategies:

Assessments:

Cooperative groups
Lectures
Hands-on activities
Math Binders

Problem solving activities
Group Discussions
Note-Taking
Scientific Calculators

Homework Discussion & Review
Section quizzes
Chapter Test
Binder Quiz

Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Integers & Exponents

Time Allotment: 24 Days

Unit Sequence: 2

Major Concepts to be learned:

- Add, subtract, multiply, & divide integers (2-1, 2-2, 2-3)
- Solve equations and inequalities containing integers (2-4, 2-5)
- Evaluate expressions involving exponents (2-6, 2-7)

Expected Skills to be demonstrated:

- Add, subtract, multiply, and divide integers
- Solve equations and inequalities involving integers
- Evaluate expressions with exponents
- Apply properties of exponents and evaluate the zero exponent

PA Standards/Anchors:

Eligible Content:

CC.2.1.7.E.1	M07.A-N.1.1.1	M08.B-E.1.1.1	A.1.1.1.3.1
CC.2.2.8.B.1	M07.A-N.1.1.2	M08.B-E.1.1.2	
	M07.A-N.1.1.3	M08.B-E.1.1.3	
		M08.B-E.1.1.4	

Instructional Strategies:

Assessments:

Cooperative groups	Problem solving activities	Homework Discussion & Review
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Math Binders	Scientific Calculators	Binder Quiz

Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Real Number System

Time Allotment: 20 Days

Unit Sequence: 3

Major Concepts to be learned:

- Rational Numbers (3-1)
- Adding, Subtracting, Multiplying, & Dividing Rational Numbers (3-2, 3-3, 3-4, 3-5)
- Solving Equations and Inequalities with Rational Numbers. (3-6, 3-7)
- Squares & Square Roots (3-8, 3-9)

Expected Skills to be demonstrated:

- Write rational numbers in equivalent forms
- Add, subtract, multiply, & divide decimals, rational numbers, and mixed numbers
- Solve equations & inequalities with rational numbers
- Find square roots
- Estimate square roots to a given number of decimal places and solve problems involving square roots

PA Standards/Anchors:

Eligible Content:

CC.2.1.7.E.1
CC.2.1.8.E.4

M07.A-N.1.1.1	M08.A-N.1.1.3
M07.A-N.1.1.2	M08.A-N.1.1.4
M07.A-N.1.1.3	M08.A-N.1.1.5

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Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Statistics & Data Analysis

Time Allotment: 10 Days

Unit Sequence: 4

Major Concepts to be learned:

- Samples & Surveys (4-1)
- Measures of Central Tendency (4-3)
- Variability (4-4)
- Mean Absolute Deviation (Ext.)

Expected Skills to be demonstrated:

- Recognize biased samples and identify sampling methods
- Find appropriate measures of central tendency
- Find measures of variability
- Find the mean absolute deviation

PA Standards/Anchors:

Eligible Content:

CC.2.4.7.B.1	CC.2.4.8.B.1	M07.D-S.1.1.1	M08.D-S.1.1.1	A.1.2.2.2.1
CC.2.4.7.B.2	CC.2.4.8.B.2	M07.D-S.1.1.2	M08.D-S.1.1.2	
		M07.D-S.2.1.1	M08.D-S.1.1.3	
			M08.D-S.1.2.1	

Instructional Strategies:

Assessments:

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Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Basic Geometry

Time Allotment: 10 Days

Unit Sequence: 5

Major Concepts to be learned:

- Points, Lines, Planes, and Angles (5-1)
- Parallel & Perpendicular Lines (5-2)
- Triangles (5-3)
- Triangle Inequality Theorem (Ext.)

Expected Skills to be demonstrated:

- Classify & name figures
- Identify parallel and perpendicular lines and the angles formed by a transversal
- Find unknown angles in triangle
- Classify triangles based on their angle measures and side lengths
- Use the Triangle Inequality Theorem to determine whether 3 side lengths could form a triangle.

PA Standards/Anchors:

Eligible Content:

CC.2.3.7.A.1
CC.2.3.7.A.2

M07.C-G.1.1.1
M07.C-G.1.1.2
M07.C-G.1.1.3
M07.C-G.1.1.4

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Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Perimeter, Area, & Volume

Time Allotment: 15 Days

Unit Sequence: 6

Major Concepts to be learned:

- Perimeter & Area of Rectangles, Parallelograms, Triangles, & Trapezoids (6-1, 6-2)
- Pythagorean Theorem (6-3)
- Circles (6-4)
- Volume and Surface Area of Rectangular Prisms (6-6, 6-8)

Expected Skills to be demonstrated:

- Find the perimeter & area of rectangles, parallelograms, triangles, & trapezoids
- Use the Converse of the Pythagorean Theorem to determine whether or not 3 given side lengths would form a right triangle.
- Use the Pythagorean Theorem to find missing sides of right triangles
- Use the Pythagorean Theorem to find the distance between two points on the coordinate plane
- Find the area and circumference of circles
- Find the volume & surface area of rectangular prisms

PA Standards/Anchors:

Eligible Content:

CC.2.3.7.A.1
CC.2.3.7.A.2

M07.C-G.1.1.1 M07.C-G.2.2.1
M07.C-G.1.1.2 M07.C-G.2.2.2
M07.C-G.1.1.3
M07.C-G.1.1.4
M07.C-G.2.1.1
M07.C-G.2.1.2

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Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Ratios, Rates, & Proportions

Time Allotment: 10 Days

Unit Sequence: 7

Major Concepts to be learned:

- Ratios, Rates, Unit Rates, & Proportions (7-1, 7-2)
- Solving Proportions (7-4)
- Scale Drawings & Scale Models (7-7, 7-8)

Expected Skills to be demonstrated:

- Find equivalent ratios to create proportions
- Calculate rates, unit rates, & unit prices
- Solve proportions using the cross-product property
- Make comparisons between and find dimensions of scale drawings and actual objects
- Make comparisons between and find dimensions of scale models and actual objects

PA Standards/Anchors:

Eligible Content:

CC.2.1.7.D.1	M07.A-R.1.1.1 M07.A-R.1.1.2 M07.A-R.1.1.3 M07.A-R.1.1.4 M07.A-R.1.1.5 M07.A-R.1.1.6
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Instructional Strategies:

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Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Percents

Time Allotment: 27 Days

Unit Sequence: 8

Major Concepts to be learned:

- Relating Decimals, Fractions, & Percents (8-1)
- Finding Percents (8-2)
- Finding a Number When the Percent is Known (8-3)
- Percent Increase & Decrease (8-4)
- Applications with Percents (8-6, 8-7)

Expected Skills to be demonstrated:

- Relate & convert between decimals, fractions, and percents
- Find percents
- Find a number when the percent is known
- Find percent increase & decrease
- Find commission, sales tax, and withholding tax
- Compute simple interest

PA Standards/Anchors:

CC.2.1.7.D.1

Eligible Content:

M07.A-R.1.1.1
M07.A-R.1.1.2
M07.A-R.1.1.3
M07.A-R.1.1.4
M07.A-R.1.1.5
M07.A-R.1.1.6

Instructional Strategies:

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Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Probability

Time Allotment: 5 Days

Unit Sequence: 9

Major Concepts to be learned:

- Probability (9-1)
- Experimental Probability (9-2)
- Theoretical Probability (9-4)

Expected Skills to be demonstrated:

- Find the probability of an event by using the definition of probability
- Estimate probability using experimental methods
- Estimate probability using theoretical methods

PA Standards/Anchors:

CC.2.4.7.B.3

Eligible Content:

M07.D-S.3.1.1
M07.D-S.3.2.1
M07.D-S.3.2.2
M07.D-S.3.2.3

Instructional Strategies:

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Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Equations

Time Allotment: 10 Days

Unit Sequence: 10

Major Concepts to be learned:

- Solving Two-Step Equations (10-1)
- Solving Multi-Step Equations (10-2)
- Solving Equations with Variables on Both Sides (10-3)
- Solving Multi-Step Inequalities (10-4)

Expected Skills to be demonstrated:

- Solve two-step equations
- Solve multi-step equations
- Solve equations with variables on both sides of the equal sign
- Solve two-step inequalities and graph the solutions of an inequality on a number line

PA Standards/Anchors:

Eligible Content:

CC.2.2.7.B.3	M07.B-E.2.1.1	M08.B-E.3.1.1	A1.1.1.4.1
CC.2.2.8.B.3	M07.B-E.2.2.1	M08.B-E.3.1.2	A1.1.2.1.1
	M07.B-E.2.2.2	M08.B-E.3.1.3	A1.1.2.2.1
	M07.B-E.2.3.1	M08.B-E.3.1.4	A1.1.2.2.2
		M08.B-E.3.1.5	

Instructional Strategies:

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Grade Level: 7th

Course Title: Pre-Algebra

Topic/Concept: Graphing Linear Equations

Time Allotment: 10 Days

Unit Sequence: 11

Major Concepts to be learned:

- Graphing Linear Equations (11-1)
- Slope of a Line (11-2)
- Using Slopes & Intercepts (11-3)

Expected Skills to be demonstrated:

- Identify linear equations
- Graph linear equations by making a table
- Use slopes & intercepts to graph a linear equation

PA Standards/Anchors:

CC.2.2.8.B.2
CC.2.2.8.C.2

Eligible Content:

M08.B-E.2.1.1	A1.1.2.1.3
M08.B-E.2.1.2	A1.2.1.1.1
M08.B-E.2.1.3	A1.2.1.2.2
M08.B-F.2.1.1	A1.2.2.1.3
M08.B-F.2.1.2	A1.2.2.1.4

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