



## Parma High School

### Math 1

## Scope and Sequence

<b>Mathematical Practices</b> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively.</li> <li>3. Construct viable arguments and critique the reasoning of others.</li> <li>4. Model with mathematics.</li> <li>5. Use appropriate tools strategically.</li> <li>6. Attend to precision.</li> <li>7. Look for and make use of structure.</li> <li>8. Look for and express regularity in repeated reasoning.</li> </ol>		<b>Math I Focus Areas</b> The five critical areas of focus in Math I are: (1) continuing to use equations to model and analyze situations, (2) learning function notation and developing concepts of domain and range, exploring exponential, radical, and piecewise functions, and geometric vs arithmetic sequences, (3) reviewing solving systems of equations, and learning to solve linear inequalities and systems of inequalities, (4) formally assessing how a model fits data using regression techniques, (5) establishing triangle congruence criteria using formal constructions, using logic and reasoning to complete simple proofs, and (6) verifying properties of special triangles and quadrilaterals and slopes of parallel and perpendicular lines on a coordinate grid.		<b>Major Domains</b> The major domains in High School Math are: <ol style="list-style-type: none"> <li>1. Number and Quantity</li> <li>2. Algebra</li> <li>3. Functions</li> <li>4. Modeling</li> <li>5. Geometry</li> <li>6. Statistics and Probability</li> </ol>	
Weeks	Unit Title	Learning Targets	Vocabulary	Domain/Standards	Resources
Aug-mid Sept	Solving Multi-Step Linear Equations and Inequalities	Students will review combining like terms and solving one and two-step linear equations. Students will write and solve multi-step linear and absolute value equations and inequalities, including equations with variables on both sides. Students will be able to identify if a linear equation has zero, one or infinitely many solutions.	Coefficient, compound inequality, conversion factor, formula, identity, like terms, literal equation, proportion, rate, ratio, term, unit rate.	A.SSE.1a,b A.CED.1,4 A.REI.3 N.Q.1,3	Pearson Math I Common Core

Mid Sept-early Oct	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. Students will be able to write recursive and explicit rules for arithmetic sequences.	Continuous graph, dependent variable, discrete graph, domain, function, independent variable, linear function, nonlinear function, range, recursive formula, relation, sequence.	A.SSE1a,b A.CED.2 N.Q.2 F.IF1,2,3,4,5 F.BF1.a,2,3	Pearson Math I Common Core
Early Oct- Oct 31	Linear 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, point-slope form or standard form. Students will be able to graph absolute value functions	Direct variation, linear equation, parallel lines, perpendicular lines, point-slope form, rate of change, slope, slope-intercept form, standard form, s-intercept, y-intercept.	A.SSE.1a, A.CED2,3 F.IF.4,6,7,9 F.BF.1 F.LE 1a,2,5	Pearson Math I Common Core
Nov 1- Nov 15	Systems of Linear Equations and Inequalities	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 be able to solve and graph linear inequalities and systems of linear inequalities.	Consistent, dependent, elimination method, inconsistent, independent, linear inequality, solution of an inequality, solution of a system of linear equations, solution of a system of linear inequalities, substitution method.	A.CED.3 A.REI.5,6,11,12 N.Q.2,3	Pearson Math I Common Core
Nov 15- Dec 10	Exponential and Radical functions	Students will be able to simplify expressions with exponents, including an exponent of zero, or negative exponents. Students will be able to graph exponential functions and use exponential growth and decay to solve real world problems. Students will be able to simplify radicals and graph radical functions. Students will be able to graph piecewise functions. Students will be able to find the recursive and explicit rules of geometric sequences.	Average rate of change, compound interest, decay factor, exponential decay, exponential function, exponential growth, geometric sequence, growth factor, piecewise function, square root function, radical function.	A.SSE.1, 3c A.CED.1,2 A.REI.10,11 F.IF.12,,3,4,6,7, 9 F.BF.1,2 F.LE.1,2,5	Pearson Math I Common Core
Dec 10-20	Data Analysis	Students will make and interpret frequency tables and histograms. Students will compare measures of central tendency (mean, median	Box-and-whisker plot, frequency table, measure of central tendency, outlier,	N.Q. 1 F.LE.5 S.ID.1,2,3,6,7	Pearson Math I Common Core

		and mode) and know what information each provides. Students will be able to find the mean absolute deviation and the standard deviation. Students will be able to make and interpret box-and-whiskers plot. Students will be able to make and interpret scatter plots, fit a trend line to the data, and use residuals to calculate the goodness of fit.	percentile, quartile, range of a data set, scatter plot, trend line, two-way frequency table.		
Jan 1- Jan 15	Tools of Geometry	Students will be able to use and construct nets to visualize geometric figures. Students will be able to name and find intersections of points, lines and planes. Students will be able to name and measure angles and use angle pair relationships to solve for missing angle measurements. Students will be able to use the Midpoint and Distance formulas with line segments in the coordinate plane.	Angle bisector, congruent segments, isometric drawing, linear pair, net, orthographic drawing, postulate, segment bisector, supplementary angles, vertical angles.	G.CO.1	Pearson Math I Common Core
Jan 15-Jan 31	Transformations	Students will be able to complete translations, reflections, and rotations in the coordinate plane. Students will use concepts of rigid transformation and congruence to prove polygons are congruent or map one figure onto another.	Image, isometry, preimage, reflection, rigid motion, rotation, translation.	G.CO.2,3,4,5	Pearson Math I Common Core
Feb 1- Feb 14	Connecting Algebra and Geometry	Students will review finding perimeter and area in the coordinate plane. Students will be able to find areas of parallelograms and triangles. Students will be able to find areas of trapezoids, rhombuses and kites. Students will use the distance formula, the midpoint formula, and the slope formula to determine characteristics of triangles and quadrilaterals.	Area, base of a parallelogram, base of a triangle, height of a parallelogram, height of a trapezoid, height of a triangle, perimeter.	G.GPE.4,5,6,7 G.MG.1	Pearson Math I Common Core
Feb 14- Mar 7	Reasoning and Proof	Students will be able to complete straight-edge and compass constructions of a line segment, angle, perpendicular bisector and angle bisector. Students will use inductive reasoning to find patterns. Students will be able to write conditional statements and establish truth values for the statement, its converse, inverse and contrapositive. Students will know when	Biconditional, conclusion, conditional, conjecture, contrapositive, converse, deductive reasoning, hypothesis, inductive reasoning, inverse, negation, perpendicular bisector, theorem.	G.CO.9, 12	Pearson Math I Common Core

		they can use biconditional statements. Students will use deductive reasoning, including the Law of Detachment and the Law of Syllogism, to make logical conclusions. Students will complete simple two-column proofs.			
Mar 7- Apr 7	Proving Theorems about Lines and Angles	Students will use properties of parallel lines cut by transversals to find missing angle measures, and, conversely, use angle measure to prove lines parallel or not. Students will be able to write flow proofs to determine if lines are parallel or are perpendicular. Students will be able to construct parallel and perpendicular lines using straight-edge and compass.	Alternate exterior and interior angles, corresponding angles, exterior angle of a polygon, parallel lines, same-side interior angles, skew lines, transversal.	G.CO.1,9,10,13	Pearson Math I Common Core
Apr 7- Apr 30	Congruent Triangles	Students will determine triangle congruence using SAS, SSS, ASA and AAS congruence. Students will be able to prove corresponding angles or side lengths of triangles congruent. Students will use the Isosceles and Equilateral Triangle Theorems to find missing angle or side lengths. Students will identify congruent triangles using a series of transformations.	Base angles of an isosceles triangle, base of an isosceles triangle, congruence transformation, congruent polygons, corollary, hypotenuse, legs of an isosceles triangle, legs of a right triangle, vertex angle of an isosceles triangle.	G.CO.6,7,8,10 G.SRT.5	Pearson Math I Common Core
May 1-May 15*	Proving Theorems about Triangles	Students will learn properties of triangle altitude, perpendicular bisector, angle bisector, and median and use these properties to find missing side lengths or angles in triangles and to prove triangle theorems.	Triangle midsegment, altitude, median, perpendicular bisector, angle bisector, centroid, circumcenter, concurrent, equidistant, incenter, indirect proof, orthocenter.	G.C.3 G.CO.9, 10, 12 G.SRT.5	Pearson Math I Common Core
May 15- May 28*	Proving Theorems about Quadrilaterals	Students will learn the Polygon Angle-Sum Theorem. Students will use properties of parallelograms, rhombuses, kites, rectangles and squares learned in unit 9 to find missing lengths and angles and to write proof about quadrilaterals.	Coordinate proof, equiangular polygon, equilateral polygon, isosceles trapezoid, kite, midsegment of a trapezoid, parallelogram, rectangle, regular polygon, rhombus, trapezoid.	G.CO.9, 10, 11 G.SRT.5	Pearson Math I Common Core

Parma Middle School Math I Curriculum Map. \*Due to ISAT testing, finals, etc. the last two units may be covered in Math 2.