PA Core Standards For Mathematics
Curriculum Framework
Grade Level 4

Grade	Big Idea	Essential Questions	Concepts	Competencies	Standard	Eligible Content	Vocabulary
4	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? What does it mean to estimate or analyze numerical quantities? When is it is appropriate to estimate versus calculate? What makes a tool and/or strategy appropriate for a given task? How can patterns be used to describe relationships in mathematical situations?	Place Value and Properties of Operations	Demonstrate an understanding of multi-digit whole numbers. Compare and round multi-digit numbers. Perform multi-digit arithmetic.	CC.2.1.4.B.1 CC.2.1.4.B.2	M04.A-T.1.1.1 M04.A-T.1.1.2 M04.A-T.1.1.3 M04.A-T.1.1.4 M04.A-T.2.1.1 M04.A-T.2.1.2 M04.A-T.2.1.3 M04.A-T.2.1.4	Acute Angle Angle Decimal Decimal Fraction Equivalence Factor Line Line of symmetry Line Segment Mixed Number Multiple Obtuse Triangle Point Ray Right Angle Symmetry Unit Fraction Weight
4	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	How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task?	Fractions	Demonstrate an understanding of fraction equivalence. Compare and order fractions. Solve problems involving fractions and mixed numbers.	CC.2.1.4.C.1 CC.2.1.4.C.2	M04.A-F.1.1.1 M04.A-F.1.1.2 M04.A-F.2.1.1 M04.A-F.2.1.2 M04.A-F.2.1.3 M04.A-F.2.1.4 M04.A-F.2.1.5 M04.A-F.2.1.6 M04.A-F.2.1.7	

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	and tools.						
4	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.	How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication? How are relationships represented mathematically? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task?	Decimals	Use decimal notation for decimal fractions. Compare decimal fractions. Compare decimals.	CC.2.1.4.C.3	M04.A-F.3.1.1 M04.A-F.3.1.2 M04.A-F.3.1.3	
4	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 can mathematics support effective communication? How are relationships represented mathematically? How can patterns be used to describe relationships in mathematical situations?	Number Theory	Represent and solve problems verbally as equations. Use factors to represent numbers in various ways. Recognize that a whole number is a multiple of each of its factors.	CC.2.2.4.A.1 CC.2.2.4.A.2	M04.B-O.1.1.1 M04.B-O.1.1.2 M04.B-O.1.1.3 M04.B-O.1.1.4 M04.B-O.2.1.1	
4	Mathematical relationships among numbers can be represented, compared, and communicated.	How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support	Patterns	Generate and analyze patterns that follow a single rule.	CC.2.2.4.A.4	M04.B-O.3.1.1 M04.B-O.3.1.2 M04.B-O.3.1.3	

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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. Data can be modeled and used to make inferences.	effective communication? How can patterns be used to describe relationships in 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? How can probability and data analysis be used to make predictions?					
4	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 patterns be used to describe relationships in mathematical situations? 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,	Geometric Shapes and Figures	Draw and identify lines and angles. Classify shapes by properties of their lines and angles. Recognize symmetric shapes and draw lines of symmetry.	CC.2.3.4.A.1 CC.2.3.4.A.2 CC.2.3.4.A.3	M04.C-G.1.1.1 M04.C-G.1.1.2 M04.C-G.1.1.3	

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		and analyze situations?					
4	Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.	What does it mean to estimate or analyze numerical quantities? When is it is appropriate to estimate versus calculate? What makes a tool and/or strategy appropriate for a given task? Why does "what" we measure influence "how" we measure? In what ways are the mathematical attributes of objects or processes measured, calculated and/or interpreted? How precise do measurements and calculations need to be?	Measurement	Solve problems involving measurements. Convert larger unit to smaller unit. Measure and draw angles. Apply area and perimeter formulas.	CC.2.4.4.A.1 CC.2.4.4.A.6	M04.D-M.1.1.1 M04.D-M.1.1.2 M04.D-M.1.1.3 M04.D-M.1.1.4 M04.D-M.3.1.1 M04.D-M.3.1.2	
4	Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools. Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions. Data can be modeled and used to make inferences.	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 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?	Data Displays	Translate one type of data display to another. Represent and interpret data involving fractions.	CC.2.4.4.A.2 CC.2.4.4.A.4	M04.D-M.2.1.3 M04.D-M.2.1.1 M04.D-M.2.1.2	