PA Core Standards For Mathematics
Curriculum Framework
Grade Level 6

Grade	Big Idea	Essential Questions	Concepts	Competencies	Standard	Eligible Content	Vocabulary
6	Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. Patterns exhibit relationships that can be extended, described, and generalized.	How is mathematics used to quantify, compare, represent and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations? What makes a tool and/or strategy appropriate for a given task? How can patterns be used to describe relationships in mathematical situations?	Ratios, Proportions, and Percent	Represent ratio relationships in various forms. Determine unit rates in context. Interpret and compute quotients of fraction. Solve problems using ratio and rate reasoning. Convert measurement units using equivalent ratios.	CC.2.1.6.D.1 CC.2.1.6.E.1	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 M06.A-R.1.1.3 M06.A-R.1.1.4 M06.A-R.1.1.5 M06.A-N.1.1.1	Absolute value Algebraic expressions Box and whisker plots Coefficient Compound polygon Dependent variable Distributive property Dot plots Exponent Greatest Common Factor Independent variable Inequality Integer Interquartile range Irregular Polygon Least Common Multiple Mean Mean absolute deviation
6	Mathematical relationships among numbers can be represented, compared, and communicated. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.	How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task?	Number Theory Concepts and Operations	Solve problems and compute fluently with whole numbers and decimals. Find common multiples and factors including greatest common factor and least common multiple. Use the distributive property to express a sum of two numbers.	CC2.1.6.E.2 CC.2.1.6.E.3	M06.A-N.2.1.1 M06.A-N.2.2.1 M06.A-N.2.2.1 M06.A-N.2.2.2	
6	Mathematical relationships among numbers can be represented, compared, and communicated.	How is mathematics used to quantify, compare, represent, and model numbers?	Integers and Other Rational Numbers	Use positive and negative numbers to represent quantities in real world contexts.	CC.2.1.6.E.4	M06.A-N.3.1.1 M06.A-N.3.1.2 M06.A-N.3.1.3 M06.A-N.3.2.1	

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	Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.	How can mathematics support effective communication? How are relationships represented mathematically? How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations? What makes a tool and/or strategy appropriate for a given task?		Plot integers and other rational numbers on a number line and on a coordinate graph. Interpret the opposite and absolute value of an integer as its distance from zero on a number line Compare and order rational numbers.		M06.A-N.3.2.2 M06.A-N.3.2.3	
6	Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations. Patterns exhibit relationships that can be extended, described, and generalized.	How is mathematics used to quantify, compare, represent, and model numbers? How are relationships represented mathematically? How can mathematics support effective communication? How can recognizing repetition or regularity assist in solving problems more efficiently?	Algebraic Expressions	Write, identify and evaluate numerical expressions involving exponents. Write, read and evaluate algebraic expressions. Apply the properties of operations to generate equivalent expressions.	CC.2.2.6.B.1	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	
6	Mathematical relationships among numbers can be represented, compared, and communicated. Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.	How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically?	Algebraic Equations	Represent and analyze quantitative relationships between Independent and dependent variables. Solve and interpret one variable equations or inequalities in real world and mathematical problems.	CC.2.2.6.B.2 CC.2.2.6.B.3	M06.B-E.2.1.1 M06.B-E.2.1.2 M06.B-E.2.1.3 M06.B-E.2.1.4 M06.B-E.3.1.1 M06.B-E.3.1.2	

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	Patterns exhibit relationships that can be extended, described, and generalized. Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.	How can expressions, equations and inequalities be used to quantify, solve, model, and/or analyze mathematical situations? How can recognizing repetition or regularity assist in solving problems more efficiently? How can data be organized and represented to provide insight into the relationship between quantities?					
6	Patterns exhibit relationships that can be extended, described, and generalized. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	How can recognizing repetition or regularity assist in solving problems more efficiently? How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? How can geometric properties and theorems be used to describe, model, and analyze situations?	Area, Surface Area, and Volume	Determine the area of triangles, quadrilaterals, irregular polygons and compound polygons. Calculate the area of a polygon on a plane given the coordinates of the vertices. Find volumes of right rectangular prisms with fractional edge lengths. Use nets to find surface area of 3 – dimensional figures.	CC.2.3.6.A.1	M06.C-G.1.1.1 M06.C-G.1.1.2 M06.C-G.1.1.3 M06.C-G.1.1.4 M06.C-G.1.1.5 M06.C-G.1.1.6	
6	Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. Mathematical relations and	What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task? How can data be organized and represented to provide insight into	Data and Distributions	Display data in dot plots, histograms and box-and-whisker plots. Determine quantitative measures of center and variability.	CC.2.4.6.B.1	M06.D-S.1.1.1 M06.D-S.1.1.2 M06.D-S.1.1.3 M06.D-S.1.1.4	

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	functions can be modeled through multiple representations and analyzed to raise and answer questions. Data can be modeled and used to make inferences.	the relationship between quantities? How does the type of data influence the choice of display? How can probability and data analysis be used to make predictions?		Choose the appropriate measure of center and variability for a set of data.			