

Mathematics Prekindergarten

2011

Maryland Common Core State Curriculum Framework

Adapted from the Common Core State Standards for Mathematics



DRAFT

Contents

Topic	Page Number(s)
Introduction	4
How to Read the Maryland Common Core Curriculum Framework for Prekindergarten	5
Standards for Mathematical Practice	6-8
Key to the Codes	9
Domain: Counting and Cardinality	10-13
Domain: Operations and Algebraic Thinking	14-15
Domain: Number and Operations in Base Ten	16
Domain: Measurement and Data	17-18
Domain: Geometry	19-20

Introduction

The Maryland Common Core State Standards for Mathematics (MDCCSSM) at the Prekindergarten level specify the mathematics that all students should study as they begin preparing to be college and career ready by graduation. The Prekindergarten standards are listed in domains (Counting and Cardinality, Operations & Algebraic Thinking, Number and Operations in Base Ten, Measurement & Data, and Geometry). This is not necessarily the recommended order of instruction, but simply grouped by appropriate topic. Since the Common Core Standards did not include Standards for Prekindergarten mathematics, educators from across the State of Maryland worked together to back map Standards and verify that the tasks asked of our students would be appropriate and aligned.

DRAFT

How to Read the Maryland Common Core Curriculum Framework for Prekindergarten

This framework document provides an overview of the Standards that are grouped together to form the Domains for Prekindergarten. The Standards within each domain are grouped by topic and align to the order of the Common Core Kindergarten Standards for Mathematics. This document is not intended to convey the exact order in which the Standards will be taught, nor the length of time to devote to the study of the different Standards

The framework contains the following:

- **Domains** are intended to convey coherent groupings of content.
- **Clusters** are groups of related standards. A description of each cluster appears in the left column.
- **Standards** define what students should understand and be able to do.
- **Essential Skills and Knowledge** statements provide language to help teachers develop common understandings and valuable insights into what a student must know and be able to do to demonstrate proficiency with each standard. Maryland mathematics educators thoroughly reviewed the standards and, as needed, provided statements to help teachers comprehend the full intent of each standard. The wording of some standards is so clear, however, that only partial support or no additional support seems necessary.
- **Standards for Mathematical Practice** are listed in the right column.

Formatting Notes

- **Black** – words/phrases from the Common Core State Standards Document
- **Purple bold** – strong connection to current state curriculum for this course
- **Red Bold** - items unique to Maryland Common Core State Curriculum Frameworks
- **Blue bold** – words/phrases that are linked to clarifications
- **Green bold** – standard codes from other courses that are referenced and are hot linked to a full description

Standards for Mathematical Practice

The Standards for Mathematical Practice describe varieties of expertise that mathematics educators at all levels should seek to develop in their students. These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education. The first of these are the NCTM process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council’s report *Adding It Up*: adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one’s own efficacy).

1. Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.

2. Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

3. Construct viable arguments and critique the reasoning of others.

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not

generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

4. Model with mathematics.

Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.

5. Use appropriate tools strategically.

Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.

6. Attend to precision.

Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.

7. Look for and make use of structure.

Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single

objects or as being composed of several objects. For example, they can see $5 - 3(x - y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y .

8. Look for and express regularity in repeated reasoning.

Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$ and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.

Connecting the Standards for Mathematical Practice to the Standards for Mathematical Content

The Standards for Mathematical Practice describe ways in which developing student practitioners of the discipline of mathematics increasingly ought to engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments, and professional development should all attend to the need to connect the mathematical practices to mathematical content in mathematics instruction. The Standards for Mathematical Content are a balanced combination of procedure and understanding. Expectations that begin with the word “understand” are often especially good opportunities to connect the practices to the content. Students who lack understanding of a topic may rely on procedures too heavily. Without a flexible base from which to work, they may be less likely to consider analogous problems, represent problems coherently, justify conclusions, apply the mathematics to practical situations, use technology mindfully to work with the mathematics, explain the mathematics accurately to other students, step back for an overview, or deviate from a known procedure to find a shortcut. In short, a lack of understanding effectively prevents a student from engaging in the mathematical practices. In this respect, those content standards which set an expectation of understanding are potential “points of intersection” between the Standards for Mathematical Content and the Standards for Mathematical Practice. These points of intersection are intended to be weighted toward central and generative concepts in the school mathematics curriculum that most merit the time, resources, innovative energies, and focus necessary to qualitatively improve the curriculum, instruction, assessment, professional development, and student achievement in mathematics.

Codes for Common Core State Standards (Math) Standards – K – 12

Grades K – 8		Applicable Grades
CC	Counting & Cardinality	K
EE	Expressions & Equations	6, 7, 8
F	Functions	8
G	Geometry	K, 1, 2, 3, 4, 5, 6, 7, 8
MD	Measurement & Data	K, 1, 2, 3, 4, 5
NBT	Number & Operations (Base Ten)	K, 1, 2, 3, 4, 5
NF	Number & Operations (Fractions)	3, 4, 5
NS	Number System	6, 7, 8
OA	Operations & Algebraic Thinking	K, 1, 2, 3, 4, 5
RP	Ratios & Proportional Relationship	6, 7
SP	Statistics & Probability	6, 7, 8
Modeling		
No Codes		Not determined
High School		
Algebra (A)		
A-APR	Arithmetic with Polynomial & Rational Expressions	8 -12
A-CED	Creating Equations	8 -12
A-REI	Reasoning with Equations & Inequalities	8 -12
A-SSE	Seeing Structure in Expressions	8 -12
Functions (F)		
F-BF	Building Functions	8 -12
F-IF	Interpreting Functions	8 -12
F-LE	Linear, Quadratic & Exponential Models	8 -12
F-TF	Trigonometric Functions	Not determined
Geometry (G)		
G-C	Circles	Not determined
G-CO	Congruence	Not determined
G-GMD	Geometric Measurement & Dimension	Not determined
G-MG	Modeling with Geometry	Not determined
G-GPE	Expressing Geometric Properties with Equations	Not determined
G-SRT	Similarity, Right Triangles & Trigonometry	Not determined
Number & Quantity (N)		
N-CN	Complex Number System	Not determined
N-Q	Quantities	Not determined
N-RN	Real Number System	8 -12
N-VM	Vector & Matrix Quantities	Not determined
Statistics (S)		
S-ID	Interpreting Categorical & Quantitative Data	8 -12
S-IC	Making Inferences & Justifying Conclusions	Not determined
S-CP	Conditional Probability & Rules of Probability	Not determined
S-MD	Using Probability to Make Decisions	Not determined
Modeling		
No Codes		Not determined

DOMAIN: Counting and Cardinality		
Cluster	Standard	Mathematical Practices
<p>Know number names and the count sequence.</p>	<p>Standard: PK.CC.1 Count verbally to 10 by ones. (SC PK)</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to rote counting number words in order • Ability to use Verbal counting as meaningful counting to solve a problem, such as finding out how many are in a set <p>Standard: PK.CC.2 Recognize the concept of just after or just before a given number in the counting sequence up to 10.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to use concrete materials and/or number cards arranged in a line to count and then determine what number comes before or away a specific number • Students are not expected to write numerals at this time. <p>Standard: PK.CC.3 Recognize written numerals 0-10.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to match written numerals with concrete representations • Students are not expected to write numerals at this time. 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.
<p>Count to tell the number of objects.</p>	<p>Standard PK.CC4: Understand the relationship between numbers and quantities to 5, then to 10; connect counting to cardinality.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • See the Skills and Knowledge listed for Standards PKCC4a-c to apply to this Standard. 	

DOMAIN: Counting and Cardinality		
Cluster	Standard	Mathematical Practices
	<p>Standard: PK.CC.4a: When counting objects, say the number names in the standard order, pairing each object with one and only one number name.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to apply the strategies of touching objects as they are counted and by organizing the objects in a row • Knowledge of and ability to apply one-to-one correspondence when counting <p>Standard: PK.CC.4b: Recognize that the last number name said tells the number of objects counted.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to use one-to-one correspondence when counting objects • Ability to answer “how many” after counting the objects in a set (beginning cardinality understanding) • Ability to recognize that the quantity remains the same regardless of the arrangement or change in order <p>Standard: PK.CC.4c: Recognize that each successive number name refers to a quantity that is one larger.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to build and compare sets that increase by one • Ability to use concrete materials and 0-10 number line • Beginning knowledge of the relationships between numbers (patterns) which will lead to long-term understanding of counting cardinality 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.

DOMAIN: Counting and Cardinality		
Cluster	Standard	Mathematical Practices
	<p>Standard: PK.CC.5 Represent a number (0-5, then to 10) by producing a set of objects with concrete materials, pictures, and/or numerals (with 0 representing a count of no objects).</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to build sets with concrete materials to show a given amount • Students are not expected to write the numerals at this time • Ability to represent sets with drawings which will lead to the ability to subitize • Knowledge of the relationship between counting and quantity • Ability to match sets with numerals, and create sets to match numerals, up to five, then to ten • Knowledge of an ability to use of regular configurations/structured sets especially when working with larger numbers. Ability to use varied configurations and representations with smaller numbers <p>Standard: PK.CC.6 Recognize the number of objects in a set without counting (Subitizing). (Use 0-5 objects)</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • See the skills and knowledge as stated in the Standard. 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.
Compare quantities.	<p>Standard: PK.CC.7 Explore relationships by comparing groups of objects up to 10, to determine greater than/more or less than, and equal to/same (SC PK)</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to compare sets visually and/or by matching the sets using 	

DOMAIN: Counting and Cardinality		
Cluster	Standard	Mathematical Practices
	<p>one-to-one correspondence</p> <ul style="list-style-type: none"> • Knowledge of the terms “greater than/more than”, “less than”, and “equal to/same” through experiences with comparing groups of objects (e.g., “There are more boys than girls.”) • Ability to identify which number comes later in the counting sequence when counting two sets of objects <p>Standard: PK.CC.8 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 (includes groups with up to 5 objects).</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to compare two sets, by matching and counting objects • Ability to compare sets numerically • Ability to use the terms “greater than/more than”, “less than”, and “equal to/same” (e.g., “There are more boys than girls because there are 5 boys and 2 girls”.) • Ability to know that when a set has more than another set, the number that represents its quantity comes later in the counting sequence than the number that represents the smaller set 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.

Domain: Operations & Algebraic Thinking		
Cluster	Standard	Mathematical Practices
<p>Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.</p>	<p>Standard: PK.OA.1 Explore addition and subtraction with objects, fingers, mental images, drawings¹, sounds (e.g., claps), acting out situations, or verbal explanations.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Knowledge that “Putting together” and “adding to” are two different processes of addition • Knowledge that “Taking apart” and “taking from” are two different processes of subtraction • Ability to use actual, physical objects to represent the problem when working on a solution (e.g., dinosaur toys to represent dinosaur problem, sticker represent stickers, fingers represent fingers) • Ability to use “Math manipulative” to represent the objects (e.g., unifix cubes may represent foods, two-sided counters may represent animals) when working on a solution • Ability to use pictures either drawn by teacher and/or by student to solve the problem (Student drawings need not show details, but should show the mathematics in the problem.) • Ability to use visualization of the problem to arrive at a solution • Students are not expected to write equations in Prekindergarten 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.
	<p>Standard: PK.OA.2 Decompose quantity (less than or equal to 5, then to 10) into pairs in more than one way (e.g., by using objects or drawings).</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to manipulate sets to explore 	

Domain: Operations & Algebraic Thinking		
Cluster	Standard	Mathematical Practices
	<p>decomposition of number rather than working on $5 = 3 + 2$.</p> <p>Standard: PK.OA.3 For any given quantity from (0 to 5, then to 10) find the quantity that must be added to make 5, then to 10, e.g., by using objects or drawings.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> Ability to use manipulatives to find the amount needed to complete the set 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.

Domain: Number and Operations in Base Ten		
Cluster	Standard	Mathematical Practices
Work with numbers 0-10 to gain foundations for place value.	<p>Standard: PK.NBT.1 Investigate the relationship between ten ones and ten.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to explore ten ones in various ways using manipulatives (e.g., Digi-Blocks, base ten blocks, linking cubes.) • Knowledge of how ten ones makes a ten is the initial foundation of place value 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.

Domain: Measurement & Data		
Cluster	Standard	Mathematical Practices
Describe and compare measurable attributes.	<p>Standard: PK.MD.1 Describe measurable attributes of objects, such as length or weight. (SC PK)</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to use vocabulary specific to measurable attributes of objects 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.
	<p>Standard: PK.MD.2 Directly compare two objects with a measurable attribute in common, using words such as longer/shorter; heavier/lighter; or taller/shorter.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Knowledge of length/weight as absolute descriptors • Ability to physically align two objects to determine which is longer, shorter, or if they are the same length • Ability to physically align two objects to determine which is taller, shorter, or if they are the same height • Ability to compare the weight of two concrete objects to determine which is heavier, lighter, or if they are the same weight. 	
Sort objects into categories and compare quantities.	<p>Standard: PK.MD.3 Sort objects into given categories.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • See the skills and knowledge as stated in the Standard. <p>Standard: PK.MD.4 Compare categories using words such as <i>greater than/more, less than, and equal to/same.</i></p>	

Domain: Measurement & Data		
Cluster	Standard	Mathematical Practices
	<p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to sort objects into categories and then compare the categories (e.g., There are more bus riders than car riders; or there are the same number of large and small bears.) • Ability to compare quantities of the categories visually or by aligning of the items one to one, not by the numeric comparison • Knowledge of and ability to apply appropriate comparison vocabulary 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.

Domain: Geometry		
Cluster	Standard	Mathematical Practices
Identify and describe two-dimensional shapes (circles, triangles, rectangles; including a square which is a special rectangle).	<p>Standard PK.G.1: Match like (congruent and similar) shapes.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to match similar shapes when given various two-dimensional shapes • Students do not need to name the shapes or even identify attributes at this time <p>Standard PK.G.2: Group the shapes by attributes.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to sort shapes by applying their real-life experiences of sorting by color • Knowledge that rectangles and squares may be grouped together as 4-sided figures, which is an important relationship for children to discover • Ability to be able to explain their groupings <p>Standard: PK.G.3: Correctly name shapes (regardless of their orientations or overall size).</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to name shapes in varied sizes and orientations • Ability to distinguish Examples and non-examples of various shapes 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.
Work with three-dimensional shapes to gain foundation for geometric thinking.	<p>Standard: PK.G.4 Match and sort shapes.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Knowledge of three-dimensional figures and their relationship to each other and to two- 	

Domain: Geometry		
Cluster	Standard	Mathematical Practices
	<p>dimensional shapes</p> <ul style="list-style-type: none"> • Students are not expected to name these shapes. <p>Standard: PK.G.5 Describe three-dimensional objects using attributes.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to describe three-dimensional objects using vocabulary such as size, shape, color, corners, edges, and/or similarities to other shapes <p>Standard: PK.G.6: Compose and describe structures using three-dimensional shapes. Descriptions may include shape attributes, relative position, etc.</p> <p>Essential Skills and Knowledge</p> <ul style="list-style-type: none"> • Ability to build structures using manipulatives and blocks • Ability to describe their structures including shapes, sizes, comparisons, positional relationships, etc 	<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for regularity in repeated reasoning.