Kindergarten Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
K.CC.A.1 Count to 100 by ones and by tens.	**LAC.K.CC.A.1a** Rote count up to 10. **LAC.K.CC.A.1b** Rote count up to 31. **LAC.K.CC.A.1c** Rote count up to 100.
K.CC.A.2 Count forward beginning from a given number within the known sequence (instead of having to begin at 1).	**LAC.K.CC.A.2** Count forward beginning from any given number below 10.
K.CC.A.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).	**LAC.K.CC.A.3a** Identify numerals 1-10. **LAC.K.CC.A.3b** Identify the numerals 1-10 when presented the name of the number. **LAC.K.CC.A.3c** Write or select the numerals 1-10. **LAC.K.CC.A.3d** Match the numeral to the number of objects in a set.
K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality. a. When counting objects in standard order, say the number names as they relate to each object in the group, demonstrating one-to-one correspondence. 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.	**LAC.K.CC.B.4** Use manipulatives (e.g., counters, blocks) to count up to 10 objects by matching one number per object.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Kindergarten Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
K.CC.B.5 Count to answer "How many?" questions. a. Count objects up to 20, arranged in a line, a rectangular array, or a circle. b. Count objects up to 10 in a scattered configuration. c. When given a number from 1-20, count out that many objects	**LAC.K.CC.B.5** Count up to 10 objects in a line, rectangle, or array.
K.CC.C.6 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.	**LAC.K.CC.C.6** Identify the set that has more.
K.CC.C.7 Compare two numbers between 1 and 10 presented as written numerals.	**LAC.K.CC.C.7** Identify the smaller or larger number given 2 numbers between 0-10.
K.OA.A.1 Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	**LAC.K.OA.A.1a** Use objects or pictures to respond appropriately to "add __" and "take away ___." **LAC.K.OA.A.1b** Communicate answer after adding or taking away.
K.OA.A.2 Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.	**LAC.K.OA.A.2a** Solve one step addition and subtraction word problems, and add and subtract within 10 using objects, drawings, pictures. **LAC.K.OA.A.2b** Solve word problems within 10**.**
K.OA.A.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).	**LAC.K.OA.A.3** Decompose a set of up to 10 objects into a group; count the quantity in each group**.**
K.OA.A.4 For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.	**LAC.K.OA.A.4** For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record or select the answer.
K.OA.A.5 Fluently add and subtract within 5.	**LAC.K.OA.A.5** Add and subtract within 5 using manipulatives.
K.NBT.A.1 Gain understanding of place value. a. Understand that the numbers 11–19 are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones. b. Compose and decompose numbers 11 to 19 using place value (e.g., by using objects or drawings). c. Record each composition or decomposition using a drawing or equation (e.g., 18 is one ten and eight ones, 18 = 1 ten + 8 ones, 18 = 10 + 8).	**LAC.K.NBT.A.1** Build representations of numbers up to 19 by creating a group of 10 and some 1s (e.g., 13 = one 10 and three 1s).

Kindergarten Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	**LAC.K.MD.A.1** Describe objects in terms of measurable attributes (longer, shorter, heavier, lighter…).
K.MD.A.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. *For example, directly compare the heights of two children and describe one child as taller/shorter.*	**LAC.K.MD.A.2** Compare 2 objects with a measurable attribute in common to see which object has more/less of the attribute (length, height, weight).
K.MD.B.3 Classify objects into given categories based on their attributes; count the number of objects in each category; sort categories by quantity.	**LAC.K.MD.B.3** Sort objects by characteristics (e.g., big/little, colors, shapes, etc.).
K.MD.C.4 Recognize pennies, nickels, dimes, and quarters by name and value (e.g., This is a nickel and it is worth 5 cents.).	**LAC.K.MD.C.4** Recognize pennies, nickels, dimes, and quarters by name and value (e.g., This is a nickel and it is worth 5 cents.).
K.G.A.1 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 of*, *behind*, and *next to*.	**LAC.K.G.A.1** Use spatial language (e.g., above, below, etc.) to describe two-dimensional shapes.
K.G.A.2 Correctly name shapes regardless of their orientations or overall size.	**LAC.K.G.A.2a** Recognize two- dimensional shapes (e.g., circle, square, triangle, rectangle) regardless of orientation or size. **LAC.K.G.A.2b** Recognize two-dimensional shapes in environment regardless of orientation or size.
K.G.A.3 Identify shapes as two-dimensional (lying in a plane, "flat") or three-dimensional ("solid").	**LAC.K.G.A.3a** Identify shapes as two-dimensional (lying flat) or three-dimensional (solid). **LAC.K.G.A.3b** Distinguish two-dimensional shapes based upon their defining attributes (i.e., size, corners, and points).
K.G.B.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).	**LAC.K.G.B.4** Use informal language to describe how two shapes are similar and/or different.
K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.	**LAC.K.G.B.5** Uses three dimensional objects (blocks, sticks, balls) to model shapes in the world.
K.G.B.6 Compose simple shapes to form larger shapes. *For example, "Can you join these two triangles with full sides touching to make a rectangle?*	**LAC.K.G.B.6** Compose a larger shape from smaller shapes.

Grade 1 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
Counting and Cardinality is NOT a domain in the Grade 1 Louisiana Student Standards; however, it has been added to the Extended Student Standards to allow students to further progress in these skills.	**Counting and Cardinality: Understand the relationship between numbers and quantities.** **LAC.1.CC.1a** Use a number line to count up to 31 objects by matching 1 object per number.
	Counting and Cardinality: Write numbers from 0-31 and represent a number of objects with a written numeral. **LAC.1.CC.1b** Identify numerals 0-31. **LAC.1.CC.1c** Identify the numeral up to 31 when presented the name. **LAC.1.CC.1d** Write or select the numerals 0-31. **LAC.1.CC.1e** Recognize zero as representing none or no objects.
	Counting and Cardinality: Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group. **LAC.1.CC.1f** Compare 2 sets and identify the set that is either greater than or less than the other set. **LAC.1.CC.1g** Order up to 3 sets that have up to 10 objects in each set. **LAC.1.CC.1h** Order up to 3 sets with up to 20 objects in each set.
	Counting and Cardinality: Compare two numbers between 0 and 31 presented as written numerals. **LAC.1.CC.1i** Order up to 3 numbers up to 31. **LAC.1.CC.1j** Identify the smaller or larger number given 2 numbers between 0-31.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Grade 1 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
1.OA.A.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	**LAC.1.OA.A.1a** Use manipulatives or representations to write simple addition or subtraction equations within 20 based upon a word problem. **LAC.1.OA.A.1b** Solve word problems within 20. **LAC.1.OA.A.1c** Using objects or pictures respond appropriately to "add __" and "take away ___." **LAC.1.OA.A.1d** Solve one step addition and subtraction word problems where the change or result is unknown (4 + _ = 7) or (4 + 3 = __), within 20 using objects, drawings, pictures.
1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.	**LAC.1.OA.A.2** Solve word problems that call for addition of two or three numbers whose sum is less than or equal to 20 by using objects t and drawings.
1.OA.B.3 Apply properties of operations to add and subtract. *Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known. (Commutative property of addition.) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12. (Associative property of addition.)*	**LAC.1.OA.B.3a** Recognize zero as an additive identity. **LAC.1.OA.B.3b** Use commutative properties to solve addition problems with sums up to 20 (e.g., 3 + 8 = 11 therefore 8 + 3 = __). **LAC.1.OA.B.3c** Use associative property to solve addition problems with sums up to 20.
1.OA.B.4 Understand subtraction as an unknown-addend problem. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*	**LAC.1.OA.B.4** Subtract within 20 by using the strategy of an unknown addend. *For example, subtract 10 – 8 by finding the number that makes 10 when added to 8.*
1.OA.C.5 Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).	**LAC.1.OA.C.5a** Decompose a set of up to 20 objects into a group; count the quantity in each group. **LAC.1.OA.C.5b** Count 2 sets to find sums up to 20.
1.OA.C.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use mental strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13).	**LAC.1.OA.C.6** Add and subtract within 20 supported by the use of manipulatives.

Grade 1 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
1.OA.D.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false. *For example, which of the following equations are true and which are false? 6 = 6, 7 = 8 – 1, 5 + 2 = 2 + 5, 4 + 1 = 5 + 2.*	**LAC.1.OA.D.7a** Identify and apply addition and equal signs. **LAC.1.OA.D.7b** Label simple equations as = or with the phrase not equal. **LAC.1.OA.D.7c** Identify and apply addition, subtraction, and equal signs.
1.OA.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □.*	**LAC.1.OA.D.8** Determine the unknown whole number in an addition or subtraction equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 + ? = 11, 5 = □ – 3, 6 + 6 = □.*
1.NBT.A.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.	**LAC.1.NBT.A.1a** Rote count up to 31. **LAC.1.NBT.A.1b** Rote count up to 100.
1.NBT.B.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases: a. 10 can be thought of as a bundle of ten ones—called a "ten." b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).	**LAC.1.NBT.B.2a** Build representations of numbers up to 19 by creating a group of 10 and some 1s (e.g., 13 = one 10 and three 1s). **LAC.1.NBT.B.2b** Identify the value of the numbers in the tens and ones place within a given number up to 31.
1.NBT.B.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	**LAC.1.NBT.B.3** Compare two digit numbers up to 31 using representations and numbers (e.g., identify more tens, less tens, more ones, less ones, larger number, smaller number).
1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10. a. Use concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a number sentence; justify the reasoning used with a written explanation. b. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.	**LAC.1.NBT.C.4a** Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10. **LAC.1.NBT.C.4b** Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.	**LAC.1.NBT.C.5** Mentally add or subtract 10 from a given two-digit number without having to count.

Grade 1 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
1.NBT.C.6 Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	**LAC.1.NBT.C.6** Mentally add or subtract 10 from a given set from the 10s family (e.g., what is 10 more than 50? What is 10 less than 70?).
1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.	**LAC.1.MD.A.1** Order three objects by length; compare the lengths of two objects indirectly by using a third object.
1.MD.A.2 Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. *Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.*	**LAC.1.MD.A.2a** Measure using copies of one object to measure another. **LAC.1.MD.A.2b** Express length of an object as a whole number of lengths unit by laying multiple copies of a shorter object end to end. **LAC.1.MD.A.2c** Compare two units of measurement and identify which unit would require more or less when measuring a selected object (e.g., I can measure with paper clips or markers, which unit will require more to measure the table?).
1.MD.B.3 Tell and write time in hours and half-hours using analog and digital clocks.	**LAC.1.MD.B.3a** Use time to sequence up to three events, using a digital or analog clock. **LAC.1.MD.B.3b** Tell time to the nearest ½ hour using digital clocks.
1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	**LAC.1.MD.C.4a** Select questions that ask about "How many" and represent up to three categories that can be concretely represented. **LAC.1.MD.C.4b** Identify 2 categories resulting from a selected question. **LAC.1.MD.C.4c** Analyze data by sorting into 2 categories; answer questions about the total number of data points and how many in each category. **LAC.1.MD.C.4d** Using a picture graph, represent each object/person counted on the graph (1:1 correspondence) for 2 or more categories. **LAC.1.MD.C.4e** Interpret a picture graph to answer questions about how many in each category. **LAC.1.MD.C.4f** Select a question about three attributes that can be concretely represented. **LAC.1.MD.C.4g** Identify up to three categories resulting from a selected question.

Grade 1 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
1.MD.D.5 Determine the value of a collection of coins up to 50 cents. (Pennies, nickels, dimes, and quarters in isolation; not to include a combination of different coins.)	**LAC.1.MD.D.5** Determine the value of a collection of coins up to 50 cents. (Pennies, nickels, dimes, and quarters in isolation; not to include a combination of different coins.)
1.G.A.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes that possess defining attributes.	**LAC.1.G.A.1** Distinguish two-dimensional shapes based upon their defining attributes (i.e., size, corners, and points).
1.G.A.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) and three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape	**LAC.1.G.A.2** Compose two- and three-dimensional shapes.
1.G.A.3 Partition circles and rectangles into two and four equal shares, describe the shares using the words *halves*, *fourths*, and *quarters,* and use the phrases *half of*, *fourth of*, and *quarter of*. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	**LAC.1.G.A.3** Partition circles and rectangles into 2 and 4 equal parts.

Grade 2 Math	
Louisiana Student Standards	**Draft Louisiana Connectors(LAC)[1]**
2.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	**LAC.2.OA.A.1a** Represent addition of two sets when shown the + symbol. **LAC.2.OA.A.1b** Solve word problems within 20. **LAC.2.OA.A.1c** Solve word problems within 100. **LAC.2.OA.A.1d** Solve one- or two-step addition and subtraction problems, and add and subtract within 100, using objects, drawings, pictures. **LAC.2.OA.A.1e** Use pictures, drawings or objects to represent the steps of a problem.
2.OA.B.2 Fluently add and subtract within 20 using mental strategies. By the end of Grade 2, know from memory all sums of two one-digit numbers.	**LAC.2.OA.B.2** Add and subtract within 20 using manipulatives.
2.OA.C.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.	**LAC.2.OA.C.3** Identify numbers as odd or even.
2.OA.C.4 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.	**LAC.2.OA.C.4a** Find the total number of objects when given the number of identical groups and the number of objects in each group, neither number larger than 5. **LAC.2.OA.C.4b** Find the total number inside an array with neither number in the columns or rows larger than 5.
2.NBT.A.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens—called a "hundred." b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).	**LAC.2.NBT.A.1a** Build representations of two digit numbers using tens and ones. **LAC.2.NBT.A.1b** Build representations of three digit numbers using hundreds, tens and ones. **LAC.2.NBT.A.1c** Build representations of numbers using hundreds, tens and ones.

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Grade 2 Math	
Louisiana Student Standards	**Draft Louisiana Connectors(LAC)[1]**
2.NBT.A.2 Count within 1000; skip-count by 5s, 10s, and 100s.	**LAC.2.NBT.A.2a** Skip count by 5s. **LAC.2.NBT.A.2b** Skip count by 10s. **LAC.2.NBT.A.2c** Skip count by 100s.
2.NBT.A.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.	**LAC.2.NBT.A.3a** Identify numerals 0-100. **LAC.2.NBT.A.3b** Identify the numeral between 0 and 100 when presented the name. **LAC.2.NBT.A.3c** Write or select the numerals 0-100. **LAC.2.NBT.A.3d** Write or select expanded form for any two digit number. **LAC.2.NBT.A.3e** Write or select expanded form for any three digit number. **LAC.2.NBT.A.3f** Explain what the zero represents in place value (hundreds, tens, ones) in a number. **LAC.2.NBT.A.3g** Write or select the expanded form for up to three digit number.
2.NBT.A.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.	**LAC.2.NBT.A.4a** Compare (greater than, less than, equal to) two numbers up to 100. **LAC.2.NBT.A.4b** Compare two digit numbers using representations and numbers (e.g., identify more tens, less tens, more ones, less ones, larger number, smaller number). **LAC.2.NBT.A.4c** Compare three digit numbers using representations and numbers (e.g., identify more hundreds, less hundreds, more tens, less tens, more ones, less ones, larger number, smaller number).
2.NBT.B.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.	**LAC.2.NBT.B.5a** Model addition and subtraction with base 10 blocks within 20. **LAC.2.NBT.B.5b** Model addition and subtraction with base 10 blocks within 50. **LAC.2.NBT.B.5c** Model addition and subtraction with base 10 blocks within 100.
2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	**LAC.2.NBT.B.6** Combine up to 3 sets of 20 or less.

Grade 2 Math	
Louisiana Student Standards	**Draft Louisiana Connectors(LAC)[1]**
2.NBT.B.7 Add and subtract within 1000 using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; justify the reasoning used with a written explanation. 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.	**LAC.2.NBT.B.7a** Compose ones into tens and/or tens into hundreds in addition situation. **LAC.2.NBT.B.7b** Decompose tens into ones and/or hundreds into tens in subtraction situations. **LAC.2.NBT.B.7c** Use diagrams and number lines to solve addition or subtraction problems.
2.NBT.B.8 Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.	**LAC.2.NBT.B.8a** Mentally add or subtract 10 from a given set from the 10s family (e.g., what is 10 more than 50? What is 10 less than 70?). **LAC.2.NBT.B.8b** Mentally add or subtract 100 from a given set from the 100s family (e.g., what is 100 more than 500? What is 100 less than 700?). **LAC.2.NBT.B.8c** Mentally add or subtract 100 from a given set from the 100s family (e.g., what is 100 more than 500? What is 100 less than 700?).
2.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.	No Louisiana Connectors written for this standard.
2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	**LAC. 2.MD.A.1a** Select appropriate tool and unit of measurement to measure an object (ruler or yard stick; inches or feet). **LAC. 2.MD.A.1b** Select appropriate tools and demonstrate or identify appropriate measuring techniques.
2.MD.A.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.	**LAC.2.MD.A.2** Measure the length of an object using two different size units.
2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.	**LAC.2.MD.A.3a** Recognize that standard measurement units can be decomposed into smaller units. **LAC.2.MD.A.3b** Estimate the length of an object using units of feet and inches.
2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	**LAC.2.MD.A.4** Measure two objects with each no more than 10 inches long and find the difference in their lengths.

Grade 2 Math	
Louisiana Student Standards	**Draft Louisiana Connectors(LAC)[1]**
2.MD.B.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 (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.	**LAC.2.MD.B.5a** Solve one-step subtraction problems involving the difference of the lengths of two objects in standard length units. **LAC.2.MD.B.5b** Solve word problems involving the difference in standard length units.
2.MD.B.6 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.	**LAC.2.MD.B.6** Use diagrams and number lines to solve addition or subtraction problems.
2.MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	**LAC.2.MD.C.7** Tell time to the nearest 5 minutes using a digital clock.
2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. *Example: If you have 2 dimes and 3 pennies, how many cents do you have?*	**LAC.2.MD.C.8** Solve word problems using dollar bills, quarters, dimes, nickels, or pennies.
2.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Show the measurements by making a line plot, where the horizontal scale is marked off in whole-number units.	**2.MD.D.9** Organize data by representing continuous data on a line plot.
2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.	**LAC.2.MD.D.10a** Analyze data by sorting into categories established by each question. **LAC.2.MD.D.10 b** Organize data by representing categorical data on a pictorial graph or bar graph. **LAC.2.MD.D.10c** Identify the value of each category represented on picture graph and bar graph or each point on a line plot. **LAC.2.MD.D.10d** Compare the information shown in a bar graph or picture graph with up to four categories. Solve simple comparisons of how many more or how many less.
2.G.A.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.	**LAC.2.G.A.1a** Identify two-dimensional shapes such as rhombus, pentagons, hexagons, octagon, ovals, equilateral, isosceles, and scalene triangles. **LAC.2.G.A.1b** Distinguish two- or three-dimensional shapes based upon their attributes (i.e., # of sides, equal or different lengths of sides, # of faces, # of corners). **LAC.2.G.A.1c** Draw two-dimensional shapes with specific attributes.

Grade 2 Math	
Louisiana Student Standards	**Draft Louisiana Connectors(LAC)[1]**
2.G.A.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	**LAC.2.G.A.2** Find the total number of same size squares by counting when the number of rows and columns in a given array is 5 or less.
2.G.A.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words *halves*, *thirds*, *half of*, *a third of*, etc., and describe the whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.	**LAC.2.G.A.3a** Partition circles and rectangles into two and four equal parts. **LAC.2.G.A.3b** Label a partitioned shape (e.g., one whole rectangle was separated into two halves, one whole circle was separated into three thirds).

Grade 3 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
3.OA.A.1 Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as* 5 × 7.	**LAC.3.OA.A.** Describe a context in which a total number of objects can be expressed as product of two one-digit numbers.
3.OA.A.2 Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as* 56 ÷ 8.	**LAC.3.OA.A.2** Describe a context in which a number of shares or a number of groups can be expressed as a division problem.
3.OA.A.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	**LAC.3.OA.A.3a** Use objects to model multiplication and division situations involving up to 5 groups with up to 5 objects in each group and interpret the results. **LAC.3.OA.A.3b** Use objects to model multiplication and division situations involving up to 10 groups with up to 5 objects in each group and interpret the results.
3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = □ ÷ 3, 6 × 6 = ?.*	**LAC.3.OA.A.4a** Find total number inside an array with neither number in the columns or rows larger than 10. **LAC.3.OA.A.4b** Determine how many objects go into each group when given the total number of objects and the number of groups where the number in each group or number of groups is not greater than 10.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Grade 3 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
3.OA.B.5 Apply properties of operations as strategies to multiply and divide. *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*	**LAC.3.OA.B.5** Apply properties of operations as strategies to multiply and divide.
3.OA.B.6 Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	**LAC.3.OA.B.6a** Determine how many objects go into each group when given the total number of objects and the number of groups where the number in each group or number of groups is not greater than 5. **LAC.3.OA.B.6b** Determine the number of groups given the total number of objects and the number of objects in each group where the number in each group and the number of groups is not greater than 5.
3.OA.C.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.	**LAC.3.OA.C.7a** Find the total number of objects when given the number of identical groups and the number of objects in each group, neither number larger than 5. **LAC.3.OA.C.7b** Find the total number inside an array with neither number in the columns or rows larger than 5. **LAC.3.OA.C.7c** Solve multiplication problems with neither number greater than 5.
3.OA.D.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	**LAC.3.OA.D.8a** Use rounding to solve word problems. **LAC.3.OA.D.8b** Solve or solve and check one or two step word problems requiring addition, subtraction or multiplication with answers up to 100.
3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*	**LAC.3.OA.D.9a** Describe the rule for a numerical pattern (e.g., increase by 2, 5 or 10). **LAC.3.OA.D.9b** Select or name the three next terms in a numerical pattern where numbers increase by 2, 5 or 10. **LAC.3.OA.D.9c** Identify multiplication patterns in a real word setting.
3.NBT.A.1 Use place value understanding to round whole numbers to the nearest 10 or 100.	**LAC.3.NBT.A.1** Use place value to round to the nearest 10 or 100.

Grade 3 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
3.NBT.A.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.	**LAC.3.NBT.A.2a** Use the relationships between addition and subtraction to solve problems. **LAC.3.NBT.A.2b** Solve multi-step addition and subtraction problems up to 100. **LAC.3.NBT.A.2c** Solve multi-digit addition and subtraction problems up to 1000.
3.NBT.A.3 Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.	**LAC.3.NBT.A.3** Multiply a multiple of 10 in the range of 10-90 by a one digit whole number.
3.NF.A.1 Understand a fraction 1/*b*, with denominators 2, 3, 4, 6, and 8, as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.	**LAC.3.NF.A.1a** Identify the number of highlighted parts (numerator) of a given representation (rectangles and circles). **LAC.3.NF.A.1b** Identify the total number of parts (denominator) of a given representation (rectangles and circles). **LAC.3.NF.A.1c** Identify the fraction that matches the representation (rectangles and circles; halves, fourths, thirds, eighths). **LAC.3.NF.A.1d** Identify that a part of a rectangle can be represented as a fraction that has a value between 0 and 1. **LAC.3.NF.A.1e** Select a model of a given fraction (halves, thirds, fourths, sixths, eighths). **LAC.3.NF.A.1f** Using a representation, decompose a fraction into multiple copies of a unit fraction (e.g., ¾ = ¼ + ¼ + ¼).
3.NF.A.2 Understand a fraction with denominators 2, 3, 4, 6, and 8 as a number on a number line diagram. a. Represent a fraction 1/ b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	**LAC.3.NF.A.2a** Locate given common unit fractions (i.e., $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$) on a number line or ruler. **LAC.3.NF.A.2b** Locate fractions on a number line. **LAC.3.NF.A.2c** Order fractions on a number line.

Grade 3 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
3.NF.A.3 Explain equivalence of fractions with denominators 2, 3, 4, 6, and 8 in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	**LAC.3.NF.A.3a** Use =, <, or > to compare two fractions with the same numerator or denominator. **LAC.3.NF.A.3b** Express whole numbers as fractions. **LAC.3.NF.A.3c** Determine equivalent fractions.
3.MD.A.1 Understand time to the nearest minute. a. Tell and write time to the nearest minute and measure time intervals in minutes, within 60 minutes, on an analog and digital clock. b. Calculate elapsed time greater than 60 minutes to the nearest quarter and half hour on a number line diagram. c. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	**LAC.3.MD.A.1a** Solve word problems involving the addition and subtraction of time intervals of whole hours or within an hour (whole hours: 5:00 to 8:00, within hours: 7:15 to 7:45). **LAC.3.MD.A.1b** Determine the equivalence between number of minutes and the fraction of the hour (e.g., 30 minutes = ½ hour). **LAC.3.MD.A.1c** Determine the equivalence between the number of minutes and the number of hours (e.g., 60 minutes = 1 hour).
3.MD.A.2 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	**LAC.3.MD.A.2a** Add to solve one-step word problems. **LAC.3.MD.A.2b** Estimate liquid volume. **LAC.3.MD.A.2c** Select appropriate units for measurement(liquid volume, mass). **LAC.3.MD.A.2d** Select appropriate tools for measurement(liquid volume, mass). **LAC.3.MD.A.2e** Determine whether a situation calls for a precise measurement or an estimation.

Grade 3 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
3.MD.B.3 Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*	**LAC.3.MD.B.3a** Collect data, organize into picture or bar graph. **LAC.3.MD.B.3b** Select the appropriate statement that describes the data representations based on a givens scaled picture or bar graph.
3.MD.B.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.	**LAC.3.MD.B.4a** Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. **LAC.3.MD.B.4b** Measure to solve problems using number lines and ruler to 1 inch, ½ inch, or ¼ of an inch. **LAC.3.MD.B.4c** Organize measurement data into a line plot.
3.MD.C.5 Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.	**LAC.3.MD.C.5a** Select a square from pictures as the appropriate unit for measuring area. **LAC.3.MD.C.5b** Select a picture which correctly shows how to place squares to measure the area of a rectangle.
3.MD.C.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	**LAC.3.MD.C.6** Measure area of rectangles by counting squares.
3.MD.C.7 Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. ~~c.~~ Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.	**LAC.3.MD.C.7a** Use tiling and addition to determine area. **LAC.3.MD.C.7b** Multiply side lengths to find the area of a rectangle with whole number side lengths to solve problems. **LAC.3.MD.C.7c** Use tiling and multiplication to determine area. **LAC.3.MD.C.7d** Apply the distributive property to solve problems with models.

Grade 3 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
3.MD.D.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 areas or with the same area and different perimeters.	**LAC.3.MD.D.8a** Identify a figure as getting larger or smaller when the dimensions of the figure change. **LAC.3.MD.D.8b** Use addition to find the perimeter of a rectangle. **LAC.3.MD.D.8c** Solve real world problems involving perimeter.
3.MD.E.9 Solve word problems involving pennies, nickels, dimes, quarters, and bills greater than one dollar, using the dollar and cent symbols appropriately.	**LAC.3.MD.E.9** Solve word problems using bills greater than one dollar, quarters, dimes, nickels, or pennies.
3.G.A.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	**LAC.3.G.A.1** Identify shared attributes of shapes.
3.G.A.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as $1/4$ of the area of the shape.*	**LAC.3.G.A.2** Partition rectangles into equal parts with equal area.

Grade 4 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
4.OA.A.1 Interpret a multiplication equation as a comparison and represent verbal statements of multiplicative comparisons as multiplication equations, e.g., interpret 35 = 5 x 7 as a statement that 35 is 5 times as many as 7, and 7 times as many as 5.	**LAC.4.OA.A.1** Use objects to model multiplication and division situations involving up to 5 groups with up to 5 objects in each group and interpret the results.
4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and/or equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison (Example: 6 times as many vs 6 more than).	**LAC.4.OA.A.2a** Determine how many objects go into each group when given the total number of objects and the number of groups where the number in each group or number of groups is not greater than 10. **LAC.4.OA.A.2b** Solve multiplicative comparisons with an unknown using up to 2-digit numbers with information presented in a graph or word problem (e.g., an orange hat cost $3. A purple hat cost 2 times as much. How much does the purple hat cost? [3 x 2 = *p*]).
4.OA.A.3 Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. *Example: Twenty-five people are going to the movies. Four people fit in each car. How many cars are needed to get all 25 people to the theater at the same time?*	**LAC.4.OA.A.3a** Solve or solve and check one or two step word problems requiring addition, subtraction or multiplication with answers up to 100. **LAC.4.OA.A.3b** Solve problems or word problems using up to three digit numbers and addition or subtraction or multiplication.

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Grade 4 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
4.OA.B.4 Using whole numbers in the range 1–100, a. Find all factor pairs for a given whole number. b. Recognize that a given whole number is a multiple of each of its factors. c. Determine whether a given whole number is a multiple of a given one-digit number. d. Determine whether a given whole number is prime or composite.	**LAC.4.OA.B.4** Identify multiples for a whole number (e.g., 2= 2, 4, 6, 8, 10).
4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*	**LAC.4.OA.C.5a** Generate a pattern when given a rule and word problem. (I run 3 miles every day, how many miles have I run in 3 days). **LAC.4.OA.C.5b** Extend a numerical pattern when the rule is provided. **LAC.4.OA.C.5c** Generate a pattern that follows the provided rule.
4.NBT.A.1 Recognize that in a multi-digit whole number less than or equal to 1,000,000, a digit in one place represents ten times what it represents in the place to its right. *Examples: (1) recognize that 700 ÷ 70 = 10; (2) in the number 7,246, the 2 represents 200, but in the number 7,426 the 2 represents 20, recognizing that 200 is ten times as large as 20, by applying concepts of place value and division.*	**LAC.4.NBT.A.1** Compare the value of a number when it is represented in different place values of two 3 digit numbers.
4.NBT.A.2 Read and write multi-digit whole numbers less than or equal to 1,000,000 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.	**LAC.4.NBT.A.2a** Compare multi-digit numbers using representations and numbers. **LAC.4.NBT.A.2b** Write or select the expanded form for a multi-digit number.
4.NBT.A.3 Use place value understanding to round multi-digit whole numbers, less than or equal to 1,000,000, to any place.	**LAC.4.NBT.A.3** Use place value to round to any place (i.e., ones, tens, hundreds, thousands).
4.NBT.B.4 Use place value understanding to round multi-digit whole numbers, less than or equal to 1,000,000, to any place.	**LAC.4.NBT.B.4** Solve multi-digit addition and subtraction problems up to 1000.
4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**LAC.4.NBT.B.5a** Solve multiplication problems up to two digits by one digit. **LAC.4.NBT.B.5b** Solve a 2-digit by 1-digit multiplication problem using 2 different strategies.

Grade 4 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**LAC.4.NBT.B.6** Separate a group of objects into equal sets when given the number of sets to find the total in each set with the total number less than 50.
4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	**LAC.4.NF.A.1** Determine equivalent fractions.
4.NF.A.2 Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.)	**LAC.4.NF.A.2a** Use =, <, or > to compare 2 fractions (fractions with a denominator or 10 or less). **LAC.4.NF.A.2b** Compare up to 2 given fractions that have different denominators.

Grade 4 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
4.NF.B.3 Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.) a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. *Example: 3/4 = 1/4 + 1/4 + 1/4*. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2\ 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$.* c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.	**LAC.4.NF.B.3a** Using a representation, decompose a fraction into multiple copies of a unit fraction (e.g., ¾ = ¼ + ¼ + ¼). **LAC.4.NF.B.3b** Add and subtract fractions with like denominators of (2, 3, 4, or 8). **LAC.4.NF.B.3c** Add and subtract fractions with like denominators (2, 3, 4, or 8) using representations. **LAC.4.NF.B.3d** Solve word problems involving addition and subtraction of fractions with like denominators (2, 3, 4, or 8).
4.NF.B.4 Multiply a fraction by a whole number. (Denominators are limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100.) a. Understand a fraction a/b as a multiple of 1/b. *For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).* b. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. *For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as 6/5. (In general, n × (a/b) = (n × a)/b.)* c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. *For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?*	**LAC.4.NF.B.4** Multiply a fraction by a whole or mixed number.

Grade 4 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
4.NF.C.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*	**LAC.4.NF.C.5** Find the equivalent decimal for a given fraction with a denominator of 10 or 100.
4.NF.C.6 Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as 62/100; describe a length as 0.62 meters; locate 0.62 on a number line diagram; represent 62/100 of a dollar as $0.62.*	**LAC.4.NF.C.6a** Match a fraction with a denominator of 10 or 100 as a decimal (5/10 = .5). **LAC.4.NF.C.6b** Read, write or select decimals to the tenths place. **LAC.4.NF.C.6c** Read, write or select decimals to the hundredths place.
4.NF.C.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual model.	**LAC.4.NF.C.7a** Use =, <, or > to compare 2 decimals (decimals in multiples of 10). **LAC.4.NF.C.7b** Compare two decimals to the tenths place with a value of less than 1. **LAC.4.NF.C.7c** Compare two decimals to the hundredths place with a value of less than 1.
4.MD.A.1 Know relative sizes of measurement units within one system of units, including: ft, in; km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. (Conversions are limited to one-step conversions.) *For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), …*	**LAC.4.MD.A.1a** Complete a conversion table for length and mass within a single system. **LAC.4.MD.A.1b** Identify the appropriate units of measurement for different purposes in a real life context (e.g., measure a wall using feet, not inches).
4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving whole numbers and/or simple fractions (addition and subtraction of fractions with like denominators and multiplying a fraction times a fraction or a whole number), and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	**LAC.4.MD.A.2a** Use the four operations to solve word problems involving distance, time, mass, and money and problems that require conversions from one unit to a smaller unit. **LAC.4.MD.A.2b** Select appropriate units for measurement (length, liquid volume, time, money).
4.MD.A.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. *For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.*	**LAC.4.MD.A.3** Solve word problems using perimeter and area where changes occur to the dimensions of a figure.

Grade 4 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*	**LAC.4.MD.B.4a** Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). **LAC.4.MD.B.4b** Solve problems involving addition and subtraction of fractions with like denominators by using information presented in line plots.
4.MD.C.5 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where two rays intersect the circle. b. An angle that turns through 1/360 of a circle is called a "one-degree angle," and can be used to measure angles. c. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	**LAC.4.MD.C.5** Recognize an angle in two-dimensional figures.
4.MD.C.6 Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	**LAC.4.MD.C.6a** Use a protractor or angle ruler to sketch a given angle. **LAC.4.MD.C.6b** Measure right angles using a tool (e.g., angle ruler, protractor).
4.MD.C.7 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, e.g., by using an equation with a letter for the unknown angle measure.	**LAC.4.MD.C.7** Given a picture of a right angle divided into two angles, find the measure of the missing angle when given the measure of one of the two angles.
4.MD.D.8 Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems.	**LAC.4.MD.D.8a** Match an accurate addition and multiplication equation to a representation. **LAC.4.MD.D.8b** Apply the formulas for area and perimeter to solve real world problems. **LAC.4.MD.D.8c** Apply the distributive property to solve problems with models.

Grade 4 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**LAC.4.G.A.1a** Recognize a point, line and line segment, rays in two-dimensional figures. **LAC.4.G.A.1b** Recognize perpendicular and parallel lines in two-dimensional figures. **LAC.4.G.A.1c** Recognize an angle in two-dimensional figures.
4.G.A.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.	**LAC.4.G.A.2a** Classify two-dimensional shapes based on attributes (# of angles). **LAC.4.G.A.2b** Categorize angles as right, acute, or obtuse. **LAC.4.G.A.2c** Identify a right triangle.
4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	**LAC.4.G.A.3** Recognize a line of symmetry in a figure.

Grade 5 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
5.OA.A.1 Use parentheses or brackets in numerical expressions, and evaluate expressions with these symbols.	**LAC.5.OA.A.1** Evaluate an expression with one set of parentheses.
5.OA.A.2 Write simple expressions that record calculations with whole numbers, fractions, and decimals, and interpret numerical expressions without evaluating them. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 × (8 + 7). Recognize that 3 x (18,932 + 9.21) is three times as large as 18,932 + 9.21, without having to calculate the indicated sum or product.*	**LAC.5.OA.A.2** Write a simple numerical expression that indicates calculations with whole numbers.
5.OA.B.3 Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *For example, given the rule "Add 3" and the starting number 0, and given the rule "Add 6" and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.*	**LAC.5.OA.B.3a** Given 2 patterns involving the same context (e.g., collecting marbles) determine the 1st 5 terms and compare the values. **LAC.5.OA.B.3b** When given a line graph representing two arithmetic patterns, identify the relationship between the two. **LAC.5.OA.B.3c** Generate or select a comparison between two graphs from a similar situation. **LAC.5.OA.B.3d** Using provided table with numerical patterns, form ordered pairs.
5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and $1/10$ of what it represents in the place to its left.	**LAC.5.NBT.A.1** Compare the value of a number when it is represented in different place values of two 3 digit numbers.
5.NBT.A.2 Explain and apply patterns in the number of zeros of the product when multiplying a number by powers of 10. Explain and apply patterns in the values of the digits in the product or the quotient, when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. *For example, $10^0 = 1$, $10^1 = 10$ ... and $2.1 \times 10^2 = 210$.*	**LAC.5.NBT.A.2** Find the product of a number and a power of 10.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Grade 5 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
5.NBT.A.3 Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$. b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	**LAC.5.NBT.A.3a** Read, write, or select a decimal to the hundredths place. **LAC.5.NBT.A.3b** Read, write or select a decimal to the thousandths place. **LAC.5.NBT.A.3c** Compare two decimals to the thousandths place with a value of less than 1.
5.NBT.A.4 Use place value understanding to round decimals to any place.	**LAC.5.NBT.A.4a** Round decimals to the next whole number. **LAC.5.NBT.A.4b** Round decimals to the tenths place. **LAC.5.NBT.A.4c** Round decimals to the hundredths place.
5.NBT.B.5 Fluently multiply multi-digit whole numbers using the standard algorithm.	**LAC.5.NBT.B.5** Multiply whole numbers with up to 3-digits by numbers with up to 2-digits.
5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, subtracting multiples of the divisor, and/or the relationship between multiplication and division. Illustrate and/or explain the calculation by using equations, rectangular arrays, area models, or other strategies based on place value.	**LAC.5.NBT.B.6a** Find whole number quotients up to two dividends and two divisors. **LAC.5.NBT.B.6b** Find whole number quotients up to four dividends and two divisors.
5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; justify the reasoning used with a written explanation	**LAC.5.NBT.B.7** Solve 1 step problems using decimals.
5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)*	**LAC.5.NF.A.1a** Add and subtract fractions with unlike denominators by replacing fractions with equivalent fractions (identical denominators). **LAC.5.NF.A.1b** Add or subtract fractions with unlike denominators.

Grade 5 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
5.NF.A.2 Solve word problems involving addition and subtraction of fractions. a. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. b. Use benchmark fractions and number sense of fractions to estimate mentally and justify the reasonableness of answers. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*	**LAC.5.NF.A.2** Solve one-step word problems involving addition and subtraction of fractions with unlike denominators.
5.NF.B.3 Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?*	**LAC.5.NF.B.3** Solve a one-step word problem involving division of whole numbers leading to answers in the form of a fraction or mixed number.
5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. Interpret the product $(m/n) \times q$ as m parts of a partition of q into n equal parts; equivalently, as the result of a sequence of operations, $m \times q \div n$. *For example, use a visual fraction model to show understanding, and create a story context for (m/n) x q.* b. Construct a model to develop understanding of the concept of multiplying two fractions and create a story context for the equation. [In general, $(m/n) \times (c/d) = (mc)/(nd)$.] c. 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. d. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	**LAC.5.NF.B.4** Multiply a fraction by a whole or mixed number.

Grade 5 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
5.NF.B.5 Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case). c. Explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number. d. Relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.	**LAC.5.NF.B.5** Determine whether the product will increase or decrease based on the multiplier.
5.NF.B.6 Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	**LAC.5.NF.B.6** Solve word problems involving multiplication of fractions and mixed numbers.
5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. a. Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.* b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.* c. Solve real-world *problems* involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*	**LAC.5.NF.B.7** Divide unit fractions by whole numbers and whole numbers by unit fractions.

Grade 5 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real-world problems (e.g., convert 5 cm to 0.05 m; 9 ft to 108 in).	**LAC.5.MD.A.1a** Convert measurements of time. **LAC.5.MD.A.1b** Convert standard measurements of length. **LAC.5.MD.A.1c** Convert standard measurements of mass. **LAC.5.MD.A.1d** Solve problems involving conversions of standard measurement units when finding area, volume, time lapse, or mass.
5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Use operations on fractions for this grade to solve problems involving information presented in line plots. *For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.*	**LAC.5.MD.B.2** Given a data set of fractions with denominators 2, 4, or 8, create a line plot and use the information on the plot to solve problems.
5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume. b. A solid figure that can be packed without gaps or overlaps using *n* unit cubes is said to have a volume of *n* cubic units.	**LAC.5.MD.C.3** Select a cube as the measurement unit for the volume.
5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	**LAC.5.MD.C.4** Use cubes (blocks or other manipulatives) to create a solid figure and counts the number of cubes to determine its volume.

Grade 5 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume. a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes, e.g., to represent the associative property of multiplication. b. Apply the formulas V = l × w × h and V = b × h for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. **c.** Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.	**LAC.5.MD.C.5a** Use filling and multiplication to determine volume. **LAC.5.MD.C.5b** Apply formula to solve one step problems involving volume. **LAC.5.MD.C.5c** Decompose complex 3-D shapes into simple 3-D shapes to measure volume.
5.G.A.1 Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number in the ordered pair indicates how far to travel from the origin in the direction of one axis, and the second number in the ordered pair indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate).	**LAC.5.G.A.1a** Locate the x and y axis on a graph. **LAC.5.G.A.1b** Locate points on a graph. **LAC.5.G.A.1c** Use order pairs to graph given points.
5.G.A.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.	**LAC.5.G.A.2** Find coordinate values of points in the context of a situation**.**
5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. *For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles.*	**LAC.5.G.B.3** Recognize properties of simple plane figures.

Grade 5 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
5.G.B.4 Classify quadrilaterals in a hierarchy based on properties. (Students will define a trapezoid as a quadrilateral with at least one pair of parallel sides.)	**LAC.5.G.B.4** Distinguish quadrilaterals by their properties.

Grade 6 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."*	**LAC.6.RP.A.1a** Write or select a ratio to match a given statement and representation. **LAC.6.RP.A.1b** Select or make a statement to interpret a given ratio. **LAC.6.RP.A.1c** Describe the ratio relationship between two quantities for a given situation. **LAC.6.RP.A.1d** Complete a statement that describes the ratio relationship between two quantities. **LAC.6.RP.A.1e** Write or select a ratio to match a given statement and representation.
6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*	**LAC.6.RP.A.2** Determine the unit rate in a variety of contextual situations.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Grade 6 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. *For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what unit rate were lawns being mowed?* c. Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means $30/100$ times the quantity); solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	**LAC.6.RP.A.3a** Use ratios and reasoning to solve real-world mathematical problems (e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations). **LAC.6.RP.A.3b** Find a missing value (representations, whole numbers, common fractions, decimals to hundredths place, percent) for a given ratio. **LAC.6.RP.A.3c** Solve unit rate problems involving unit pricing. **LAC.6.RP.A.3d** Solve one step real world measurement problems involving unit rates with ratios of whole numbers when given the unit rate (3 inches of snow falls per hour, how much in 6 hours). **LAC.6.RP.A.3e** Calculate a percent of a quantity as rate per 100. **LAC.6.RP.A.3f** Complete a conversion table for length, mass, time, volume. **LAC.6.RP.A.3g** Analyze a table of equivalent ratios to answer questions. **LAC.6.RP.A.3h** Solve word problems involving ratios.
6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, create a story context for* $(2/3) \div (3/4)$ *and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that* $(2/3) \div (3/4) = 8/9$ *because* $3/4$ *of* $8/9$ *is* $2/3$. *(In general,* $(a/b) \div (c/d) = ad/bc$.*) How much chocolate will each person get if 3 people share* $1/2$ *lb of chocolate equally? How many* $3/4$*-cup servings are in* $2/3$ *of a cup of yogurt? How wide is a rectangular strip of land with length* $3/4$ *mi and area* $1/2$ *square mi?*	**LAC.6.NS.A.1** Solve one step problems involving division of fractions by fractions.
6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm.	**LAC.6.NS.B.2** Divide multi-digit whole numbers.
6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	**LAC.6.NS.B.3** Solve one step, addition, subtraction, multiplication, or division problems with fractions or decimals.

Grade 6 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4* (*9 + 2*).	**LAC.6.NS.B.4** Find the greatest common multiple of two whole numbers less than or equal 25 and the least common multiple of two whole numbers less than or equal to 8.
6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.	**LAC.6.NS.C.5** Solve one step, addition, subtraction, multiplication, or division problems with fractions or decimals.
6.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. a. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., –(–3) = 3, and that 0 is its own opposite. b. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.	**LAC.6.NS.C.6a** Find given points between -10 and 10 on both axes of a coordinate plane. **LAC.6.NS.C.6b** Label points between -10 and 10 on both axes of a coordinate plane. **LAC.6.NS.C.6c** Identify numbers as positive or negative. **LAC.6.NS.C.6d** Locate positive and negative numbers on a number line. **LAC.6.NS.C.6e** Plot positive and negative numbers on a number line.

Grade 6 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
6.NS.C.7 Understand ordering and absolute value of rational numbers. a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. *For example, interpret –3 > –7 as a statement that –3 is located to the right of –7 on a number line oriented from left to right.* b. Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3 ^{o}C > –7 ^{o}C to express the fact that –3 ^{o}C is warmer than –7 ^{o}C.* c. Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.* d. Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*	**LAC.6.NS.C.7a** Compare two numbers on a number line (e.g., -2 > -9). **LAC.6.NS.C.7b** Determine the meaning of absolute value.
6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	**LAC.6.NS.C.8** Use coordinates and absolute value to find the distance between two coordinates with the same first coordinate or the same second coordinate.
6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.	**LAC.6.EE.A.1a** Identify what an exponent represents (e.g., 8^3= 8 x 8 x 8). **LAC.6.EE.A.1b** Solve numerical expressions involving whole number exponents.

Grade 6 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. a. Write expressions that record operations with numbers and with letters standing for numbers. *For example, express the calculation "Subtract y from 5" as 5 – y.* b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. *For example, describe the expression 2 (8 + 7) as a product of two factors; view (8 + 7) as both a single entity and a sum of two terms.* c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). *For example, use the formulas $V = s^3$ and $A = 6 s^2$ to find the volume and surface area of a cube with sides of length $s = 1/2$.*	**LAC.6.EE.A.2** Evaluate expressions from formulas containing exponents for specific values of their variables.
6.EE.A.3 Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*	**LAC.6.EE.A.3** Use properties to produce equivalent expressions.
6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions y + y + y and 3y are equivalent because they name the same number regardless of which number y stands for.*	**LAC.6.EE.A.4** Evaluate whether or not both sides of an equation are equal.
6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	**LAC.6.EE.B.5** Use substitute to determine which values from a specified set make an equation or inequality true.

Grade 6 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.	**LAC.6.EE.B.6** Use variable to represent numbers and write expressions when solving real world problems.
6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations and inequalities of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. Inequalities will include <, >, ≤, and ≥.	**LAC.6.EE.B.7a** Solve problems or word problems using up to three digit numbers and any of the four operations. **LAC.6.EE.B.7b** Solve real world, single step linear equations.
6.EE.B.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.	**LAC.6.EE.B.8** Given a real world problem, write an inequality.
6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. *For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.*	**LAC.6.EE.C.9a** Use variables to represent two quantities in a real-world problem that change in relationship to one another. **LAC.6.EE.C.9b** Analyze the relationships between the dependent and independent variables using graphs and tables, and relate to the equation.
6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	**LAC.6.G.A.1a** Apply the formula to find the area of triangles. **LAC.6.G.A.1b** Decompose complex shapes (polygon, trapezoid, pentagon) into simple shapes (rectangles, squares, triangles) to measure area. **LAC.6.G.A.1c** Find area of quadrilaterals. **LAC.6.G.A.1d** Find area of triangles
6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = lwh$ and $V = bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	**LAC.6.G.A.2** Identify the appropriate formula (i.e., perimeter, area, volume) to use when measuring for different purposes in a real life context.

Grade 6 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.	**LAC.6.G.A.3a** Use coordinate points to draw polygons. **LAC.6.G.A.3b** Use coordinate points to find the side lengths of polygons that are horizontal or vertical.
6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	**LAC.6.G.A.4** Find the surface area of three dimensional figures using nets of rectangles or triangles.
6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*	**LAC.6.SP.A.1** Identify statistical questions and make a plan for data collection.
6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape.	**LAC.6.SP.A.2a** Find the range of a given data set. **LAC.6.SP.A.2b** Explain or identify what the mode represents in a set of data.
6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	**LAC.6.SP.A.3** Explain or identify what the mean represents in a set of data.
6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	**LAC.6.SP.B.4** Collect and graph data: bar graph, line plots, dot plots, histograms.

Grade 6 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
6.SP.B.5 Summarize numerical data sets in relation to their context, such as by: a. Reporting the number of observations. b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered. d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	**LAC.6.SP.B.5a** Select an appropriate statement about the range of the data for a given graph (bar graph, line plot) (i.e., range of data) up to 10 points. **LAC.6.SP.B.5b** Use measures of central tendency to interpret data including overall patterns in the data. **LAC.6.SP.B.5c** Solve for mean of a given data set. **LAC.6.SP.B.5d** Select statement that matches mean, mode, and spread of data for 1 measure of central tendency for a given data set. **LAC.6.SP.B.5e** Explain or identify what the median represents in a set of data. **LAC.6.SP.B.5f** Use measures of central tendency to interpret data including overall patterns in the data**.** **LAC.6.SP.B.5g** Solve for the median of a given data set. **LAC.6.SP.B.5h** Identify outliers, range, mean, median, and mode.

Grade 7 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. *For example, if a person walks ½ mile in each ¼ hour, compute the unit rate as the complex fraction ½/¼ miles per hour, equivalently 2 miles per hour.*	**LAC.7.RP.A.1a** Find unit rates given a ratio. **LAC.7.RP.A.1b** Determine unit rates associated with ratios of lengths, areas, and other quantities measured in like units. **LAC.7.RP.A.1c** Solve one step problems involving unit rates associated with ratios of fractions.
7.RP.A.2 Recognize and represent proportional relationships between quantities. a. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin. b. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. *c.* Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn.* d. Explain what a point (*x*, *y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where *r* is the unit rate.	**LAC.7.RP.A.2a** Identify the proportional relationship between two quantities. **LAC.7.RP.A.2b** Determine if two quantities are in a proportional relationship using a table of equivalent ratios or points graphed on a coordinate plane. **LAC.7.RP.A.2c** Use a rate of change or proportional relationship to determine the points on a coordinate plane. **LAC.7.RP.A.2d** Represent proportional relationships on a line graph.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Grade 7 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
7.RP.A.3 Use proportional relationships to solve multi-step ratio and percent problems of simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, and percent error.	**LAC.7.RP.A.3a** Find percents in real world contexts. **LAC.7.RP.A.3b** Solve one step percentage increase and decrease problems. **LAC.7.RP.A.3c** Use proportions to solve ratio problems. **LAC.7.RP.A.3d** Solve word problems involving ratios. **LAC.7.RP.A.3e** Use proportional relationships to solve multistep percent problems.
7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram. a. Describe situations in which opposite quantities combine to make 0. *For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.* b. Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts. c. Understand subtraction of rational numbers as adding the additive inverse, $p – q = p + (–q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts. d. Apply properties of operations as strategies to add and subtract rational numbers.	**LAC.7.NS.A.1a** Identify the additive inverse of a number (e.g., -3 and +3). **LAC.7.NS.A.1b** Identify the difference between two given numbers on a number line using absolute value. **LAC.7.NS.A.1c** Identify a representation of addition on a horizontal or vertical number line. **LAC.7.NS.A.1d** Solve problems requiring addition or subtraction of positive/negative numbers.

Grade 7 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. a. Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (–1)(–1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts. b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts. c. Apply properties of operations as strategies to multiply and divide rational numbers. d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	**LAC.7.NS.A.2a** Solve multiplication problems with positive/negative numbers. **LAC.7.NS.A.2b** Solve division problems with positive/negative numbers.
7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.	**LAC.7.NS.A.3a** Solve one step addition, subtraction, multiplication, division problems with fractions, decimals, and positive/negative numbers. **LAC.7.NS.A.3b** Solve two step addition, subtraction, multiplication, and division problems with fractions, decimals, or positive/negative numbers.
7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients to include multiple grouping symbols (e.g., parentheses, brackets, and braces).	**LAC.7.EE.A.1a** Add and subtract linear expressions. **LAC.7.EE.A.1b** Factor and expand linear expressions.
7.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that "increase by 5%" is the same as "multiply by 1.05."*	No Louisiana Connectors written for this standard.

Grade 7 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. *For example: If a woman making $25 an hour gets a 10% raise, she will make an additional $1/10$ of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 $3/4$ inches long in the center of a door that is 27 $1/2$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.*	**LAC.7.EE.B.3a** Identify an equivalent fraction, decimal and percent when given one of the three numbers. **LAC.7.EE.B.3b** Solve real-world multi-step problems using whole numbers.
7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. a. Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach. *For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?* b. Solve word problems leading to inequalities of the form $px + q > r$, $px + q \geq r$, $px + q < r$, or $px + q \leq r$ where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem. *For example: As a salesperson, you are paid $50 per week plus $3 per sale. This week you want your pay to be at least $100. Write an inequality for the number of sales you need to make, and describe the solutions.*	**LAC.7.EE.B.4a** Solve equations with 1 variable based on real-world problems. **LAC.7.EE.B.4b** Set up equations with 1 variable based on real-world problems. **LAC.7.EE.B.4c** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **LAC.7.EE.B.4d** Use a calculator to solve word problems leading to inequalities of the form $px + q > r$, $px + q \geq r$, $px + q < r$, or $px + q \leq r$ where p, q, and r are specific rational numbers.
7.G.A.1 Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	**LAC.7.G.A.1a** Solve problems that use proportional reasoning with ratios of length and area. **LAC.7.G.A.1b** Solve one step real world problems related to scaling.

Grade 7 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
7.G.A.2 Draw (freehand, with ruler and protractor, or with technology) geometric shapes with given conditions. (Focus is on triangles from three measures of angles or sides, noticing when the conditions determine one and only one triangle, more than one triangle, or no triangle.)	**LAC.7.G.A.2** Construct or draw plane figures using properties.
7.G.A.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	**LAC.7.G.A.3** Describe the two-dimensional figures that result from a decomposed three-dimensional figure.
7.G.B.4 Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal derivation of the relationship between the circumference and area of a circle.	**LAC.7.G.B.4** Apply formula to measure area and circumference of circles.
7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	**LAC.7.G.B.5a** Identify supplementary angles. **LAC.7.G.B.5b** Identify complimentary angles. **LAC.7.G.B.5c** Identify adjacent angles. **LAC.7.G.B.5d** Use angle relationships to find the value of a missing angle.
7.G.B.6 Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. (Pyramids limited to surface area only.)	**LAC.7.G.B.6a** Add the area of each face of a prism to find surface area of three dimensional objects. **LAC.7.G.B.6b** Find the surface area of three-dimensional figures using nets of rectangles or triangles. **LAC.7.G.B.6c** Find area of plane figures and surface area of solid figures (quadrilaterals). **LAC.7.G.B.6d** Solve one step real world measurement problems involving area, volume, or surface area of two and three-dimensional objects.
7.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	**LAC.7.SP.A.1** Determine sample size to answer a given question.

Grade 7 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
7.SP.A.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions. *For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.*	**LAC.7.SP.A.2** Analyze graphs to determine or select appropriate comparative inferences about two samples or populations.
7.SP.B.3 Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities using quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.	**LAC.7.SP.B.3** Make or select a statement to compare the distribution of 2 data sets.
7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. *For example,* decide *whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book.*	**LAC.7.SP.B.4a** Identify the range (high/low), median(middle), mean, or mode of a given data set. **LAC.7.SP.B.4b** Analyze graphs to determine or select appropriate comparative inferences about two samples or populations. **LAC.7.SP.B.4c** Make or select an appropriate statements based upon two unequal data sets using measure of central tendency and shape.
7.SP.C.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	**LAC.7.SP.C.5a** Describe the probability of events as being certain or impossible, likely, less likely or equally likely. **LAC.7.SP.C.5b** State the theoretical probability of events occurring in terms of ratios (words, percentages, decimals).
7.SP.C.6 Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability. *For example, when rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times, but probably not exactly 200 times.*	**LAC.7.SP.C.6** Make a prediction regarding the probability of an event occurring; conduct simple probability experiments.

Grade 7 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
7.SP.C.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. *For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected.* b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. *For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?*	**LAC.7.SP.C.7** Compare actual results of simple experiment with theoretical probabilities.
7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs. b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space that compose the event. c. Design and use a simulation to generate frequencies for compound events. *For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?*	**LAC.7.SP.C.8a** Determine the theoretical probability of multistage probability experiments (2 coins, 2 dice). **LAC.7.SP.C.8b** Collect data from multistage probability experiments (2 coins, 2 dice). **LAC.7.SP.C.8c** Compare actual results of multistage experiment with theoretical probabilities.

Grade 8 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
8.NS.A.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers, show that the decimal expansion repeats eventually. Convert a decimal expansion that repeats eventually into a rational number by analyzing repeating patterns.	**LAC.8.NS.A.1a** Identify π as an irrational number. **LAC.8.NS.A.1b** Round irrational numbers to the hundredths place.
8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2). *For example, by truncating the decimal expansion of √2, show that √2 is between 1and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations to the hundredths place.*	**LAC.8.NS.A.2** Use approximations of irrational numbers to locate them on a number line.
8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$.	**LAC.8.EE.A.1** Use properties of integer exponents to produce equivalent expressions.
8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.	**LAC.8.EE.A.2** Find the square roots of perfect squares and cube roots of whole numbers less than 100.
8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. *For example, estimate the population of the United States as* 3×10^8 *and the population of the world as* 7×10^9*, and determine that the world population is more than 20 times larger.*	**LAC.8.EE.A.3** Rewrite very large or very small quantities as a single digit times an integer power of 10.

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Grade 8 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
8.EE.A.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	**LAC.8.EE.A.4a** Convert a number expressed in scientific notation as number in standard form for numbers no greater than 10,000. **LAC.8.EE.A.4b** Perform operations with numbers expressed in scientific notation.
8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. *For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.*	**LAC.8.EE.B.5** Represent proportional relationships on a line graph.
8.EE.B.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	**LAC.8.EE.B.6a** Write the equation of a line passing through the origin as $y = mx$. **LAC.8.EE.B.6b** Write the equation of a line intercepting the y-axis at b as $y = mx + b$.
8.EE.C.7 Solve linear equations in one variable. a. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers). b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	**LAC.8.EE.C.7** Solve linear equations with 1 variable.

Grade 8 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
8.EE.C.8 Analyze and solve pairs of simultaneous linear equations. a. Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously. b. Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. *For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6.* c. Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*	**LAC.8.EE.C.8a** Solve systems of two linear equations in two variables and graph the results. **LAC.8.EE.C.8b** Solve real world and mathematical problems leading to two linear equations in two variables.
8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. (Function notation is not required in this grade level.)	**LAC.8.F.A.1** Distinguish between functions and non-functions, using equations, graphs, or tables.
8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.*	**LAC.8.F.A.2** Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.
8.F.A.3 Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; categorize functions as linear or nonlinear when given equations, graphs, or tables. *For example, the function $A = s^2$ giving the area of a square as a function of its side length is not linear because its graph contains the points (1,1), (2,4) and (3,9), which are not on a straight line.*	**LAC.8.F.A.3** Given two graphs, describe the function as linear and not linear.
8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	**LAC.8.F.B.4** Identify the rate of change (slope) and initial value (y-intercept) from graphs.

Grade 8 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	**LAC.8.F.B.5a** Given a verbal description of a situation, create or identify a graph to model the situation. **LAC.8.F.B.5b** Given a graph of a situation, generate a description of the situation. **LAC.8.F.B.5c** Describe or select the relationship between the two quantities Given a line graph of a situation.
8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations: a. Lines are taken to lines, and line segments to line segments of the same length. b. Angles are taken to angles of the same measure. c. Parallel lines are taken to parallel lines.	**LAC.8.G.A.1a** Recognize a rotation, reflection, or translation of a figure. **LAC.8.G.A.1b** Recognize that lengths of line segments and measures of angles do not change when rotated, reflected or translated. **LAC.8.G.A.1c** Recognize that lines are taken to lines and parallel lines are taken to parallel lines when rotated, reflected or translated.
8.G.A.2 Explain that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations; given two congruent figures, describe a sequence that exhibits the congruence between them. (Rotations are only about the origin and reflections are only over the *y*-axis and *x*-axis in Grade 8.)	**LAC.8.G.A.2** Recognize congruent and similar figures.
8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the *y*-axis and *x*-axis in Grade 8.)	**LAC.8.G.A.3** Identify a rotation, reflection, or translation of a plane figure when given coordinates.
8.G.A.4 Explain that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations; given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them. (Rotations are only about the origin, dilations only use the origin as the center of dilation, and reflections are only over the *y*-axis and *x*-axis in Grade 8.)	**LAC.8.G.A.4a** Recognize congruent and similar figures. **LAC.8.G.A.4b** Given two similar two-dimensional figures, show or describe a sequence that exhibits the similarity between them.

Grade 8 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. *For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.*	**LAC.8.G.A.5** Use angle relationships to find the value of a missing angle.
8.G.B.6 Explain a proof of the Pythagorean Theorem and its converse using the area of squares.	**LAC.8.G.B.6** Create a model of the Pythagorean Theorem using areas of squares with a right triangle whose side lengths are 3, 4 and 5 units.
8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	**LAC.8.G.B.7a** Apply the Pythagorean theorem to determine lengths/distances in real-world situations. **LAC.8.G.B.7b** Find the hypotenuse of a two-dimensional right triangle (Pythagorean Theorem). **LAC.8.G.B.7c** Find the missing side lengths of a two-dimensional right triangle (Pythagorean Theorem).
8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	**LAC.8.G.B.8** Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	**LAC.8.G.C.9** Apply the formula to find the volume of 3-dimensional shapes (i.e., cubes, spheres, and cylinders).
8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	**LAC.8.SP.A.1a** Graph bivariate data using scatter plots and identify possible associations between the variables. **LAC.8.SP.A.1b** Using box plots and scatter plots, identify data points that appear to be outliers. **LAC.8.SP.A.1c** Analyze displays of bivariate data to develop or select appropriate claims about those data.

Grade 8 Math	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)[1]**
8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	**LAC.8.SP.A.2** Distinguish between a linear and non-linear association when analyzing bivariate data on a scatter plot.
8.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. *For example, in a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height*.	**LAC.8.SP.A.3** Interpret the slope and the y-intercept of a line in the context of a problem.
8.SP.A.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables. *For example, collect data from students in your class on whether or not they have a curfew on school nights and whether or not they have assigned chores at home. Is there evidence that those who have a curfew also tend to have chores?*	**LAC.8.SP.A.4** Construct a two-way table summarizing data on two categorical variables collected from the same subjects; identify possible association between the two variables.

Algebra I	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A1: N-RN.B.3 Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.	**LAC.A1: N-RN.B.3** Explain the pattern for the sum or product for combinations of rational and irrational numbers.
A1: N-Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	**LAC.A1: N-Q.A.1a** Determine the necessary unit(s) to use to solve real-world problems. **LAC.A1: N-Q.A.1b** Solve real-world problems involving units of measurement
A1: N-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.	No Louisiana Connectors written for this standard.
A1: N-Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	No Louisiana Connectors written for this standard.
A1: A-SSE.A.1 Interpret expressions that represent a quantity in terms of its context. a. Interpret parts of an expression, such as terms, factors, and coefficients. b. Interpret complicated expressions by viewing one or more of their parts as a single entity. *For example, interpret $P(1+r)^n$ as the product of P and a factor not depending on P.*	No Louisiana Connectors written for this standard.
A1: A-SSE.A.2 Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$, or see $2x^2 + 8x$ as $(2x)(x) + 2x(4)$, thus recognizing it as a polynomial whose terms are products of monomials and the polynomial can be factored as $2x(x+4)$.*	No Louisiana Connectors written for this standard.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Algebra I	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A1: A-SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. a. Factor a quadratic expression to reveal the zeros of the function it defines. b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. c. Use the properties of exponents to transform expressions for exponential functions emphasizing integer exponents. For example, *the growth of bacteria can be modeled by either* $f(t) = 3^{(t+2)}$ *or* $g(t) = 9(3^t)$ *because the expression* $3^{(t+2)}$ *can be rewritten as* $(3^t)(3^2) = 9(3^t)$.	**LAC.A1: A-SSE.B.3** Factor a quadratic expression.
A1: A-APR.A.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	**LAC.A1: A-APR.A.1a** Understand the definition of a polynomial. **LAC.A1: A-APR.A.1b** Understand the concepts of combining like terms and closure. **LAC.A1: A-APR.A.1c** Add, subtract, and multiply polynomials and understand how closure applies under these operations.
A1: A-APR.B.3 Identify zeros of quadratic functions, and use the zeros to sketch a graph of the function defined by the polynomial.	**LAC.A1: A-APR.B.3** Find the zeros of a polynomial when the polynomial is factored.
A1: A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear, quadratic, and exponential functions.*	**LAC.A1: A-CED.A.1** Translate a real-world problem into a one variable linear equation.
A1: A-CED.A.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.	No Louisiana Connectors written for this standard.
A1: A-CED.A.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context. *For example, represent inequalities describing nutritional and cost constraints on combinations of different foods.*	No Louisiana Connectors written for this standard.
A1: A-CED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. *For example, rearrange Ohm's law V = IR to highlight resistance R.*	**LAC.A1: A-CED.A.4** Solve multi-variable formulas or literal equations, for a specific variable.

Algebra I	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A1: A-REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	No Louisiana Connectors written for this standard.
A1: A-REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	No Louisiana Connectors written for this standard.
A1: A-REI.B.4 Solve quadratic equations in one variable. a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x - p)^2 = q$ that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as "no real solution."	**LAC.A1: A-REI.B.4a** Transform a quadratic equation written in standard form to an equation in vertex form $(x - p) = q^2$ by completing the square. **LAC.A1: A-REI.B.4b** Derive the quadratic formula by completing the square on the standard form of a quadratic equation. **LAC.A1: A-REI.B.4c** Solve quadratic equations in one variable by simple inspection, taking the square root, factoring, and completing the square.
A1: A-REI.C.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.	**LAC.A1: A-REI.C.5** Solve systems of equations using the elimination method (sometimes called linear combinations).
A1: A-REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	**LAC.A1: A-REI.C.6a** Solve a system of equations by substitution (solving for one variable in the first equation and substitution it into the second equation). **LAC.A1: A-REI.C.6b** Solve systems of equations using graphs.
A1: A-REI.D.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).	**LAC.A1: A-REI.D.10** Understand that all solutions to an equation in two variables are contained on the graph of that equation.
A1: A-REI.D.11 Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, piecewise linear (to include absolute value), and exponential functions.	**LAC.A1: A-REI.D.11** Explain why the intersection of $y = f(x)$ and $y = g(x)$ is the solution of the equation $f(x) = g(x)$ for any combination of linear or exponential. Find the solution(s) by: Using technology to graph the equations and determine their point of intersection, Using tables of values, or Using successive approximations that become closer and closer to the actual value.

Algebra I	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A1: A-REI.D.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	**LAC.A1: A-REI.D.12a** Graph the solutions to a linear inequality in two variables as a half-plane, excluding the boundary for non-inclusive inequalities. **LAC.A1: A-REI.D.12b** Graph the solution set to a system of linear inequalities in two variables as the intersection of their corresponding half-planes.
A1: F-IF.A.1 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If *f* is a function and *x* is an element of its domain, then *f*(*x*) denotes the output of *f* corresponding to the input *x*. The graph of *f* is the graph of the equation *y* = *f*(*x*).	No Louisiana Connectors written for this standard.
A1: F-IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	No Louisiana Connectors written for this standard.
A1: F-IF.A.3 Recognize that sequences are functions whose domain is a subset of the integers. Relate arithmetic sequences to linear functions and geometric sequences to exponential functions.	No Louisiana Connectors written for this standard.
A1: F-IF.B.4 For ~~a~~ linear, piecewise linear (to include absolute value), quadratic, and exponential functions that model~~s~~ a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship*. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; and end behavior*~~.~~	No Louisiana Connectors written for this standard.
A1: F-IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. *For example, if the function h(n) gives the number of person-hours it takes to assemble n engines in a factory, then the positive integers would be an appropriate domain for the function.*	No Louisiana Connectors written for this standard.

Algebra I	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A1: F-IF.B.6 Calculate and interpret the average rate of change of a linear, quadratic, piecewise linear (to include absolute value), and exponential function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	No Louisiana Connectors written for this standard.
A1: F-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. a. Graph linear and quadratic functions and show intercepts, maxima, and minima.	No Louisiana Connectors written for this standard.
A1: F-IF.C.8a Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	No Louisiana Connectors written for this standard.
A1: F-IF.C.9 Compare properties of two functions (linear, quadratic, piecewise linear [to include absolute value] or exponential) each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, determine which has the larger maximum.*	No Louisiana Connectors written for this standard.
A1: F-BF.A.1a Write a linear, quadratic, or exponential function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	No Louisiana Connectors written for this standard.
A1: F-BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative). Without technology, find the value of k given the graphs of linear and quadratic functions. With technology, experiment with cases and illustrate an explanation of the effects on the graph that include cases where *f(x)* is a linear, quadratic, piecewise linear (to include absolute value) or exponential function.	No Louisiana Connectors written for this standard.

Algebra I	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A1: F-LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	No Louisiana Connectors written for this standard.
A1: F-LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).	No Louisiana Connectors written for this standard.
A1: F-LE.A.3 Observe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	No Louisiana Connectors written for this standard.
A1: F-LE.B.5 Interpret the parameters in a linear, quadratic, or exponential function in terms of a context.	No Louisiana Connectors written for this standard.
A1: S-ID.A.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.	**LAC.A1: S-ID.A.2a** Use descriptive stats; range, median, mode, mean, outliers/gaps to describe the data set. **LAC.A1: S-ID.A.2b** Compare means, median, and range of 2 sets of data.
A1: S-ID.A.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).	No Louisiana Connectors written for this standard.
A1: S-ID.B.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.	No Louisiana Connectors written for this standard.

Algebra I	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A1: S-ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize linear and quadratic models.* b. Informally assess the fit of a function by plotting and analyzing residuals. c. Fit a linear function for a scatter plot that suggests a linear association.	**LAC.A1: S-ID.B.6a** Represent data on a scatter plot to describe and predict. **LAC.A1: S-ID.B.6b** Select an appropriate statement that describes the relationship between variables.
A1: S-ID.C.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	**LAC.A1: S-ID.C.7** Interpret the rate of change using graphical representations.
A1: S-ID.C.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.	No Louisiana Connectors written for this standard.
A1: S-ID.C.9 Distinguish between correlation and causation.	No Louisiana Connectors written for this standard.

Geometry	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
GM: G-CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	No Louisiana Connectors written for this standard.
GM: G-CO.A.2 Represent transformations in the plane using, e.g., transparencies, tracing paper, or geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch).	No Louisiana Connectors written for this standard.
GM: G-CO.A.3 Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.	No Louisiana Connectors written for this standard.
GM: G-CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	No Louisiana Connectors written for this standard.
GM: G-CO.A.5 Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.	**LAC.GM: G-CO.A.5** Construct, draw or recognize a figure after its rotation, reflection, or translation.
GM: G-CO.B.6 Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent.	No Louisiana Connectors written for this standard.
GM: G-CO.B.7 Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	No Louisiana Connectors written for this standard.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Geometry	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
GM: G-CO.B.8 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	No Louisiana Connectors written for this standard.
GM: G-CO.C.9 Prove and apply theorems about lines and angles. *Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.*	No Louisiana Connectors written for this standard.
GM: G-CO.C.10 Prove and apply theorems about triangles. *Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.*	No Louisiana Connectors written for this standard.
GM: G-CO.C.11 Prove and apply theorems about parallelograms. *Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.*	No Louisiana Connectors written for this standard.
GM: G-CO.D.12 Make formal geometric constructions with a variety of tools and methods, e.g., compass and straightedge, string, reflective devices, paper folding, or dynamic geometric software. *Examples: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.*	**LAC.GM: G-CO.D.12** Make formal geometric constructions with a variety of tools and methods.
GM: G-CO.D.13 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	No Louisiana Connectors written for this standard.
GM: G-SRT.A.1 Verify experimentally the properties of dilations given by a center and a scale factor: a. A dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	**LAC.GM: G-SRT.A.1** Determine the dimensions of a figure after dilation.

Geometry	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
GM: G-SRT.A.2 Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.	**LAC.GM: G-SRT.A.2a** Determine if 2 figures are similar. **LAC.GM: G-SRT.A.2b** Describe or select why two figures are or are not similar.
GM: G-SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	No Louisiana Connectors written for this standard.
GM: G-SRT.B.4 Prove and apply theorems about triangles. *Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity; SAS similarity criteria, SSS similarity criteria, ASA similarity.*	No Louisiana Connectors written for this standard.
GM: G-SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	**LAC.GM: G-SRT.B.5a** Use definitions to demonstrate congruency and similarity in figures. **LAC.GM: G-SRT.B.5b** Use the reflections, rotations, or translations in the coordinate plane to solve problems with right angles.
GM: G-SRT.C.6 Understand that by similarity, side ratios in right triangles, including special right triangles (30-60-90 and 45-45-90), are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.	No Louisiana Connectors written for this standard.
GM: G-SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.	No Louisiana Connectors written for this standard.
GM: G-SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.	No Louisiana Connectors written for this standard.
GM: G-C.A.1 Prove that all circles are similar.	No Louisiana Connectors written for this standard.
GM: G-C.A.2 Identify and describe relationships among inscribed angles, radii, and chords, including the following: the relationship that exists between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; and a radius of a circle is perpendicular to the tangent where the radius intersects the circle..	No Louisiana Connectors written for this standard.
GM: G-C.A.3 Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.	No Louisiana Connectors written for this standard.

Geometry	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
GM: G-C.B.5 Use similarity to determine that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.	**LAC.GM: G-C.B.5** Apply the formula to the area of a sector (e.g., area of a slice of pie).
GM: G-GPE.A.1 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	No Louisiana Connectors written for this standard.
GM: G-GPE.B.4 Use coordinates to prove simple geometric theorems algebraically. *For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point (1, $\sqrt{3}$) lies on the circle centered at the origin and containing the point (0, 2).*	No Louisiana Connectors written for this standard.
GM: G-GPE.B.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).	No Louisiana Connectors written for this standard.
GM: G-GPE.B.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	No Louisiana Connectors written for this standard.
GM: G-GPE.B.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.	No Louisiana Connectors written for this standard.
GM: G-GMD.A.1 Give an informal argument, e.g., dissection arguments, Cavalieri's principle, or informal limit arguments, for the formulas for the circumference of a circle; area of a circle; volume of a cylinder, pyramid, and cone.	No Louisiana Connectors written for this standard.
GM: G-GMD.A.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.	No Louisiana Connectors written for this standard.
GM: G-GMD.B.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	No Louisiana Connectors written for this standard.
GM: G-MG.A.1 Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).	No Louisiana Connectors written for this standard.

Geometry	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
GM: G-MG.A.2 Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).	No Louisiana Connectors written for this standard.
GM: G-MG.A.3 Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).	**LAC.GM: G-MG.A.3** Apply the formula of geometric figures to solve design problems (e.g., designing an object or structure to satisfy physical restraints or minimize cost).
GM: S-CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").	No Louisiana Connectors written for this standard.
GM: S-CP.A.2 Understand that two events *A* and *B* are independent if the probability of *A* and *B* occurring together is the product of their probabilities, and use this characterization to determine if they are independent.	No Louisiana Connectors written for this standard.
GM: S-CP.A.3 Understand the conditional probability of *A* given *B* as *P*(*A* and *B*)/*P*(*B*), and interpret independence of *A* and *B* as saying that the conditional probability of *A* given *B* is the same as the probability of *A*, and the conditional probability of *B* given *A* is the same as the probability of *B*.	No Louisiana Connectors written for this standard.
GM: S-CP.A.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities*. For example, collect data from a random sample of students in your school on their favorite subject among math, science, and English. Estimate the probability that a randomly selected student from your school will favor science given that the student is in tenth grade. Do the same for other subjects and compare the results.*	**LAC.GM: S-CP.A.4** Select or make an appropriate statement based on a two-way frequency table.
GM: S-CP.A.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations. *For example, compare the chance of having lung cancer if you are a smoker with the chance of being a smoker if you have lung cancer.*	**LAC.GM: S-CP.A.5** Select or make an appropriate statement based on real world examples of conditional probability.
GM: S-CP.B.6 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	No Louisiana Connectors written for this standard.

Geometry	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
GM: S-CP.B.7 Apply the Addition Rule, $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$, and interpret the answer in terms of the model.	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A2: N-RN.A.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents. *For example, we define 51/3 to be the cube root of 5 because we want (51/3)3 = 5(1/3)3 to hold, so (51/3)3 must equal 5.*	No Louisiana Connectors written for this standard.
A2: N-RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	**LAC.A2: N-RN.A.2** Rewrite expressions that include rational exponents.
A2: N-Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.	No Louisiana Connectors written for this standard.
A2: N-CN.A.1 Know there is a complex number i such that $i^2 = -1$, and every complex number has the form $a + bi$ with a and b real.	No Louisiana Connectors written for this standard.
A2: N-CN.A.2 Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	No Louisiana Connectors written for this standard.
A2: N-CN.C.7 Solve quadratic equations with real coefficients that have complex solutions.	No Louisiana Connectors written for this standard.
A2: A-SSE.A.2 Use the structure of an expression to identify ways to rewrite it. *For example, see $x^4 - y^4$ as $(x^2)^2 - (y^2)^2$, thus recognizing it as a difference of squares that can be factored as $(x^2 - y^2)(x^2 + y^2)$.*	No Louisiana Connectors written for this standard.

[1] The draft Louisiana Connectors are based on the work developed by the National Center and State Collaborative (NCSC) project, led by five centers and 24 states.

Algebra II	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A2: A-SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression. c. Use the properties of exponents to transform expressions for exponential functions emphasizing integer exponents. *For example the expression* 1.15^t *can be rewritten as* $(1.15^{1/12})^{12t} \approx 1.012^{12t}$ *to reveal the approximate equivalent monthly interest rate if the annual rate is 15%.*	**LAC.A2: A-SSE.B.3** Represent quantities and expressions that use exponents.
A2: A-SSE.B.4 Apply the formula for the sum of a finite geometric series (when the common ratio is not 1) to solve problems. *For example, calculate mortgage payments.*	**LAC.A2: A-SSE.B.4** Use the formula to solve real world problems such as calculating the height of a tree after n years given the initial height of the tree and the rate the tree grows each year.
A2: A-APR.A.2 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x – a$ is $p(a)$, so $p(a) = 0$ if and only if $(x – a)$ is a factor of $p(x)$.	**LAC.A2: A-APR.A.2** Understand and apply the Remainder Theorem.
A2: A-APR.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	**LAC.A2: A-APR.B.3** Find the zeros of a polynomial when the polynomial is factored.
A2: A-APR.C.4 Use polynomial identities to describe numerical relationships. *For example, the polynomial identity* $(x^2 + y^2)^2 = (x^2 – y^2)^2 + (2xy)^2$ *can be used to generate Pythagorean triples.*	**LAC.A2: A-APR.C.4a** Prove polynomial identities by showing steps and providing reasons. **LAC.A2: A-APR.C.4b** Illustrate how polynomial identities are used to determine numerical relationships. *For example the polynomial identity* $(a + b)^2 = a^2 + 2ab + b^2$ *can be used to rewrite* $(25)^2 = (20 + 5)^2 = 20^2 + 2(20*5) + 5^2$.
A2: A-APR.D.6 Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.	**LAC.A2: A-APR.D.6** Rewrite rational expressions, a(x)/b(x), in the form q(x) + r(x)/b(x) by using factoring, long division, or synthetic division.
A2: A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. *Include equations arising from linear and quadratic functions, and simple rational and exponential functions.*	**LAC.A2: A-CED.A.1** Translate a real-world problem into a one variable linear equation.

Algebra II	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A2: A-REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.	No Louisiana Connectors written for this standard.
A2: A-REI.A.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	No Louisiana Connectors written for this standard.
A2: A-REI.B.4 Solve quadratic equations in one variable. b. Solve quadratic equations by inspection (e.g., for $x^2 = 49$), taking square roots, completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as $a \pm bi$ for real numbers a and b.	**LAC.A2: A-REI.B.4** Solve quadratic equations in one variable by simple inspection, taking the square root, factoring, and completing the square.
A2: A-REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), limited to systems of at most three equations and three variables. With graphic solutions, systems are limited to two variables.	**LAC.A2: A-REI.C.6a** Solve systems of equations using the elimination method (sometimes called linear combinations). **LAC.A2: A-REI.C.6b** Solve a system of equations by substitution (solving for one variable in the first equation and substitution it into the second equation). **LAC.A2: A-REI.C.6c** Solve systems of equations using graphs.
A2: A-REI.C.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. *For example, find the points of intersection between the line $y = -3x$ and the circle $x^2 + y^2 = 3$.*	**LAC.A2: A-REI.C.7** Solve a system containing a linear equation and a quadratic equation in two variables graphically and symbolically.
A2: A-REI.D.11 Explain why the x-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	**LAC.A2: A-REI.D.11** Explain why the intersection of $y = f(x)$ and $y = g(x)$ is the solution of the equation $f(x) = g(x)$ for any combination of linear or exponential. Find the solution(s) by: Using technology to graph the equations and determine their point of intersection, Using tables of values, or Using successive approximations that become closer and closer to the actual value.

Algebra II	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A2: F-IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. *Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.*	No Louisiana Connectors written for this standard.
A2: F-IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	No Louisiana Connectors written for this standard.
A2: F-IF.C.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	No Louisiana Connectors written for this standard.
A2: F-IF.C.8b Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. b. Use the properties of exponents to interpret expressions for exponential functions. *For example, identify percent rate of change in functions such as* $y = (1.02)^t$, $y = (0.97)^t$, $y = (1.01)^{12t}$, $y = (1.2)^{t/10}$, *and classify them as representing exponential growth or decay.*	No Louisiana Connectors written for this standard.
A2: F-IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, determine which has the larger maximum.*	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A2: F-BF.A.1 Write a linear, quadratic, or exponential function that describes a relationship between two quantities. a. Determine an explicit expression, a recursive process, or steps for calculation from a context. b. Combine standard function types using arithmetic operations. *For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.*	No Louisiana Connectors written for this standard.
A2: F-BF.A.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	No Louisiana Connectors written for this standard.
A2: F-BF.B.3 Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative). Without technology, find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. *Include recognizing even and odd functions from their graphs and algebraic expressions for them.*	No Louisiana Connectors written for this standard.
A2: F-BF.B.4a Find inverse functions. a. Solve an equation of the form f(x) = c for a simple function f that has an inverse and write an expression for the inverse. *For example, $f(x) = 2x^3$ or $f(x) = (x+1)/(x-1)$ for $x \neq 1$.*	No Louisiana Connectors written for this standard.
A2: F-LE.A.2 Given a graph, a description of a relationship, or two input-output pairs (include reading these from a table), construct linear and exponential functions, including arithmetic and geometric sequences, to solve multi-step problems.	No Louisiana Connectors written for this standard.
A2: F-LE.A.4 For exponential models, express as a logarithm the solution to a $b^{ct} = d$ where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.	No Louisiana Connectors written for this standard.
A2: F-LE.B.5 Interpret the parameters in a linear, quadratic, or exponential function in terms of a context.	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A2: F-TF.A.1 Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.	No Louisiana Connectors written for this standard.
A2: F-TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	No Louisiana Connectors written for this standard.
A2: F-TF.B.5 Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.	No Louisiana Connectors written for this standard.
A2: F-TF.C.8 Prove the Pythagorean identity $\sin^2(\theta) + \cos^2(\theta) = 1$ and use it to find $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ given $\sin(\theta)$, $\cos(\theta)$, or $\tan(\theta)$ and the quadrant.	No Louisiana Connectors written for this standard.
A2: S-ID.A.4 Use the mean and standard deviation of a data set to fit it to a normal distribution and to estimate population percentages. Recognize that there are data sets for which such a procedure is not appropriate. Use calculators, spreadsheets, and tables to estimate areas under the normal curve.	**LAC.A2: S-ID.A.4** Use descriptive stats; range, median, mode, mean, outliers/gaps to describe the data set.
A2: S-ID.B.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. *Use given functions or choose a function suggested by the context. Emphasize exponential models.*	**LAC.A2: S-ID.B.6a** Represent data on a scatter plot to describe and predict. **LAC.A2: S-ID.B.6b** Select an appropriate statement that describes the relationship between variables.
A2: S-IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population	**LAC.A2: S-IC.A.1** Determine what inferences can be made from statistics.
A2: S-IC.A.2 Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation. *For example, a model says a spinning coin falls heads up with probability 0.5. Would a result of 5 tails in a row cause you to question the model?*	No Louisiana Connectors written for this standard.
A2: S-IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	No Louisiana Connectors written for this standard.

Algebra II	
Louisiana Student Standards	**Draft Louisiana Connectors (LAC)**[1]
A2: S-IC.B.4 Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling.	No Louisiana Connectors written for this standard.
A2: S-IC.B.5 Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.	No Louisiana Connectors written for this standard.
A2: S-IC.B.6 Evaluate reports based on data.	**LAC.A2: S-IC.B.6a** Make or select an appropriate statement(s) about findings. **LAC.A2: S-IC.B.6b** Apply the results of the data to a real world situation.