

HAZLETON AREA SCHOOL DISTRICT



GRADE 6

Math Curriculum

Hazleton Area School District

Math Curriculum

Grade 6

Topic:	Geometry
Weeks:	4 Weeks
PA Standards:	CC.2.3.6.A.1 Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.
Math Practice Standards:	<ol style="list-style-type: none">1. Make sense of problems and persevere in solving them.2. Reason abstractly and quantitatively.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 make sense of regularity in repeated reasoning.

Weeks	Topic	PA Standard	Eligible Content	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
4 weeks	Finding Area, Surface Area, and Volume	CC.2.3.6.A.1 Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.	M06.C-G.1.1.1 M06.C-G.1.1.2 M06.C-G.1.1.3 M06.C-G.1.1.5 M06.C-G.1.1.6	<ul style="list-style-type: none"> • Determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoid) formulas will be provided • Determine the area of irregular or compound polygons • Determine the volume of right rectangular prisms with fractional edge lengths. formulas will be provided • Represent three-dimensional figures using nets made up of rectangles and triangles • Determine the surface area of triangular and rectangular prisms (including cubes). formulas will be provided 	Area Surface Area Volume Triangular Prism Rectangular Prism Pyramids Trapezoid Base Height Net Vertices

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Topic:	Ratios and Proportional Relationships
Weeks:	13-14 weeks
PA Standards:	CC.2.1.6.D.1 Understand ratio concepts and use ratio reasoning to solve problems CC.2.1.6.E.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions. CC.2.1.6.E.2 Identify and choose appropriate processes to compute fluently with multi-digit numbers. CC.2.1.6.E.3 Develop and/or apply number theory concepts to find common factors and multiples. CC.2.1.6.E.4 Apply and extend previous understandings of numbers to the system of rational numbers.
Math Practice Standards:	<ol style="list-style-type: none">1. Make sense of problems and persevere in solving them.2. Reason abstractly and quantitatively.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 make sense of regularity in repeated reasoning.

Weeks	Topic	PA Standard	Eligible Content	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
3 weeks	Ratio Concepts Rate and Unit Rate	CC.2.1.6.D.1 Understand ratio concepts and use ratio reasoning to solve problems	M06.A-R.1.1.1 M06.A-R.1.1.2 M06.A-R.1.1.3 M06.A-R.1.1.4 M06.A-R.1.1.5	<ul style="list-style-type: none"> Use ratio language and notation to describe a ratio relationship between two quantities Find the unit rate a/b associated with a ratio $a:b$ (with $b \neq 0$) and use rate language in the context of a ratio relationship Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios Solve unit rate problems including those involving unit pricing and constant speed Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole, given a part and the percent 	Integers Positive/Negative Integers Rational Numbers Opposites Absolute Value Quadrant Reflection Rate Unit Rate Ratio Equivalent Ratios Repeating Decimals Terminating Decimals Ratio Table Additive Inverse Proportion Proportional Relationship
1 week	Division of Fractions by Fractions	CC.2.1.6.E.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	M06.A-N.1.1.1	<ul style="list-style-type: none"> Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions 	

Weeks	Topic	PA Standard	Eligible Content	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
1-2 week	Computation of Multi Digit Numbers	CC.2.1.6.E. Identify and choose appropriate processes to compute fluently with multi-digit numbers.	M06.A-N.2.1.1	<ul style="list-style-type: none"> • Solve problems involving operations (+, −, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems. 	
3-4 week	Factors and Multiples	CC.2.1.6.E.3 Develop and/or apply number theory concepts to find common factors and multiples.	M06.A1.1.1.2.1 M06.A-N.2.2.1 M06.A-N.2.2.2	<ul style="list-style-type: none"> • Find the greatest common factor of two whole numbers less than or equal to 100 • Find the least common multiple of two whole numbers less than or equal to 12. • Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor 	

Weeks	Topic	PA Standard	Eligible Content	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
3-4 weeks	Rational Numbers/Integers (Coordinate Plane)	CC.2.1.6.E.4 Apply and extend previous understandings of numbers to the system of rational numbers.	M06.A-N.3.1.1 M06.A-N.3.1.2 M06.A-N.3.1.3 M06.A-N.3.2.2 M06.C-G.1.1.4	<ul style="list-style-type: none"> • Represent quantities in real-world contexts using positive and negative numbers. • Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself. • Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane. • Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation. • Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). formulas will be provided 	

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Topic:	Expressions and Equations
Weeks:	13 weeks
PA Standards:	CC.2.2.6.B.1 Apply and extend previous understandings of arithmetic to algebraic expressions. CC.2.2.6.B.2 Understand the process of solving a one-variable equation or inequality and apply to real-world and mathematical problems. CC.2.2.6.B.3 Represent and analyze quantitative relationships between dependent and independent variables
Math Practice Standards:	<ol style="list-style-type: none">1. Make sense of problems and persevere in solving them.2. Reason abstractly and quantitatively.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 make sense of regularity in repeated reasoning.

Weeks	Topic	PA Standard	Eligible Content	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
6 weeks	Algebraic Expressions	CC.2.2.6.B.1 Apply and extend previous understandings of arithmetic to algebraic expressions.	M06.B-E.1.1.1 M06.B-E.1.1.2 M06.B-E.1.1.3 M06.B-E.1.1.4 M06.B-E.1.1.5	<ul style="list-style-type: none"> • Write and evaluate numerical expressions involving whole-number exponents. • Write algebraic expressions from verbal descriptions • Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity) • Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems • Apply the properties of operations to generate equivalent expressions 	Numerical Expression Algebraic Expression Constant Coefficients Distributive Property Term Equivalent Expressions Factoring the Expression Dependent Variable Independent Variable Commutative Property Associative Property Inequality Identity Property

Weeks	Topic	PA Standard	Eligible Content	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
5 weeks	Solving a one-variable equation or inequality	CC.2.2.6.B.2 Understand the process of solving a one-variable equation or inequality and apply to real-world and mathematical problems.	M06.B-E.2.1.1 M06.B-E.2.1.2 M06.B-E.2.1.3 M06.B-E.2.1.4	<ul style="list-style-type: none"> • Use substitution to determine whether a given number is a specified set makes an equation or inequality true • Write algebraic expressions to represent real-world or mathematical problems • Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all non-negative rational numbers • Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines 	
2 weeks	Quantitative relationships between dependent and independent variables	CC.2.2.6.B.3 Represent and analyze quantitative relationships between dependent and independent variables	M06.B-E.3.1.1 M06.B-E.3.1.2	<ul style="list-style-type: none"> • Write an equation to express the relationship between the dependent and independent variables • Analyze the relationship between the dependent and independent variables using graphs and tables, and/or relate these to an equation 	

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Topic:	Statistics and Probability
Weeks:	2 weeks
PA Standards:	CC.2.4.6.B.1 Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions
Math Practice Standards:	<ol style="list-style-type: none">1. Make sense of problems and persevere in solving them.2. Reason abstractly and quantitatively.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 make sense of regularity in repeated reasoning.

Weeks	Topic	PA Standard	Eligible Content	Concepts and Competencies The learner will:	Tier 2 & 3 Vocabulary
1 week	Quantitative measures of center and variability	CC.2.4.6.B.1 Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions	M06.D-S.1.1.2 M06.D-S.1.1.4	<ul style="list-style-type: none"> Determine quantitative measures of center (e.g., median, mean, and/or mode) and variability (e.g., range, interquartile range, and/or mean absolute deviation) Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered 	Average Box and Whisker Mean Median Mode Variability Range Interquartile Range Outliers First Quartile Third Quartile Frequency Table Histogram Line Plots Dot Plot
1 week	Display numerical data Patterns and Deviations	CC.2.4.6.B.1 Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions	M06.D-S.1.1.1 M06.D-S.1.1.3	<ul style="list-style-type: none"> Display numerical data in plots on a number line, including line plots, histograms, and box and- whisker plots. Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered 	Measures of Variation Measures of Center Quartiles Mean Absolute Deviation Line Graph Distribution Cluster Symmetric Gap Stem and Leaf Spread Tally Chart