Standards Alignment, K-2

NGSS Alignment	CCSS Math Alignment
Disciplinary Core Ideas (Standards) **2.PS1.A: Structure and Properties of Matter** ● Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. (2-PS1-1) ● Different properties are suited to different purposes. (2-PS1-2),(2-PS1-3) ● A great variety of objects can be built up from a small set of pieces. (2-PS1-3) **K-2.ETS1.A: Defining Engineering Problems** ● A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (secondary to K-PS2-2) ● Asking questions, making observations, and gathering information are helpful in thinking about problems. (K-2-ETS1-1) ● Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS1-1) **K-2.ETS1.B: Developing Possible Solutions** ● Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. (secondary to K-ESS3-3) **K-2.ETS1.C: Optimizing the Design Solution** ● Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS1-3)	**K.CC.1** - Count to 100 by ones and tens. **K.CC.4** - Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. b. Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted. c. Understand that each successive number name refers to a quantity that is one larger. **K.MD.1** - Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. **K.G.2** - Correctly name shapes regardless of their orientations or overall size. **K.G.3** - Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid"). **K.G.4** - Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/"corners") and other attributes (e.g., having sides of equal length). **K.G.5** - Model shapes in the world by building shapes from components and drawing shapes. **1.NBT.1 -** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral. **1.NBT.3 -** Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <. **1.MD.1 -** Order three objects by length; compare the lengths of two objects indirectly by using a third object. **1.G.1 -** Distinguish between defining attributes versus non-defining attributes; build and draw shapes to possess defining attributes. **2.NBT.2 -** Count within 1000; skip-count by 5s, 10s, and 100s. **2.NBT.3 -** Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. **2.NBT.4 -** Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. **2.MD.1 -** Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes. **2.MD.2 -** Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen. **2.MD.3 -** Estimate lengths using units of inches, feet, centimeters, and meters. **2.MD.4 -** Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard unit length. **2.MD.5 -** Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. **2.G.1 -** Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.

Standards Alignment, 3-5

NGSS Alignment	CCSS Math Alignment
Disciplinary Core Ideas (Standards) **3.PS2.A: Forces and Motion** ● Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.) (3-PS2-1) ● The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.) (3-PS2-2) **3.PS2.B: Types of Interactions** ● Objects in contact exert forces on each other. (3-PS2-1) **5.PS2.B: Types of Interactions** ● The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1) **3-5.ETS1.A: Defining and Delimiting Engineering Problems** ● Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1) **3.5-ETS1.B: Developing Possible Solutions** ● Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) ● At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2) ● Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) **3.5-ETS1.C: Optimizing the Design Solution** ● Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)	**3.NBT.1 -** Use place-value understanding to round whole numbers to the nearest 10 or 100. **3.NBT.2 -** Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. **3.MD.4 -** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units - whole numbers, halves, or quarters. **3.MD.5 -** Recognize area as an attribute of plane figures and understand concepts of area measurement. **3.MD.6 -** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units. **3.MD.8 -** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different area or with the same area and different perimeters. **4.NBT.2 -** Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. **4.NBT.3 -** Use place value understanding to round multi-digit whole numbers to any place. **4.NBT.4 -** Fluently add and subtract multi-digit whole numbers using the standard algorithm. **4.MD.3 -** Apply the area and perimeter formulas for rectangles in real world and mathematical problems. **4.G.2 -** Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. **5.NF.4 -** Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. B. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas. **5.MD.1 -** Convert among different-sized standard measurement units within a given measurement system, and use these conversions in solving multi-step, real world problems. **5.MD.3 -** Recognize volume as an attribute of solid figures and understand concepts of volume measurement. **5.MD.4 -** Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. **5.MD.5 -** Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. **5.G.2 -** Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.