

**PA Core Standards For Mathematics
Curriculum Framework
Grade Level K**

Grade	Big Idea	Essential Questions	Concepts	Competencies	Standard	Eligible Content	Vocabulary
K	<p>Mathematical relationships among numbers can be represented, compared, and communicated.</p> <p>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</p>	<p>How is mathematics used to quantify, compare, represent, and model numbers?</p> <p>How can mathematics support effective communication?</p> <p>What does it mean to estimate or analyze numerical quantities?</p>	Numerical Sequence	<p>Rote count to 100.</p> <p>Count forward beginning from a given number within the known sequence (instead of having to begin at 1).</p> <p>Name numerals 0 – 20.</p> <p>Represent a number of objects with a written numeral 0-20.</p>	CC.2.1.K.A.1		Addition Area Capacity Circle Cone Corners (vertices) Cube Cylinder Digit Equal Greater than Length Less than Ones Place value Quantity Rectangle Sides Sphere Square Subtraction Tens Total Triangle Weight
K	<p>Mathematical relationships among numbers can be represented, compared, and communicated.</p> <p>Patterns exhibit relationships that can be extended, described, and generalized.</p>	<p>How is mathematics used to quantify, compare, represent, and model numbers?</p> <p>How can mathematics support effective communication?</p> <p>How can patterns be used to describe relationships in mathematical situations?</p>	Object Quantity	<p>Uses one-to-one correspondence when counting to 20.</p> <p>State the total number of objects counted, demonstrating understanding that that last number named tells the number of objects counted.</p> <p>Understand that each successive number name refers to a quantity that is one larger.</p>	CC.2.1.K.A.2		

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K	<p>Mathematical relationships among numbers can be represented, compared, and communicated.</p> <p>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</p>	<p>How is mathematics used to quantify, compare, represent, and model numbers?</p> <p>How can mathematics support effective communication?</p> <p>When is it appropriate to estimate versus calculate?</p> <p>What makes a tool and/or strategy appropriate for a given task?</p>	Number Comparison	<p>Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies.</p> <p>Compare two numbers between 1 and 10 presented as written numerals.</p>	CC.2.1.K.A.3		
K	<p>Mathematical relationships among numbers can be represented, compared, and communicated.</p> <p>Patterns exhibit relationships that can be extended, described, and generalized.</p>	<p>How is mathematics used to quantify, compare, represent, and model numbers?</p> <p>How can mathematics support effective communication?</p> <p>How can recognizing repetition or regularity assist in solving problems more efficiently?</p>	Place Value	<p>Compose and decompose numbers up to 19 into ten and ones by using objects or drawings, and record each composition or decomposition by a drawing or equation.</p>	CC.2.1.K.B.1		
K	<p>Mathematical relationships among numbers can be represented, compared, and communicated.</p> <p>Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.</p> <p>Patterns exhibit relationships that can be extended, described, and generalized.</p>	<p>How is mathematics used to quantify, compare, represent, and model numbers?</p> <p>How can mathematics support effective communication?</p> <p>How are relationships represented mathematically?</p> <p>How can recognizing repetition or regularity assist in solving problems more efficiently?</p>	Addition and Subtraction	<p>Represent addition and subtraction with objects, fingers, mental images, and drawings, sounds acting out situations, verbal explanations, expressions, or equations.</p> <p>Decompose numbers less than or equal to 10 into pairs in more than one way, by using objects or drawings, and record each decomposition by a drawing or equation.</p> <p>Find the number that makes 10, for any number from 1 to 9,</p>	CC.2.2.K.A.1		

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				<p>when added to the given number, by using objects or drawings, and record the answer with a drawing or equation.</p> <p>Solve addition and subtraction word problems, and add and subtract within 10, by using objects or drawings to represent the problem.</p>			
K	Patterns exhibit relationships that can be extended, described, and generalized.	<p>How can patterns be used to describe relationships in mathematical situations?</p> <p>How can recognizing repetition or regularity assist in solving problems more efficiently?</p>	Two- and Three-Dimensional Shapes	<p>Identify shapes as two-dimensional or three-dimensional.</p> <p>Name shapes regardless of their orientations or overall size.</p> <p>Use simple shapes to compose larger shapes.</p>	CC.2.3.K.A.1		
K	Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	<p>How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems?</p> <p>How can geometric properties and theorems be used to describe, model, and analyze situations?</p> <p>How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?</p>	Two- and Three-Dimensional Shapes	<p>Describe objects in the environment using names of shapes and describe the relative positions of these objects using terms such as above, below, beside, in front, behind, and next to.</p> <p>Analyze and compare two-and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts and other attributes.</p>	CC.2.3.K.A.2		

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		How can geometric properties and theorems be used to describe, model, and analyze situations?		Model shapes in the world by building shapes from components and drawing shapes.			
K	<p>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</p> <p>Measurement attributes can be quantified, and estimated using customary and non-customary units of measure.</p> <p>Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.</p> <p>Data can be modeled and used to make inferences.</p>	<p>What does it mean to estimate or analyze numerical quantities?</p> <p>What makes a tool and/or strategy appropriate for a given task?</p> <p>Why does “what” we measure influence “how” we measure?</p> <p>In what ways are the mathematical attributes of objects or processes measured, calculated and/or interpreted?</p> <p>How can data be organized and represented to provide insight into the relationship between quantities?</p> <p>How does the type of data influence the choice of display?</p> <p>How can probability and data analysis be used to make predictions?</p>	Measureable Attributes	<p>Describe measurable attributes of objects, such as length, weight, area or capacity.</p> <p>Describe several measurable attributes of a single object.</p> <p>Compare two objects with a measureable attribute in common and describe the difference.</p>	CC.2.4.K.A.1		
K	<p>Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.</p> <p>Mathematical relations and</p>	<p>What does it mean to estimate or analyze numerical quantities?</p> <p>What makes a tool and/or strategy appropriate for a given task?</p> <p>How can data be organized and represented to provide insight into</p>	Object Classification and Count	Classify up to 20 objects using one attribute into categories; display the number of objects in each category; count and compare the quantities of each category and describe the difference.	CC.2.4.K.A.4		

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	<p>functions can be modeled through multiple representations and analyzed to raise and answer questions.</p> <p>Data can be modeled and used to make inferences.</p>	<p>the relationship between quantities?</p> <p>How does the type of data influence the choice of display?</p>					

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