PA Core Standards For Mathematics
Curriculum Framework
Grade Level 2

Grade	Big Idea	Essential Questions	Concepts	Competencies	Standard	Eligible Content	Vocabulary
2	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? What makes a tool and/or strategy appropriate for a given task? How can recognizing repetition or regularity assist in solving problems more efficiently?	Place Value	Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. Count within 1000; skip-count by 5s, 10s, and 100s. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	CC.2.1.2.B.1 CC.2.1.2.B.2		A.M. Addend Analog/digital Angles Bar graph Centimeter Compose Decompose Dime Dollar Equation Equivalent Estimate Even Expanded form Faces Feet Fractions – Thirds Hexagon Hundreds Inch Line plot Meter Money Nickel Odd P.M. Penny Pentagon Picture graph Place value Quadrilateral Quarter Sum
2	Mathematical relationships among numbers can be represented, compared, and communicated.	How is mathematics used to quantify, compare, represent, and model numbers?	Addition and Subtraction	Add up to four two-digit numbers using strategies based on place value and properties of operations.	CC.2.1.2.B.3		

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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? What does it mean to estimate or analyze numerical quantities? What makes a tool and/or strategy appropriate for a given task?		Add and subtract within 1000. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds. Explain why addition and subtraction strategies work, using place value and the properties of operations.			
2	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 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?	Addition and Subtraction	Use addition and subtraction within 100 to solve one- and two-step word problems by using drawings and equations with a symbol for the unknown number to represent the problem. Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20. Understand subtraction as an unknown-addend problem. For example, subtract 10 – 8 by finding the number that makse 10 when added to 8. Add and subtract within 20. Use strategies such as counting on; making ten; decomposing a	CC.2.2.2.A.1		

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				number leading to a ten; using the relationship between addition and subtraction; and creating equivalent but easier or known sums.			
2	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 expressions, equations and inequalities be used to quantify, solve, model, and/or analyze mathematical situations? How can patterns be used to describe relationships in mathematical situations?	Properties of Operations	Fluently add and subtract within 20 using mental strategies. Apply properties of operations as strategies to add and subtract (commutative property of addition; associative property of addition).	CC 2.2.2.A.2		
2	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 patterns be used to describe relationships in mathematical situations? How can patterns be used to describe relationships in mathematical situations?	Equal Groups of Objects	Determine whether a group of objects (up to 20) has an odd or even number of members and write an equation to express an even number as a sum of two equal addends. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	CC.2.2.2.A.3		
2	Patterns exhibit relationships	How can patterns be used to describe	Shape	Recognize and draw shapes	CC.2.3.2.A.1		

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	that can be extended, described, and generalized. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	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?	Attributes	having specified attributes. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.			
2	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, and analyze situations?	Fractions	Partition circles and rectangles into two, three, or four equal shares, recognize that equal shares of identical wholes need not have the same shape.	CC.2.3.2.A.2		
2	Numerical quantities,	What does it mean to estimate or	Measuremen	Measure the length of an object	CC.2.4.2.A.1		

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	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.	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?	t	by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. Measure the same length with different-sized units then discuss the measurement made with the smaller unit is more than the measurement made with the larger unit and vice versa. Estimate lengths using units of inches, feet, centimeters, and meters. Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.			
2	Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.	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?	Time and Money	Tell and write time from analog and digital clocks to the nearest five minutes. Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.	CC.2.4.2.A.2		
2	Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.	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	Represent and Interpret Data	Make a line plot to show measurement data of the lengths of several objects to the nearest whole-number unit. Draw a picture graph and a bar graph (with single-unit scale) to	CC.2.4.2.A.3		

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	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.	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?		represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in the graph.			
2	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? What makes a tool and/or strategy appropriate for a given task? 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?	Addition and Subtraction	Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units by using drawings and equations with a symbol for the unknown number to represent the problem. Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, and represent whole-number sums and differences within 100 on a number line diagram.	CC.2.4.2.A.4		