



Parma High School

Pre-Algebra Curriculum Map

Mathematical Practices		Grade Level Focus Areas	Major Domains		
<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. 		<p>The three critical areas of focus in pre-algebra are: (1) formulating and reasoning about expressions and equations, including modeling an association in bivariate data with a linear equation, and solving linear equations and systems of linear equations, (2) grasping the concept of a function and using functions to describe quantitative relationships, and (3) analyzing two- and three-dimensional space and figures using distance, angle, similarity, and congruence, and understanding and applying the Pythagorean Theorem</p>	<p>The major domains in pre-algebra are:</p> <ol style="list-style-type: none"> 1. The Number System 2. Expressions and Equations 3. Functions 4. Geometry 5. Statistics and Probability 6. Proportional Reasoning 7. Probability 		
Weeks	Unit Title	Learning Targets	Vocabulary	Domain/Standards	Resources
Aug. to mid-Sept.	Proportional Reasoning	Students will review fraction operations and apply knowledge of fractions to build proportional reasoning strengths.	Equivalent fraction, ratio, percent, operation	7.RP.1, 2,3	Supplemental material
Mid-Sept. to Oct 1	Probability	Students will differentiate experimental and theoretical probability. Students will be able to calculate probabilities of simple or compound independent events. Students will distinguish between permutations and combinations.	Experimental, theoretical, dependent, independent, probability, permutation, combination.	8.SP.5,6,7, 8	Pearson Course 3 Ch. 10 2010 Ed.

Oct 1- Oct 20	Solving Multi- Step Linear Equations	Students will review combining like terms and solving one and two-step linear equations. Students will write and solve multi-step equations, including equations with variables on both sides. Students will be able to identify if a linear equation has zero, one or infinitely many solutions.	Like term, term.	Expressions and Equations. 8.EE.7a,b.	Ch. 2, Pearson Math Course 3
Oct 20- Nov 10	Introduction to Functions	Students will interpret and sketch graphs that represent real-life situations. Students will evaluate functions and complete input-output tables. Students will be able to recognize linear functions, determine if they are proportional, and use tables and equations to graph them. Students will recognize non-linear functions in tables, graphs, and equations.	Continuous, discrete, function, function rule, linear, linear function, nonlinear, nonlinear function, proportional relationship, quadratic function, parabola.	Functions. 8.F.1,3,5.	Ch. 3, Pearson Math Course 3
Nov 10- Dec 1	Graphing Functions	Students will be able to find the slope of a line from a graph, table, two points, or equation. Students will be able to create parallel or perpendicular lines to a given line, given the equation or two points. Students will be able to write function rules in slope-intercept form, and graph the functions. Students will be able to compare functions in different representations.	Linear function, rate of change, slope, slope-intercept form, slope of a line, y-intercept.	Functions. 8. EE. 5,6,8. 8.F. 1,2,3,4.	Ch. 4, Pearson Math Course 3
Dec 1- Jan 15	Systems of Linear Equations	Students will be able to solve systems of two linear equations in two variables by graphing, by substitution and by elimination. Students will be able to recognize if a system has zero, one or infinitely many solutions. Students will use systems of equations to solve real-world problems.	Systems of equations, solution of a system, substitution method, elimination method.	Expressions and Equations. 8.EE. 8a,b,c.	Ch. 5, Pearson Math Course 3
Jan 15- Feb 1	Exponents and Scientific Notation	Students will be able to convert numbers from standard form to scientific notation, and vice-versa. Students will be able to multiply and divide using scientific notation. Students will be	Scientific notation, base, power.	Expressions and Equations. 8.EE. 1,3,4.	Ch. 6, Pearson Math Course 3

		able to simplify expressions with exponents, including an exponent of zero, or negative exponents.			
Feb 1- Mar 1	Irrational Numbers and the Pythagorean Theorem	Students will be able to write all rational numbers as fractions. Students will recognize that some numbers are irrational, and be able to identify them. Students will be able to find or estimate square roots and cube roots. Students will be able to write a proof of the Pythagorean Theorem, and use the theorem to find missing lengths of right triangles and the related Distance Theorem to find the distance between two points.	Origin, x,y-axis, coordinates, coordinate plane, quadrants, rational,irrational, repeating and terminating decimal, perfect square or cube, square or cube root, legs, hypotenuse, Pythagorean Theorem, Converse of the Pythagorean Theorem, Distance Formula, Triangle Inequality Theorem, proof.	The Number System. 8.NS.1,2. Expressions and Equations. 8.EE.2. Geometry. 8.G. 2,6,7,8.	Ch. 1, Pearson Math Course 3
Mar 1- Mar 20	Angles, Angle Pairs, Similarity and Congruence	Students will be able to identify vertical, congruent, adjacent, complementary and perpendicular angles and find missing angle measures. Students will be able to identify angle pairs and find missing angles in two parallel lines crossed by a transversal. Students will use SSS, SAS, and ASA to show that triangles are congruent, and AA to show triangles are similar. Students will recognize similar figures and use proportions to find missing lengths. Students will find missing interior or exterior angles of polygons.	Adjacent, complementary, supplementary and vertical angles. Corresponding, alternate, interior, and exterior angles. Parallel and perpendicular lines. Transversal. Congruent angle. Congruent polygons. Similar polygons.	Geometry. 8.G. 2,4,5,6.	Ch. 7, Pearson Math Course 3
Apr 1- Apr 20	Transformations	Students will prove that two figures are congruent by demonstrating a series of rigid transformations that maps one figure onto the other figure. Students will be able to translate, rotate, or reflect figures in the coordinate plane. Students will be able to graph dilations or determine the scale factor of a dilation.	Transformation, translation, reflection, rotation. Line of symmetry, line of reflection, reflectional symmetry. Center of rotation, angle of rotation, counterclockwise, image, dilation, reduction, image, scale factor.	Geometry. 8.G. 1,2,3,4.	Ch. 8, Pearson Math Course 3

Apr 20- May 10	Geometry: Volume of Solids	Students will be able to find the volume of any prism or cylinder, cone or pyramid, and sphere. Students will explore solid similarity, and use it to find missing side lengths or radii of solids.	Solids, similar solids, volume. Cone, cylinder, polyhedron, prism, pyramid, sphere. Skew lines.	Geometry. 8.G. 7,9	Ch. 9, Pearson Math Course 3
May 10- May 20	Data Analysis	Students will be able to interpret and create scatter plots of bivariate data. Students will be able to analyze patterns in scatter plots such as clusters, outliers, positive or negative associations, weak or strong associations, and linear or nonlinear associations. Students will be able to draw a best fit, or trend, line to model a linear association, and write an equation for the line. Students will be able to create and interpret two-way tables.	Bivariate data, scatter plot, cluster, outlier. Positive, negative or no association. Strong and weak association. Trend line. Two-way table, relative frequency.	Statistics and Probability. 8. SP. 1,2,3,4.	Ch. 10, Pearson Math Course 3