Argenta-Oreana High School
Algebra I
Textbook: Algebra I
<Pearson Prentice Hall, 2007

Date Semester	Illinois Learning Standards	Unit and/or Essential Question Content and/or Skills	Assessments and/or Products
Semester 1 August September	8.A,8.B.4a 8.C 8.A 7.A.4a, 8.A.4b, 8.B.4a 8.D, 10.A.04b	**Chapter 1: Introduction to Algebra** • **1.1 Using Variables** – write algebraic expressions and algebraic equations; real-world problem solving. • **1.2 Exponents and Order of Operations** – simplify numerical and algebraic expressions with and without exponents and grouping symbols; evaluate algebraic expressions and formulas. • **1.3 Exploring Real Numbers** – classify numbers; compare numbers; find absolute value. • **Review: Graphing on the Coordinate Plane** – review quadrants, axes, and origin; practice locating and graphing points named by ordered pairs. • **1.4 Patterns and Functions** – write function rules; identify independent/dependent quantities; address reasonable domain and range for functions; real-world problem solving. • **1.5 Scatter Plots** – create scatter plots; look at data correlation and trends in data; real-world problem solving. • **1.6 Mean, Median, Mode, Range** – find and interpret mean, median, mode, and range using various lists of data; create stem-and-leaf plots; real-world problem solving.	Students will take notes and complete assigned problems from the textbook or complete related worksheets. Students will place all problems from each day's homework assignment on the dry erase board so that we might discuss and they may make corrections to their papers. Students will be graded on homework by way of a homework check which will occur on the day prior each chapter test. There will be at least one homework check and chapter test in each chapter. Students are allowed to use calculators.

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Semester 1 September	6.B, 6.C	**Chapter 2: Rational Numbers** • **2.1 Adding Rational Numbers** – add real numbers; simplify numerical expressions; add matrices; evaluate algebraic expressions; real-world problem solving.	
	6.B, 6.C	• **2.2 Subtracting Rational Numbers** – subtract real numbers; subtract with absolute values; simplify numerical expressions; subtract matrices; evaluate algebraic expressions; real-world problem solving.	
	6.B, 6.C	• **2.3 Multiplying and Dividing Rational Numbers** – multiply and divide integers; evaluate algebraic expressions; real-world problem solving.	
	6.A.4, 6.B, 8.C	• **2.4 The Distributive Property** – simplify algebraic expressions using the distributive property and by combining like terms; write algebraic expressions given a phrase; real-world problem solving.	
	6.A.4, 6.B, 8.C 10.C	• **2.5 Properties of Numbers** – identify properties. • **2.6 Theoretical Probability** – find theoretical probability; find odds; use real-world examples.	
October	10.C, 10.C.5a	• **2.7 Probability of Compound Events** – address independent and dependent events; find probability of an event with replacement and without replacement; use real-world examples (optional—depending on time).	

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Semester 1 October	8.D, 8.D.4	**Chapter 3: Solving Equations**	
		• **3.1 Solving Two-Step Equations** – solve two-step equations; define variables, write equations, and solve equations for real-world situations.	
	8.D, 8.D.4	• **3.2 Solving Multi-Step Equations** – combine like terms and distribute to solve equations; solve equations with fractions and decimals; write equations to solve real-world problems.	
	8.D, 8.D.4	• **3.3 Equations with Variables on Both Sides** – solve equations with variables on both sides; determine whether an equation is an identity or has no solution; real-world problem solving.	
	6.D, 8.D, 8.D.4	• **3.4 Ratio and Proportion** – use unit rates; convert rates; use cross products to solve proportions; real-world problem solving using proportions.	
	6.D, 6.D.4, 7.C.4a, 9.B.4	• **3.5 Proportions and Similar Figures** – use proportions to find the length of a side of a figure; apply similarity.	
	6.D	• **Review: Proportions and Percents** – use the basic percent proportion to solve percent examples with various unknowns.	
	6.D	• **3.7 Percent of Change** – find percent of change; real-world problem solving.	

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Semester 1 November	7.A.4b., 8.D, 8.D.4 6.A.4 9.B.4, 9.C.4b	• **3.6 Equations and Problem Solving** – define one variable in terms of another; perimeter problems, consecutive integer problems; same-direction travel, round-trip travel, and opposite-direction travel problems; real-world problem solving. • **3.8 Finding and Estimating Square Roots** – simplify square root expressions; estimate square roots; approximate square roots; real-world problem solving. • **3.9 The Pythagorean Theorem** – use Pythagorean Theorem; real-world problem solving.	
December	8.B.4a, 8.D 8.B.4a, 8.D, 8.D.4 8.B.4a, 8.D, 8.D.4 8.B.4a, 8.D, 8.D.4	**Chapter 4: Solving Inequalities** • **4.1 Inequalities and Their Graphs** – identify solutions by evaluating; graph inequalities; write an inequality from a graph; real-world problem solving. • **4.2 Solving Inequalities Using Addition and Subtraction** – solve inequalities and graph their solutions; real-world problem solving with inequalities. • **4.3 Solving Inequalities Using Multiplication and Division** – solve inequalities and graph their solutions; real-world problem solving with inequalities. • **4.4 Solving Multi-Step Inequalities** – solve inequalities and graph their solutions; real-world problem solving with inequalities.	

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Semester 1 December	8.B.4a, 8.D, 8.D.4 8.B.4a, 8.D, 8.D.4	• **4.5 Compound Inequalities** – write compound inequalities; solve compound inequalities containing "and" and "or" and graph their solutions; real-world problem solving with compound inequalities. • **4.6 Absolute Value Equations and Inequalities** – solve absolute value equations; solve absolute value inequalities and graph their solutions; real-world problem solving with absolute values.	
Semester 2 January	8.C.4a 8.B, 8.B.4a 8.A.4b, 8.B, 8.B.4a, 8.B.4b	**Chapter 5: Graphs and Functions** • **5.1 Relating Graphs to Events** – interpret graphs, sketch graphs; relate graphs to real-life situations. • **5.2 Relations and Functions** – use a mapping diagram to check for functions; use the vertical line test to check for functions; make a table for each function rule to find range. • **5.3 Function Rules, Tables, and Graphs** – model function rules with tables and graphs. • **5.4 Writing a Function Rule** – write function rules from tables; write function rules from words; real-world problem solving. • **5.5 Direct Variation** – check for direct variation; write a direct variation equation given a point; direct variation and tables; real-world problem solving.	

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Semester 2 January		• **5.6 Inverse Variation** – write an equation given a point; find the missing coordinate; determine direct and inverse variation; real-world problem solving. • **5.7 Describing Number Patterns** – extend number patterns; find the common difference; find terms of a sequence.	
February	9.A 9.A 7.A.4a, 8.B.4b 8.B, 8.B.4a 8.B.4a	<u>Chapter 6: Linear Equations and Their Graphs</u> • **6.1 Rate of Change and Slope** – find rate of change using a table; find rate of change using a graph; find slope using a graph; find slope using points; address horizontal and vertical lines. • **6.2 Slope-Intercept Form** – identify slope and y-intercepts; write equations in slope-intercept form; write equations from graphs; graph equations; real-world problem solving. • **6.3 Applying Linear Functions** – model real-world situations with linear functions and graphs; analyze linear graphs. • **6.4 Standard Form** – find x- and y-intercepts; graph lines using intercepts; graph horizontal and vertical lines; transform to standard form; real-world problem solving. • **6.5 Point-Slope Form and Writing Linear Equations** – graph using point-slope form; write equations using point-slope form; use two points to write an equation; real-world problem solving.	

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Semester 2 February	9.A, 9.B 7.C, 10.A.4 8.B.4a, 8.B.4b, 8.D	• **6.6 Parallel and Perpendicular Lines** – determine whether lines are parallel or perpendicular; write equations of parallel and perpendicular lines; real-world problem solving. • **6.7 Scatter Plots and Equations of Lines** – create scatterplots; look at trend lines/line of best fit. • **6.8 Graphing Absolute Value Equations** – write absolute value equations; graph absolute value equations.	
March	8.B.4a, 9.A 8.B.4a, 8.D 8.B.4a, 9.A	<u>Chapter 7: Systems of Equations and Inequalities</u> • **7.1 Solving Systems by Graphing** – solve systems of equations by graphing; interpret solutions. • **7.2 Solving Systems Using Substitution** – solve systems of equations using substitution; real-world problem solving. • **7.3 Solving Systems Using Elimination** – solve systems of equations using elimination; real-world problem solving. • **7.4 Applications of Linear Systems** – real-world problem solving using substitution and elimination. • **7.5 Linear Inequalities** – graph inequalities; real-world problem solving. • **7.6 Systems of Linear Inequalities** – graph systems of linear inequalities; write a system of inequalities from a graph; real-world problem solving.	

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Semester 2 April 6.A		**Chapter 8: Exponents and Exponential Functions** • **8.1 Zero and Negative Exponents** – simplify powers; simplify exponential expressions; evaluate exponential expressions. • **8.3 Multiplication Properties of Exponents** – multiply powers; multiply powers in an algebraic expression. • **8.4 More Multiplication Properties of Exponents** – simplify powers raised to a power; simplify expressions with powers; simplify products raised to a power. • **8.5 Division Properties of Exponents** – simplify algebraic expressions with quotients. • **8.8 Exponential Growth** – model exponential growth; compound interest.	
		Chapter 9: Polynomials and Factoring • **9.1 Adding and Subtracting Polynomials** – find degrees of monomials; classify polynomials; add and subtract polynomials. • **9.2 Multiplying and Factoring** – multiply monomials with binomials and trinomials; find greatest common factors of expressions; factor out monomials. • **9.3 Multiplying Binomials** – use the distributive property; multiply using FOIL; multiply trinomials by binomials.	

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Semester 2 May	8.D, 8.D.4	**9.4 Multiplying Special Cases** – square binomials; find the difference of two squares. **9.5 Factoring Trinomials of the Type x²+bx+c** – factor trinomials with one and two variables. **9.6 Factoring Trinomials of the Type ax²+bx+c** – factor trinomials in which *c* is positive and in which *c* is negative; factor out monomials first. **9.7 Factoring Special Cases** – factor perfect square trinomials, differences of two squares; factor out common factors. **10.4 Factoring to Solve Quadratic Equations** – use the zero-product property; solve quadratic equations by factoring.	
	6.A.4 8.D 8.D, 8.D.4	**Chapter 11: Polynomials and Factoring** **11.1 Radical Expressions and Equations** – remove perfect square factors; remove variable factors; multiply two radicals; simplify fractions within radicals; simplify radicals by division. **11.2 Operations with Radical Expressions** – combine like radicals; simplify to combine like radicals; use the distributive property with radicals. **11.3 Solving Radical Equations** – solve by isolating the radical; solve with radical expressions on both sides. **10.6 Using the Quadratic Formula** – use the quadratic formula to solve quadratic equations (if time allows).	