Standard Course of Study Alignment

Mathematics (2017)

Legend

•	The standard is clearly addressed by program activities.
-	This standard potentially could be addressed as part of *FIRST*® LEGO® League Discover either by actions that the coach or teacher takes when working with the students or by conditions established by the program.

Kindergarten

Abbreviation	Standard	Addressed
Counting and Cardinality		
Know number names and the counting sequence.		
NC.K.CC.1	Know number names and recognize patterns in the counting sequence by: • Counting to 100 by ones. • Counting to 100 by tens.	-
NC.K.CC.2	Count forward beginning from a given number within the known sequence, instead of having to begin at 1.	-
NC.K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20, with 0 representing a count of no objects.	-
Count to tell the number of objects.		
NC.K.CC.4	Understand the relationship between numbers and quantities. • 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 (one-to-one correspondence). • Recognize that the last number named tells the number of objects counted regardless of their arrangement (cardinality). • State the number of objects in a group, of up to 5 objects, without counting the objects (perceptual subitizing).	-
NC.K.CC.5	Count to answer "How many?" in the following situations: • Given a number from 1–20, count out that many objects. • Given up to 20 objects, name the next successive number when an object is added, recognizing the quantity is one more/greater. • Given 20 objects arranged in a line, a rectangular array, and a circle, identify how many. • Given 10 objects in a scattered arrangement, identify how many.	-
Compare numbers.		
NC.K.CC.6	Identify whether the number of objects, within 10, in one group is greater than, less than, or equal to the number of objects in another group, by using matching and counting strategies.	-
NC.K.CC.7	Compare two numbers, within 10, presented as written numerals.	-
Operations and Algebraic Thinking		
Understand addition and subtraction.		
NC.K.OA.1	Represent addition and subtraction, within 10: • Use a variety of representations such as objects, fingers, mental images, drawings, sounds, acting out situations, verbal explanations, or expressions. • Demonstrate understanding of addition and subtraction by making connections among representations.	-
NC.K.OA.2	Solve addition and subtraction word problems, within 10, using objects or drawings to represent the problem, when solving:	-

	• Add to/Take From-Result Unknown • Put Together/ Take Apart (Total Unknown and Two Addends Unknown)	
NC.K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way using objects or drawings, and record each decomposition by a drawing or expression.	-
NC.K.OA.4	For any number from 0 to 10, find the number that makes 10 when added to the given number using objects or drawings, and record the answer with a drawing or expression.	-
NC.K.OA.6	Recognize and combine groups with totals up to 5 (conceptual subitizing).	-
NC.K.OA.5	Demonstrate fluency with addition and subtraction within 5.	-
Number and Operations in Base Ten		
Build foundation for place value.		
NC.K.NBT.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones by: • Using objects or drawings. • Recording each composition or decomposition by a drawing or expression. • Understanding that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	-
Measurement and Data		
Describe and compare measurable attributes.		
NC.K.MD.1	Describe measurable attributes of objects; and describe several different measurable attributes of a single object.	●
NC.K.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has "more of"/"less of" the attribute, and describe the difference.	-
Classify objects and count the number of objects in each category.		
NC.K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.	-
Geometry		
Identify and describe shapes.		
NC.K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of objects using positional terms.	●
NC.K.G.2	Correctly name squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres regardless of their orientations or overall size.	-
NC.K.G.3	Identify squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres as two-dimensional or three- dimensional.	-
Analyze, compare, create, and compose shapes.		
NC.K.G.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, attributes and other properties.	-
NC.K.G.5	Model shapes in the world by: • Building and drawing triangles, rectangles, squares, hexagons, circles. • Building cubes, cones, spheres, and cylinders.	●
NC.K.G.6	Compose larger shapes from simple shapes.	●

Grade 1

Abbreviation	Standard	Addressed
Operations and Algebraic Thinking		
Represent and solve problems.		
NC.1.OA.1	Represent and solve addition and subtraction word problems, within 20, with unknowns, by using objects, drawings, and equations with a symbol for the unknown number to represent the problem, when solving:	-

	• Add to/Take from-Change Unknown • Put together/Take Apart-Addend Unknown • Compare-Difference Unknown	
NC.1.OA.2	Represent and solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, by using objects, drawings, and equations with a symbol for the unknown number.	-
Understand and apply the properties of operations.		
NC.1.OA.3	• Apply the commutative and associative properties as strategies for solving addition problems.	-
NC.1.OA.4	• Solve an unknown-addend problem, within 20, by using addition strategies and/or changing it to a subtraction problem.	-
Add and subtract within 20.		
NC.1.OA.9	Demonstrate fluency with addition and subtraction within 10.	-
NC.1.OA.6	Add and subtract, within 20, using strategies such as: • Counting on • Making ten • Decomposing a number leading to a ten • Using the relationship between addition and subtraction • Using a number line • Creating equivalent but simpler or known sums	-
Analyze addition and subtraction equations within 20.		
NC.1.OA.7	Apply understanding of the equal sign to determine if equations involving addition and subtraction are true.	-
NC.1.OA.8	Determine the unknown whole number in an addition or subtraction equation involving three whole numbers.	-
Number and Operations in Base Ten		
Extend and recognize patterns in the counting sequence.		
NC.1.NBT.1	Count to 150, starting at any number less than 150.	-
NC.1.NBT.7	Read and write numerals, and represent a number of objects with a written numeral, to 100.	-
Understand place value.		
NC.1.NBT.2	Understand that the two digits of a two-digit number represent amounts of tens and ones. • Unitize by making a ten from a collection of ten ones. • Model the numbers from 11 to 19 as composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. • Demonstrate that the numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens, with 0 ones.	-
NC.1.NBT.3	Compare two two-digit numbers based on the value of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	-
Use place value understanding and properties of operations.		
NC.1.NBT.4	Using concrete models or drawings, strategies based on place value, properties of operations, and explaining the reasoning used, add, within 100, in the following situations: • A two-digit number and a one-digit number • A two-digit number and a multiple of 10	-
NC.1.NBT.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	-
NC.1.NBT.6	Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90, explaining the reasoning, using: • Concrete models and drawings • Number lines • Strategies based on place value	-

	• Properties of operations • The relationship between addition and subtraction	
Measurement and Data		
Measure lengths.		
NC.1.MD.1	Order three objects by length; compare the lengths of two objects indirectly by using a third object.	-
NC.1.MD.2	Measure lengths with non-standard units. • Express the length of an object as a whole number of non-standard length units. • Measure by laying multiple copies of a shorter object (the length unit) end to end (iterating) with no gaps or overlaps.	-
Build understanding of time and money.		
NC.1.MD.3	Tell and write time in hours and half-hours using analog and digital clocks.	
NC.1.MD.5	Identify quarters, dimes, and nickels and relate their values to pennies.	
Represent and interpret data.		
NC.1.MD.4	Organize, represent, and interpret data with up to three categories. • Ask and answer questions about the total number of data points. • Ask and answer questions about how many in each category. • Ask and answer questions about how many more or less are in one category than in another.	
Geometry		
Reason with shapes and their attributes.		
NC.1.G.1	Distinguish between defining and non-defining attributes and create shapes with defining attributes by: • Building and drawing triangles, rectangles, squares, trapezoids, hexagons, circles. • Building cubes, rectangular prisms, cones, spheres, and cylinders.	-
NC.1.G.2	Create composite shapes by: • Making a two-dimensional composite shape using rectangles, squares, trapezoids, triangles, and half-circles naming the components of the new shape. • Making a three-dimensional composite shape using cubes, rectangular prisms, cones, and cylinders, naming the components of the new shape.	-
NC.1.G.3	Partition circles and rectangles into two and four equal shares. • Describe the shares as halves and fourths, as half of and fourth of. • Describe the whole as two of, or four of the shares. • Explain that decomposing into more equal shares creates smaller shares.	