Dynamic Learning Maps: Mathematics

- **DLM.MA.K.K.CC** - Counting and Cardinality
- **DLM.MA.K.CC.KNN** - Know number names and the count sequence.
- **DLM.MA.K.K.CC.1** - Count to 100 by ones and by tens.
- **DLM.MA.K.EEK.CC.1_4** - Starting with one, count to 10 by ones.
  - ○ **DLM.MA.K.EEK.CC.1** - Starting with any number greater than one, count to 10 by ones.
  - ○ **DLM.MA.K.EEK.CC.1_1** - Starting with one, count to 10 by ones.
  - ○ **DLM.MA.K.EEK.CC.1_2** - Starting with one, count by ones to five.
  - ○ **DLM.MA.K.EEK.CC.1_3** - Count with teacher from one to two.
- **DLM.MA.K.K.CC.2** - Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
  - ○ **DLM.MA.K.EEK.CC.2** - N/A
- **DLM.MA.K.K.CC.3** - Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
  - ○ **DLM.MA.K.EEK.CC.3** - N/A
- **DLM.MA.K.CC.CTN** - Count to tell the number of objects.
- **DLM.MA.K.K.CC.4** - Understand the relationship between numbers and quantities; connect counting to cardinality.
- ○ **DLM.MA.K.K.CC.4.a** - When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
- ○ **DLM.MA.K.K.CC.4.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.
- **DLM.MA.K.K.CC.4.c** - Understand that each successive number name refers to a quantity that is one larger.
- **DLM.MA.K.EEK.CC.4_4** - Demonstrate one-to-one correspondence pairing each object with one and only one number and each name with only one object.
  - ○ **DLM.MA.K.EEK.CC.4** - Demonstrates one-to-one correspondence with more than one.
  - ○ **DLM.MA.K.EEK.CC.4_1** - Demonstrate one-to-one correspondence pairing each object with one and only one number and each name with only one object.
  - ○ **DLM.MA.K.EEK.CC.4_2** - Demonstrate one object s correspondence with one object.
  - ○ **DLM.MA.K.EEK.CC.4_3** - With guidance and support, count one object.
- **DLM.MA.K.K.CC.5** - Count to answer   how many?   questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
- **DLM.MA.K.EEK.CC.5_4** - Count out up to three objects from a larger set, pairing each object with one and only one number name to tell how many.
  - ○ **DLM.MA.K.EEK.CC.5** - Counts five objects out of a group of more than five objects. Counts a given set of five objects, pairing each object with one and only one number name and when asked,   how many , says five without recounting.

- ○ **DLM.MA.K.EEK.CC.5_1** - Count out up to three objects from a larger set, pairing each object with one and only one number name to tell how many.
- ○ **DLM.MA.K.EEK.CC.5_2** - Counts either one or two objects out of a group of five objects.
- ○ **DLM.MA.K.EEK.CC.5_3** - Identify one object out of a group of objects.
- ○ **DLM.MA.K.CC.CN.** - Compare numbers.
- **DLM.MA.K.K.CC.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.
- **DLM.MA.K.EEK.CC.6_4** - Identify whether the number of objects in one group is more or less than (when the quantities are clearly different) or equal to the number of objects in another group.
- ○ **DLM.MA.K.EEK.CC.6** - Identify whether the number of objects in one group is more or less than or equal to the number of objects in another group.
- ○ **DLM.MA.K.EEK.CC.6_1** - Identify whether the number of objects in one group is more or less (when the quantities are clearly different) or equal to the number of objects in another group.
- ○ **DLM.MA.K.EEK.CC.6_2** - Given two groups of dramatically different quantities of objects, identify which group has more.
- ○ **DLM.MA.K.EEK.CC.6_3** - Explore groups that have more and less.
- **DLM.MA.K.KK.CC.7** - Compare two numbers between 1 and 10 presented as written numerals.
- ○ **DLM.MA.K.EEK.CC.7** - N/A
- • **DLM.MA.K.K.OA** - Operations and Algebraic Thinking
- ○ **DLM.MA.K.OA.UPU** - Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
- **DLM.MA.K.K.OA.1** - Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.
- **DLM.MA.K.EEK.OA.1_4** - Represent addition as   putting together   or subtraction as   taking from   in everyday activities.
- ○ **DLM.MA.K.EEK.OA.1** - Represent addition as   putting together   and subtraction as   taking from   with quantities to 10.
- ○ **DLM.MA.K.EEK.OA.1_1** - Represent addition as   putting together   or subtraction as   taking from   in everyday activities.
- ○ **DLM.MA.K.EEK.OA.1_2** - Follow directions to   put together   by adding one or   take from   by taking one.
- ○ **DLM.MA.K.EEK.OA.1_3** -   Put together   or   take from   with teacher.
- **DLM.MA.K.K.OA.2** - Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
- ○ **DLM.MA.K.EEK.OA.2** - N/A
- **DLM.MA.K.K.OA.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).
- ○ **DLM.MA.K.EEK.OA.3** - N/A

- **DLM.MA.K.K.OA.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.
- ○ **DLM.MA.K.EEK.OA.4** - N/A
- **DLM.MA.K.K.OA.5** - Fluently add and subtract within 5.
- ○ **DLM.MA.K.EEK.OA.5** - N/A
- **DLM.MA.K.K.NBT** - Number and Operations in Base Ten
- o **DLM.MA.K.NBT.WWN** - Work with numbers 11 19 to gain foundations for place value.
- **DLM.MA.K.K.NBT.1** - Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
- ○ **DLM.MA.K.EEK.NBT.1** - N/A (See EEK.NBT.1.4 and EEK.NBT.1.6)
- **DLM.MA.K.K.MD** - Measurement and Data
- o **DLM.MA.K.MD.DCM** - Describe and compare measurable attributes.
- ○ **DLM.MA.K.K.MD.1** - Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- ○ **DLM.MA.K.K.MD.2** - Directly compare two objects with a measurable attribute in common, to see which object has   more of / less of   the attribute, and describe the difference.
- o **DLM.MA.K.MD.COC** - Classify objects and count the number of objects in each category.
- **DLM.MA.K.K.MD.3** - Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
- **DLM.MA.K.EEK.MD.1-3_4** - Classify objects according to attributes (big/small, heavy/light).
- ○ **DLM.MA.K.EEK.MD.1-3** - Order objects according to attributes (big/smaller/smallest, heavy/lighter/lightest).
- ○ **DLM.MA.K.EEK.MD.1-3_1** - Classify objects according to attributes (big/small, heavy/light).
- ○ **DLM.MA.K.EEK.MD.1-3_2** - Using a model or a template, sort objects by one attribute (big/small or heavy/light).
- ○ **DLM.MA.K.EEK.MD.1-3_3** - Match objects by attribute big and small.
- **DLM.MA.K.K.G** - Geometry
- o **DLM.MA.K.G.IDS** - Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
- **DLM.MA.K.K.G.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.
- **DLM.MA.K.EEK.G.1_4** - Identify words of proximity to describe the relative position.
- ○ **DLM.MA.K.EEK.G.1** - Use words referring to frames of reference or demonstrate relative position.
- ○ **DLM.MA.K.EEK.G.1_1** - Identify words of proximity to describe the relative position.
- ○ **DLM.MA.K.EEK.G.1_2** - Respond to spatial words that describe relative position of an object using position terms (e.g., on, in, off).
- ○ **DLM.MA.K.EEK.G.1_3** - Repeat positional words during an activity or lesson in which the teacher demonstrates the relative position of an object.

- ○ **DLM.MA.K.K.G.2** - Correctly name shapes regardless of their orientations or overall size.
- **DLM.MA.K.K.G.3** - Identify shapes as two-dimensional (lying in a plane, flat) or three-dimensional (solid).
- **DLM.MA.K.EEK.G.2-3_4** - Match two-dimensional shapes (circle, square, triangle).
- ○ **DLM.MA.K.EEK.G.2-3** - Match two-dimensional shapes that vary in size (circle, square, triangle).
- ○ **DLM.MA.K.EEK.G.2-3_1** - Match two-dimensional shapes (circle, square, triangle).
- ○ **DLM.MA.K.EEK.G.2-3_2** - Match a shape to its duplicate.
- ○ **DLM.MA.K.EEK.G.2-3_3** - Repeat a model to match shapes.
- **DLM.MA.1.1.OA** - Operations and Algebraic Thinking
- **DLM.MA.1.OA.RSP** - Represent and solve problems involving addition and subtraction.
- **DLM.MA.1.1.OA.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.
- **DLM.MA.1.EE1.OA.1.a_4** - Use language to describe putting together and taking apart, aspects of addition and subtraction.
- ○ **DLM.MA.1.EE1.OA.1.a_1** - Use words like take away, subtract, give, add, more, and same quantity, when putting together and taking apart.
- ○ **DLM.MA.1.EE1.OA.1.a_2** - Use language to describe putting together and taking apart, aspects of addition and subtraction.
- ○ **DLM.MA.1.EE1.OA.1.a** - Put together or take away.
- ○ **DLM.MA.1.EE1.OA.1.a_3** - Follow directions to put together or take away an object with a verbal prompt.
- **DLM.MA.1.EE1.OA.1.b_4** - Recognize two groups that have the same or equal quantity.
- ○ **DLM.MA.1.EE1.OA.1.b** - Create two groups that have the same or equal quantity.
- ○ **DLM.MA.1.EE1.OA.1.b_1** - Recognize two groups that have the same or equal quantity.
- ○ **DLM.MA.1.EE1.OA.1.b_2** - Add one more to a group to make it the same or equal to the other.
- ○ **DLM.MA.1.EE1.OA.1.b_3** - Replicate a group of objects.
- **DLM.MA.1.1.OA.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.
- **DLM.MA.1.EE1.OA.2_3** - Use putting together to solve problems with two sets.
- ○ **DLM.MA.1.EE1.OA.2** - Use putting together to solve problems using three sets.
- ○ **DLM.MA.1.EE1.OA.2_1** - Use putting together to solve problems with two sets.
- ○ **DLM.MA.1.EEI.OA.2** - Use putting together to solve a problem with one set and adding one more.
- ○ **DLM.MA.1.EE1.OA.2_2** - Put in an item from a group, using technology or objects.
- **DLM.MA.1.OA.UPO** - Understand and apply properties of operations and the relationship between addition and subtraction.
- **DLM.MA.1.1.OA.3** - Apply properties of operations as strategies to add and subtract.
- ○ **DLM.MA.1.EE1.OA.3** - N/A
- **DLM.MA.1.1.OA.4** - Understand subtraction as an unknown-addend problem.

- ○ **DLM.MA.1.EE1.OA.4** - N/A (See EENBT.1.4 and EENBT.1.6)
- ○ **DLM.MA.1.OA.ASW** - Add and subtract within 20.
- ▪ **DLM.MA.1.1.OA.5** - Relate counting to addition and subtraction (e.g., by counting on 2 to add 2).
- ▪ **DLM.MA.1.EE1.OA.5.a_4** - Use manipulatives or visual representations to indicate the number that results when adding one more.
- ▪ ○ **DLM.MA.1.EE1.OA.5.a** - Indicate the numeral that results when adding one more to the numbers.
- ▪ ○ **DLM.MA.1.EE1.OA.5.a_1** - Use manipulatives or visual representations to indicate the number that results when adding one more.
- ▪ ○ **DLM.MA.1.EE1.OA.5.a_2** - Indicate the numbers that result when adding one more to the numbers from one to five.
- ▪ ○ **DLM.MA.1.EE1.OA.5.a_3** - Do or give one more.
- ▪ **DLM.MA.1.EE1.OA.5.b_4** - Apply knowledge of   one less   to subtract one from the numbers.
- ▪ ○ **DLM.MA.1.EE1.OA.5.b** - Indicate the numeral that is one less.
- ▪ ○ **DLM.MA.1.EE1.OA.5.b_1** - Apply knowledge of   one less   to subtract one from the numbers.
- ▪ ○ **DLM.MA.1.EE1.OA.5.b_2** - Indicate how many are left when one is taken away from two to four objects.
- ▪ ○ **DLM.MA.1.EE1.OA.5.b_3** - Remove or take one away.
- ▪ **DLM.MA.1.1.OA.6** - Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use 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).
- ▪ ○ **DLM.MA.1.EE1.OA.6** - N/A
- ○ **DLM.MA.1.OA.WWS** - Work with addition and subtraction equations.
- ▪ **DLM.MA.1.1.OA.7** - Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.
- ▪ ○ **DLM.MA.1.EE1.OA.7. N/A** - (See EE1.OA.1.b)
- ▪ **DLM.MA.1.1.OA.8** - Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.
- ▪ ○ **DLM.MA.1.EE1.OA.8** - N/A
- • **DLM.MA.1.1.NBT** - Number and Operations in Base Ten
- ○ **DLM.MA.1.NBT.ECS** - Extend the counting sequence.
- ▪ **DLM.MA.1.1.NBT.1** - Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.
- ▪ **DLM.MA.1.EE1.NBT.1.a_3** - Count by ones.
- ▪ ○ **DLM.MA.1.EE1.NBT.1.a** - Count from 1 - 30 with meaning; cardinality.
- ▪ ○ **DLM.MA.1.EE1NBT.1.a** - Count by ones.
- ▪ ○ **DLM.MA.1.EE1.NBT.1.a_1** - Count to 10.
- ▪ ○ **DLM.MA.1.EE1.NBT.1.a_2** - Count to two.

- **DLM.MA.1.EE1.NBT.1.b_4** - Count as many as 10 objects and represent the quantity with the corresponding numeral.
  - ○ **DLM.MA.1.EE1.NBT.1.b** - Count up to 20 objects and represent the quantity with a numeral.
  - ○ **DLM.MA.1.EE1.NBT.1.b_1** - Count as many as 10 objects and represent the quantity with the corresponding numeral.
  - ○ **DLM.MA.1.EE1.NBT.1.b_2** - Count as many as five objects and/or represent the quantity with the appropriate numeral.
  - ○ **DLM.MA.1.EE1.NBT.1.b_3** - Count up to two objects.
- ○ **DLM.MA.1.NBT.UPV** - Understand place value.
- **DLM.MA.1.1.NBT.2** - Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:
- ○ **DLM.MA.1.1.NBT.2.a** - 10 can be thought of as a bundle of ten ones - called a   ten.
- ○ **DLM.MA.1.1.NBT.2.b** - The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.
- **DLM.MA.1.1.NBT.2.c** - 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).
- **DLM.MA.1.EE1.NBT.2_4** - Create sets of 10.
- ○ **DLM.MA.1.EE1.NBT.2** - Create multiple sets of ten with an odd number of objects (remainders).
- ○ **DLM.MA.1.EE1.NBT.2_1** - Create sets of 10.
- ○ **DLM.MA.1.EE1.NBT.2_2** - Create one set of 10 to match another set of 10.
- ○ **DLM.MA.1.EE1.NBT.2_3** - Identify a set of five.
- **DLM.MA.1.1.NBT.3** - Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.
- **DLM.MA.1.EE1.NBT.3_4** - Compare two groups of 10 or fewer items when the quantity of items in each group is similar.
- ○ **DLM.MA.1.EE1.NBT.3** - Choose the larger/smaller set of items that are < 10, > 10 when the sets differ by three or fewer.
- ○ **DLM.MA.1.EE1.NBT.3_1** - Compare two groups of 10 or fewer items when the quantity of items in each group is similar.
- ○ **DLM.MA.1.EE1.NBT.3_2** - Choose the matching set of items.
- ○ **DLM.MA.1.EE1.NBT.3_3** - Match sets of one, two, or three objects showing the same number of objects.
- ○ **DLM.MA.1.NBT.UPV_1** - Use place value understanding and properties of operations to add and subtract.
- **DLM.MA.1.1.NBT.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, 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. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
- **DLM.MA.1.EE1.NBT.4_4** - Compose numbers less than or equal to five in more than one way.

- ○ **DLM.MA.1.EE1.NBT.4** - Compose numbers less than or equal to 10 in more than one way.
- ○ **DLM.MA.1.EE1.NBT.4_1** - Compose numbers less than or equal to five in more than one way.
- ○ **DLM.MA.1.EE1.NBT.4_2** - Identify (subitize) sets of one to three objects.
- ○ **DLM.MA.1.EE1.NBT.4_3** - Repeat the number of objects in sets of 1-3 objects.
- **DLM.MA.1.1.NBT.5** - Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
- ○ **DLM.MA.1.EE1.NBT.5** - N/A (See EE1.OA.5.a and EE1.OA.5.b)
- **DLM.MA.1.1.NBT.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.
- **DLM.MA.1.EE1.NBT.6_4** - Decompose numbers less than or equal to five in more than one way.
- ○ **DLM.MA.1.EE1.NBT.6** - Decompose numbers less than or equal to 10 in more than one way.
- ○ **DLM.MA.1.EE1.NBT.6_1** - Decompose numbers less than or equal to five in more than one way.
- ○ **DLM.MA.1.EE1.NBT.6_2** - Decompose numbers less than or equal to five in one way.
- ○ **DLM.MA.1.EE1.NBT.6_3** - Identify two sets of the same object (less than five) as they are being decomposed.
- **DLM.MA.1.1.MD** - Measurement and Data
- ○ **DLM.MA.1.MD.MLI** - Measure lengths indirectly and by iterating length units.
- ○ **DLM.MA.1.1.MD.1** - Order three objects by length; compare the lengths of two objects indirectly by using a third object.
- **DLM.MA.1.1.MD.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.
- **DLM.MA.1.EE1.MD.1-2_4** - Use appropriate vocabulary to describe the length of an object using the language of longer/shorter, taller/shorter.
- ○ **DLM.MA.1.EE1.MD.1-2** - Measure and compare two similar objects aligned at the same starting point, and describe which is longer/shorter, taller/shorter.
- ○ **DLM.MA.1.EE1.MD.1-2_1** - Use appropriate vocabulary to describe the length of an object using the language of longer/shorter, taller/shorter.
- ○ **DLM.MA.1.EE1.MD.1-2_2** - With guidance and support, select from two everyday objects based on the stated attribute (long/short, tall/short).
- ○ **DLM.MA.1.EE1.MD.1-2_3** - Explore tall/short objects.
- ○ **DLM.MA.1.MD.TWT** - Tell and write time.
- **DLM.MA.1.1.MD.3** - Tell and write time in hours and half-hours using analog and digital clocks.
- **DLM.MA.1.EE1.MD.3.a_4** - Demonstrate an understanding of the terms tomorrow, yesterday, and today.
- ○ **DLM.MA.1.EE1.MD.3.a** - Use the words today, tomorrow, and yesterday to refer to personal activities and events.
- ○ **DLM.MA.1.EE1.MD.3.a_1** - Demonstrate understanding of the terms tomorrow, yesterday, and today.

- ○ **DLM.MA.1.EE1.MD.3.a_2** - Indicate understanding of the term today.
- ○ **DLM.MA.1.EE1.MD.3.a_3** - Identify an activity that will take place today.
- **DLM.MA.1.EE1.MD.3.b_4** - Name a day of the week for tomorrow and yesterday.
- ○ **DLM.MA.1.EE1.MD.3.b** - Using a calendar, recall the seven days of the week and identify the appropriate day for tomorrow and yesterday.
- ○ **DLM.MA.1.EE1.MD.3.b_1** - Name a day of the week for tomorrow and yesterday.
- ○ **DLM.MA.1.EE1.MD.3.b_2** - Name a day of the week.
- ○ **DLM.MA.1.EE1.MD.3.b_3** - Identify an activity that is happening today.
- **DLM.MA.1.EE1.MD.3.c_4** - Identify activities that come next, before, and after.
- ○ **DLM.MA.1.EE1.MD.3.c** - Correctly sequence the activities given the direction to identify what comes next, before, and after in the day s or week s schedule.
- ○ **DLM.MA.1.EE1.MD.3.c_1** - Identify activities that come next, before, and after.
- ○ **DLM.MA.1.EE1.MD.3.c_2** - Indicate activities that come next.
- ○ **DLM.MA.1.EE1.MD.3.c_3** - Recognize the next activity.
- **DLM.MA.1.EE1.MD.3.d_4** - Demonstrate an understanding that telling time is the same every day.
- ○ **DLM.MA.1.EE1.MD.3.d** - Demonstrate an understanding of telling time with a clock or watch related to real-life context.
- ○ **DLM.MA.1.EE1.MD.3.d_1** - Demonstrate an understanding that telling time is the same every day.
- ○ **DLM.MA.1.EE1.MD.3.d_2** - Demonstrate an understanding of the use of a clock (time).
- ○ **DLM.MA.1.EE1.MD.3.d_3** - Recognize representations of different parts of the day; morning, noon, and night.
- o **DLM.MA.1.MD.RID** - Represent and interpret data.
- **DLM.MA.1.1.MD.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.
- **DLM.MA.1.EE1.MD.4_4** - Given a count of the total number of data points in two categories, determine whether there are more or less in each category.
- ○ **DLM.MA.1.EE1.MD.4** - Collect and count data into at least two categories to answer questions about the total number of data points and whether there are more or less in one category than in another.
- ○ **DLM.MA.1.EE1.MD.4_1** - Given a count of the total number of data points in two categories, determine whether there are more or less in each category.
- ○ **DLM.MA.1.EE1.MD.4_2** - Put objects and choices into categories.
- ○ **DLM.MA.1.EE1.MD.4_3** - Participate in data collection by voting or otherwise choosing.
- • **DLM.MA.1.1.G** - Geometry
- o **DLM.MA.1.G.RWS** - Reason with shapes and their attributes.
- ○ **DLM.MA.1.1.G.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 to possess defining attributes.

- **DLM.MA.1.1.G.2** - Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or 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.
- **DLM.MA.1.EE1.G.1-2_4** - Identify common two-dimensional shapes: square, circle, triangle, and rectangle.
- ◯ **DLM.MA.1.EE1.G.1-2** - Identify attributes of common two-dimensional shapes: square, circle, triangle, and rectangle.
- ◯ **DLM.MA.1.EE1.G.1-2_1** - Identify common two-dimensional shapes: square, circle, triangle, and rectangle.
- ◯ **DLM.MA.1.EE1.G.1-2_2** - Match shape to shape
- ◯ **DLM.MA.1.EE1.G.1-2_3** - Recognize a shape.
- **DLM.MA.1.1.G.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.
- **DLM.MA.1.EE1.G.3_4** - Put together two pieces to make a shape that relates to the whole (i.e., two semicircles to make a circle, two squares to make a rectangle).
- ◯ **DLM.MA.1.EE1.G.3** - Demonstrate part and whole terminology understanding.
- ◯ **DLM.MA.1.EE1.G.3_1** - Put together two pieces to make a shape that relates to the whole (i.e., two semicircles to make a circle, two squares to make a rectangle).
- ◯ **DLM.MA.1.EE1.G.3_2** - Put together two pieces.
- ● ◯ **DLM.MA.1.EE1.G.3_3** - Given an inset puzzle or technology equivalent, insert a shape. **DLM.MA.2.2.OA** - Operations and Algebraic Thinking
- o **DLM.MA.2.OA.RSP** - Represent and solve problems involving addition and subtraction.
- **DLM.MA.2.2.OA.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.
- **DLM.MA.2.EE2.OA.1_4** - Add and subtract to solve real world one-step story problems from 0-20 when the result is unknown.
- ◯ **DLM.MA.2.EE2.OA.1** - Add and subtract to solve real world one-step story problems from 0-20 when any number in the problem is unknown (result, start, change, difference).
- ◯ **DLM.MA.2.EE2.OA.1_1** - Add and subtract to solve real world one-step story problems from 0-20 when the result is unknown.
- ◯ **DLM.MA.2.EE2.OA.1_2** - Given the equation, add to solve real world one-step story problems from 0-10.
- ◯ **DLM.MA.2.EE2.OA.1_3** - Identify the object(s) that appear in the real world one-step story problem.
- o **DLM.MA.2.OA.ASW** - Add and subtract within 20.
- **DLM.MA.2.2.OA.2** - Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.
- ◯ **DLM.MA.2.EE2.OA.2** - N/A (See EE2.NBT.7)
- o **DLM.MA.2.OA.WWE** - Work with equal groups of objects to gain foundations for multiplication.

- **DLM.MA.2.2.OA.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.
- **DLM.MA.2.EE2.OA.3_4** - Equally distribute even numbers of objects between two groups.
- ○ **DLM.MA.2.EE2.OA.3** - Determine that a quantity of objects is even or odd by separating them into two groups.
- ○ **DLM.MA.2.EE2.OA.3_1** - Equally distribute even numbers of objects between two groups.
- ○ **DLM.MA.2.EE2.OA.3_2** - Separate objects into two groups.
- ○ **DLM.MA.2.EE2.OA.3_3** - Make two groups of two.
- **DLM.MA.2.2.OA.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.
- **DLM.MA.2.EE2.OA.4_4** - Use addition to find the total number of objects arranged within equal groups up to a total of 10.
- ○ **DLM.MA.2.EE2.OA.4** - Use addition to find the total number of objects arranged within equal groups beyond 10.
- ○ **DLM.MA.2.EE2.OA.4_1** - Use addition to find the total number of objects arranged within equal groups up to a total of 10.
- ○ **DLM.MA.2.EE2.OA.4_2** - Recognize that two groups are made up of equal quantities up to a total of less than 10.
- ○ **DLM.MA.2.EE2.OA.4_3** - Differentiate same/different when presented with two objects.
- **DLM.MA.2.2.NBT** - Number and Operations in Base Ten
- **DLM.MA.2.NBT.UPV** - Understand place value.
- **DLM.MA.2.2.NBT.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:
- ○ **DLM.MA.2.2.NBT.1.a** - 100 can be thought of as a bundle of ten tens - called a hundred.
- **DLM.MA.2.2.NBT.1.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).
- **DLM.MA.2.EE2.NBT.1_4** - Represent numbers through 30 with sets of tens and ones with objects in columns or arrays.
- ○ **DLM.MA.2.EE2.NBT.1** - Put numbers through 30 into sets of tens and ones with numbers.
- ○ **DLM.MA.2.EE2.NBT.1_1** - Represent numbers through 30 with sets of tens and ones with objects in columns or arrays.
- ○ **DLM.MA.2.EE2.NBT.1_2** - Indicate that 10 ones equals one 10 and zero ones (base 10).
- ○ **DLM.MA.2.EE2.NBT.1_3** - Demonstrates one-to-one correspondence.
- **DLM.MA.2.2.NBT.2** - Count within 1000; skip-count by 5s, 10s, and 100s.
- **DLM.MA.2.EE2.NBT.2.a_4** - Count from 1 to 30 (count with meaning; cardinality).
- ○ **DLM.MA.2.EE2.NBT.2.a** - Count beyond 30 (count with meaning; cardinality).
- ○ **DLM.MA.2.EE2.NBT.2.a_1** - Count from 1 to 30 (count with meaning; cardinality).
- ○ **DLM.MA.2.EE2.NBT.2.a_2** - Count numbers 1 to 20, skipping numbers or repeating.

- ○ **DLM.MA.2.EE2.NBT.2.a_3** - Repeat numbers 1 to 30.
- **DLM.MA.2.EE2.NBT.2.b_4** - Name the next number in a sequence between 1 and 10.
- ○ **DLM.MA.2.EE2.NBT.2.b** - Count forward beginning from a given number within the known sequence 2 to 10 (instead of having to begin at one).
- ○ **DLM.MA.2.EE2.NBT.2.b_1** - Name the next number in a sequence between 1 and 10.
- ○ **DLM.MA.2.EE2.NBT.2.b_2** - Indicate the higher number in a progression of numbers (with or without gaps).
- ○ **DLM.MA.2.EE2.NBT.2.b_3** - Communicate a number.
- **DLM.MA.2.2.NBT.3** - Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.
- **DLM.MA.2.EE2.NBT.3_4** - Identify number symbols 1 to 30.
- ○ **DLM.MA.2.EE2.NBT.3** - Express number symbols beyond 30.
- ○ **DLM.MA.2.EE2.NBT.3_1** - Identify number symbols 1 to 30.
- ○ **DLM.MA.2.EE2.NBT.3_2** - Identify number symbols 1-10.
- ○ **DLM.MA.2.EE2.NBT.3_3** - Differentiate between numbers and letters.
- **DLM.MA.2.2.NBT.4** - Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons.
- **DLM.MA.2.EE2.NBT.4_4** - Compare sets of objects and numbers using appropriate vocabulary (more, less, equal).
- ○ **DLM.MA.2.EE2.NBT.4** - Compare sets of objects and numbers using appropriate vocabulary as equal or more or less when two or fewer units apart.
- ○ **DLM.MA.2.EE2.NBT.4_1** - Compare sets of objects and numbers using appropriate vocabulary (more, less, equal).
- ○ **DLM.MA.2.EE2.NBT.4_2** - Determine equality of sets of objects using appropriate vocabulary (equal).
- ○ **DLM.MA.2.EE2.NBT.4_3** - Match groups of objects.
- o **DLM.MA.2.NBT.UPV_1** - Use place value understanding and properties of operations to add and subtract.
- **DLM.MA.2.2.NBT.5** - Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
- **DLM.MA.2.EE2.NBT.5.a_4** - Identify the meaning of the + sign (i.e., combine, plus, add), and the = sign (equal).
- ○ **DLM.MA.2.EE2.NBT.5.a** - Identify the meaning of the + sign (i.e., combine, plus, add), the = sign (equal), and the - sign (minus, take away, less).
- ○ **DLM.MA.2.EE2.NBT.5.a_1** - Identify the meaning of the + sign (i.e., combine, plus, add), and the = sign (equal).
- ○ **DLM.MA.2.EE2.NBT.5.a_2** - Recognize the + and = signs.
- ○ **DLM.MA.2.EE2.NBT.5.a_3** - Match the + and = signs.
- **DLM.MA.2.EE2.NBT.5.b_4** - Using concrete examples, compose and decompose numbers up to 10 in more than one way.
- ○ **DLM.MA.2.EE2.NBT.5.b** - Using numbers or representations, compose and decompose numbers up to 10 in more than one way.

- ○ **DLM.MA.2.EE2.NBT.5.b_1** - Using concrete examples, compose and decompose numbers up to 10 in more than one way.
- ○ **DLM.MA.2.EE2.NBT.5.b_2** - Using concrete examples, compose and decompose numbers up to five in at least one way.
- ○ **DLM.MA.2.EE2.NBT.5.b_3** - Recognize that groups of objects can be put together or taken apart.
- ○ **DLM.MA.2.2.NBT.6** - Add up to four two-digit numbers using strategies based on place value and properties of operations.
- **DLM.MA.2.2.NBT.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; relate the strategy to a written method. 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.
- **DLM.MA.2.EE2.NBT.6-7_4** - Use objects, representations, and numbers (0-20) to add and subtract.
- ○ **DLM.MA.2.EE2.NBT.6-7_1** - Use objects, representations, and numbers beyond 20 to add and subtract.
- ○ **DLM.MA.2.EE2.NBT.6-7_2** - Use objects, representations, and numbers (0-20) to add and subtract.
- ○ **DLM.MA.2.EE2.NBT.6-7_3** - Use objects, representations, and numbers (0-10) to add.
- ○ **DLM.MA.2.EE2.NBT.6-7** - Count objects 1-10.
- ○ **DLM.MA.2.2.NBT.8** - Mentally add 10 or 100 to a given number 100 900, and mentally subtract 10 or 100 from a given number 100 900.
- **DLM.MA.2.2.NBT.9** - Explain why addition and subtraction strategies work, using place value and the properties of operations.
- ○ **DLM.MA.2.EE2.NBT.8-9** - N/A
- **DLM.MA.2.2.MD** - Measurement and Data
- ○ **DLM.MA.2.MD.MEL** - Measure and estimate lengths in standard units.
- **DLM.MA.2.2.MD.1** - Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.
- **DLM.MA.2.EE2.MD.1_4** - Measure the length of objects using non-standard units.
- ○ **DLM.MA.2.EE2.MD.1** - Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks, by repeating the use of the measurement tool/unit.
- ○ **DLM.MA.2.EE2.MD.1_1** - Measure the length of objects using non-standard units.
- ○ **DLM.MA.2.EE2.MD.1_2** - Begin to measure from an end point using a non-standard tool.
- ○ **DLM.MA.2.EE2.MD.1_3** - Match objects of like length.
- ○ **DLM.MA.2.2.MD.2** - Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.
- ○ **DLM.MA.2.2.MD.3** - Estimate lengths using units of inches, feet, centimeters, and meters.
- **DLM.MA.2.2.MD.4** - Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.
- **DLM.MA.2.EE2.MD.3-4_4** - Order by length using non-standard units.
- ○ **DLM.MA.2.EE2.MD.3-4** - Use non-standard units to measure length of objects (i.e., paperclips, blocks).

- ○ **DLM.MA.2.EE2.MD.3-4_1** - Order by length using non-standard units.
- ○ **DLM.MA.2.EE2.MD.3-4_2** - Compare two non-standard units of length and determine which is shorter and which is longer.
- ○ **DLM.MA.2.EE2.MD.3-4_3** - Compare an item to a model that is shorter or longer.
- o **DLM.MA.2.MD.RSL** - Relate addition and subtraction to length.
- **DLM.MA.2.2.MD.5** - Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.
- **DLM.MA.2.EE2.MD.5_4** - Increase or decrease length by adding or subtracting unit(s).
- ○ **DLM.MA.2.EE2.MD.5** - Increase or decrease length by adding or subtracting multiple units.
- ○ **DLM.MA.2.EE2.MD.5_1** - Increase or decrease length by adding or subtracting unit(s).
- ○ **DLM.MA.2.EE2.MD.5_2** - Increase length by adding a single unit.
- ○ **DLM.MA.2.EE2.MD.5_3** - Compare two objects and determine which is longer.
- **DLM.MA.2.2.MD.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.
- **DLM.MA.2.EE2.MD.6_4** - Use a number line to add one more unit of length.
- ○ **DLM.MA.2.EE2.MD.6** - Use a number line to add more than one unit of length.
- ○ **DLM.MA.2.EE2.MD.6_1** - Use a number line to add one more unit of length.
- ○ **DLM.MA.2.EE2.MD.6_2** - Count forward on a number line to 10 showing units of length.
- ○ **DLM.MA.2.EE2.MD.6_3** - Indicate one more number on a number line and track left to right.
- o **DLM.MA.2.MD.WWT** - Work with time and money.
- **DLM.MA.2.2.MD.7** - Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
- **DLM.MA.2.EE2.MD.7_4** - Indicate the digit that tells the hour on a digital clock.
- ○ **DLM.MA.2.EE2.MD.7** - Tell time to the hour on a digital and analog clock.
- ○ **DLM.MA.2.EE2.MD.7_1** - Indicate the digit that tells the hour on a digital clock.
- ○ **DLM.MA.2.EE2.MD.7_2** - Indicate the relationship between a clock and their daily schedule.
- ○ **DLM.MA.2.EE2.MD.7_3** - Indicate that a clock is used to tell time.
- **DLM.MA.2.2.MD.8** - Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately.
- **DLM.MA.2.EE2.MD.8_4** - Recognize that money has value.
- ○ **DLM.MA.2.EE2.MD.8** - Recognize that money is used in exchange for goods.
- ○ **DLM.MA.2.EE2.MD.8_1** - Recognize that money has value.
- ○ **DLM.MA.2.EE2.MD.8_2** - Sort money from other objects.
- ○ **DLM.MA.2.EE2.MD.8_3** - Understand that goods (items) have value.
- o **DLM.MA.2.MD.RID** - Represent and interpret data.

- ○ **DLM.MA.2.2.MD.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.
- **DLM.MA.2.2.MD.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.
- **DLM.MA.2.EE2.MD.9-10_4** - Create picture graphs from collected measurement data.
- ○ **DLM.MA.2.EE2.MD.9-10** - Organize, represent, and interpret length/height data using concrete objects to create picture graphs.
- ○ **DLM.MA.2.EE2.MD.9-10_1** - Create picture graphs from collected measurement data.
- ○ **DLM.MA.2.EE2.MD.9-10_2** - Create picture graphs from collected measurement data using model.
- ○ **DLM.MA.2.EE2.MD.9-10_3** - Contribute to data collection.
- **DLM.MA.2.2.G** - Geometry
- **DLM.MA.2.G.RWS** - Reason with shapes and their attributes.
- **DLM.MA.2.2.G.1** - Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
- **DLM.MA.2.EE2.G.1_4** - Describe attributes of two-dimensional shapes.
- ○ **DLM.MA.2.EE2.G.1** - Describe mathematical attributes of two- and three-dimensional shapes.
- ○ **DLM.MA.2.EE2.G.1_1** - Describe attributes of two-dimensional shapes.
- ○ **DLM.MA.2.EE2.G.1_2** - Sort by one attribute (shape).
- ○ **DLM.MA.2.EE2.G.1_3** - Explore shapes with different attributes.
- **DLM.MA.2.2.G.2** - Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.
- ○ **DLM.MA.2.EE2.G.2** - N/A
- **DLM.MA.2.2.G.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.
- ○ **DLM.MA.2.EE2.G.3** - N/A
- **DLM.MA.3.3.OA** - Operations and Algebraic Thinking
- **DLM.MA.3.OA.RSP** - Represent and solve problems involving multiplication and division.
- ○ **DLM.MA.3.3.OA.1** - Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each.
- **DLM.MA.3.3.OA.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.
- **DLM.MA.3.EE3.OA.1-2_4** - Use repeated addition and equal groups to find the total number of objects to find the sum.
- ○ **DLM.MA.3.EE3.OA.1-2** - Use repeated addition to find the total number of objects arranged in a square or rectangular array.

- ○ **DLM.MA.3.EE3.OA.1-2_1** - Use repeated addition and equal groups to find the total number of objects to find the sum.
- ○ **DLM.MA.3.EE3.OA.1-2_2** - Use addition to find the total number of objects.
- ○ **DLM.MA.3.EE3.OA.1-2_3** - Identify which group has more or less when objects are added or taken away.
- **DLM.MA.3.3.OA.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.
- ○ **DLM.MA.3.EE3.OA.3** - See EE3.OA.1. for repeated addition, a foundational skill for multiplication and division. (Multiplication begins in grade 4 and division begins in grade 5).
- **DLM.MA.3.3.OA.4** - Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
- **DLM.MA.3.EE3.OA.4_4** - Solve addition and subtraction problems when result is unknown with number 0-30.
- ○ **DLM.MA.3.EE3.OA.4** - Solve addition and subtraction problems when any number in the problem is unknown (result, start, change, difference) with numbers to 50.
- ○ **DLM.MA.3.EE3.OA.4_1** - Solve addition and subtraction problems when result is unknown with number 0-30.
- ○ **DLM.MA.3.EE3.OA.4_2** - Solve addition and subtraction problems with numbers 0-10.
- ○ **DLM.MA.3.EE3.OA.4_3** - Identify numbers 1 to 9.
- o **DLM.MA.3.OA.UPM** - Understand properties of multiplication and the relationship between multiplication and division.
- **DLM.MA.3.3.OA.5** - Apply properties of operations as strategies to multiply and divide.
- ○ **DLM.MA.3.EE3.OA.5** - N/A (Multiplication begins at grade 4).
- **DLM.MA.3.3.OA.6** - Understand division as an unknown-factor problem.
- ○ **DLM.MA.3.EE3.OA.6** - N/A (Division begins at grade 5).
- o **DLM.MA.3.OA.MDW** - Multiply and divide within 100.
- **DLM.MA.3.3.OA.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.
- ○ **DLM.MA.3.EE3.OA.7** - N/A (Multiplication begins grade 4 and division begins in grade 5).
- o **DLM.MA.3.OA.SPI** - Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- **DLM.MA.3.3.OA.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.
- **DLM.MA.3.EE3.OA.8_4** - Add to solve real world one-step story problems from 0-30.
- ○ **DLM.MA.3.EE3.OA.8** - Add to solve real world one-step story problems with sums up to 50 using various problem-solving models.
- ○ **DLM.MA.3.EE3.OA.8_1** - Add to solve real world one-step story problems from 0-30. Represent the problem in pictures or with objects.
- ○ **DLM.MA.3.EE3.OA.8_2** - Add to solve word problems identified through symbol representation.

- ○ **DLM.MA.3.EE3.OA.8_3** - Identify the object(s) that appear in a real world one-step story problem.
- **DLM.MA.3.3.OA.9** - Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations.
- **DLM.MA.3.EE3.OA.9_4** - Identify arithmetic patterns.
- ○ **DLM.MA.3.EE3.OA.9** - Complete a complex arithmetic pattern.
- ○ **DLM.MA.3.EE3.OA.9_1** - Identify arithmetic patterns.
- ○ **DLM.MA.3.EE3.OA.9_2** - Identify a pattern.
- ○ **DLM.MA.3.EE3.OA.9_3** - Follow patterns.
- **DLM.MA.3.3.NBT** - Number and Operations in Base Ten
- ○ **DLM.MA.3.NBT.UPV** - Use place value understanding and properties of operations to perform multi-digit arithmetic.
- **DLM.MA.3.3.NBT.1** - Use place value understanding to round whole numbers to the nearest 10 or 100.
- **DLM.MA.3.EE3.NBT.1_4** - Identify the two 10s a number comes in between on a number line (numbers 0-30).
- ○ **DLM.MA.3.EE3.NBT.1** - Identify the two 10s a number comes in between and tell which is closest (numbers 0-50).
- ○ **DLM.MA.3.EE3.NBT.1_1** - Identify the two 10s a number comes in between on a number line (numbers 0-30).
- ○ **DLM.MA.3.EE3.NBT.1_2** - Identify tens on a number line.
- ○ **DLM.MA.3.EE3.NBT.1_3** - Identify a number.
- **DLM.MA.3.3.NBT.2** - Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
- **DLM.MA.3.EE3.NBT.2_4** - Identify place value to tens.
- ○ **DLM.MA.3.EE3.NBT.2** - Identify place value to 50.
- ○ **DLM.MA.3.EE3.NBT.2_1** - Identify place value to tens.
- ○ **DLM.MA.3.EE3.NBT.2_2** - Count to 10 using one-to-one correspondence.
- ○ **DLM.MA.3.EE3.NBT.2_3** - Identify more or less.
- **DLM.MA.3.3.NBT.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.
- **DLM.MA.3.EE3.NBT.3_4** - Count by tens using money.
- ○ **DLM.MA.3.EE3.NBT.3** - Compare the value of money based on place value.
- ○ **DLM.MA.3.EE3.NBT.3_1** - Count by tens using money.
- ○ **DLM.MA.3.EE3.NBT.3_2** - Identify whole numbers to 10.
- ○ **DLM.MA.3.EE3.NBT.3_3** - Count pennies to 10.
- **DLM.MA.3.3.NF** - Number and Operations-Fractions
- ○ **DLM.MA.3.NF.DUF** - Develop understanding of fractions as numbers.
- ○ **DLM.MA.3.3.NF.1** - Understand a fraction 1/b 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.
- **DLM.MA.3.3.NF.2** - Understand a fraction as a number on the number line; represent fractions on a number line diagram.

- ○ **DLM.MA.3.3.NF.2.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.
- ○ **DLM.MA.3.3.NF.2.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.
- **DLM.MA.3.3.NF.3** - Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.
- ○ **DLM.MA.3.3.NF.3.a** - Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
- ○ **DLM.MA.3.3.NF.3.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.
- ○ **DLM.MA.3.3.NF.3.c** - Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.
- **DLM.MA.3.3.NF.3.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.
- **DLM.MA.3.EE3.NF.1-3_4** - Differentiate a fractional part from a whole.
- ○ **DLM.MA.3.EE3.NF.1-3** - Identify halves or fourths as related to the whole.
- ○ **DLM.MA.3.EE3.NF.1-3_1** - Differentiate a fractional part from a whole.
- ○ **DLM.MA.3.EE3.NF.1-3_2** - Recognize that fractions are part of a whole.
- ○ **DLM.MA.3.EE3.NF.1-3_3** - Identify a whole.
- **DLM.MA.3.3.MD** - Measurement and Data
- **DLM.MA.3.MD.SPI** - Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- **DLM.MA.3.3.MD.1** - Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
- **DLM.MA.3.EE3.MD.1_4** - Tell time to the hour on a digital clock.
- ○ **DLM.MA.3.EE3.MD.1** - Tell time to the half hour using a digital clock.
- ○ **DLM.MA.3.EE3.MD.1_1** - Tell time to the hour on a digital clock.
- ○ **DLM.MA.3.EE3.MD.1_2** - Identify which is the hour on a digital clock.
- ○ **DLM.MA.3.EE3.MD.1_3** - Differentiate a digital clock from other measurement tools as a tool for telling time.
- **DLM.MA.3.3.MD.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.
- **DLM.MA.3.EE3.MD.2_4** - Identify standard units of measure for mass and liquid.

- ○ **DLM.MA.3.EE3.MD.2** - Measure liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).
- ○ **DLM.MA.3.EE3.MD.2_1** - Identify standard units of measure for mass and liquid.
- ○ **DLM.MA.3.EE3.MD.2_2** - Select the appropriate tool to measure a solid or a liquid.
- ○ **DLM.MA.3.EE3.MD.2_3** - Determine if an object is a solid and a liquid.
- ○ **DLM.MA.3.MD.RID** - Represent and interpret data.
- **DLM.MA.3.3.MD.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.
- **DLM.MA.3.EE3.MD.3_4** - Use picture or bar graph data to answer questions about data.
- ○ **DLM.MA.3.EE3.MD.3** - Interpret data to answer questions.
- ○ **DLM.MA.3.EE3.MD.3_1** - Use picture or bar graph data to answer questions about data.
- ○ **DLM.MA.3.EE3.MD.3_2** - Organize data.
- ○ **DLM.MA.3.EE3.MD.3_3** - Collect data.
- **DLM.MA.3.3.MD.4** - Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units-whole numbers, halves, or quarters.
- **DLM.MA.3.EE3.MD.4_4** - Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks.
- ○ **DLM.MA.3.EE3.MD.4** - Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks, by repeating the use of the measurement tool/unit.
- ○ **DLM.MA.3.EE3.MD.4_1** - Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks.
- ○ **DLM.MA.3.EE3.MD.4_2** - Measure length with non-standard units of measurement.
- ○ **DLM.MA.3.EE3.MD.4_3** - Place a standard measuring tool where one would begin to measure the length of an object.
- ○ **DLM.MA.3.MD.GMU** - Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- **DLM.MA.3.3.MD.5** - Recognize area as an attribute of plane figures and understand concepts of area measurement.
- ○ **DLM.MA.3.3.MD.5.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.
- ○ **DLM.MA.3.3.MD.5.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.
- ○ **DLM.MA.3.3.MD.6** - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
- **DLM.MA.3.3.MD.7** - Relate area to the operations of multiplication and addition.
- ○ **DLM.MA.3.3.MD.7.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.

- ○ **DLM.MA.3.3.MD.7.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.
- ○ **DLM.MA.3.3.MD.7.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 × b and a × c. Use area models to represent the distributive property in mathematical reasoning.
- **DLM.MA.3.3.MD.7.d** - 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.
- ○ **DLM.MA.3.EE3.MD.5-7** - N/A (Area begins at grade 6).
- o **DLM.MA.3.MD.GMR** - Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
- **DLM.MA.3.3.MD.8** - Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
- ○ **DLM.MA.3.EE3.MD.8** - N/A (Perimeter begins at grade 7).
- **DLM.MA.3.3.G** - Geometry
- o **DLM.MA.3.G.RWS** - Reason with shapes and their attributes.
- **DLM.MA.3.3.G.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.
- **DLM.MA.3.EE3.G.1_3** - Recognize that shapes in different categories can share attributes.
- ○ **DLM.MA.3.DD3.G.1** - Identify the shared attributes of shapes in different categories.
- ○ **DLM.MA.3.EE3.G.1** - Recognize that shapes in different categories can share attributes.
- ○ **DLM.MA.3.EE3.G.1_1** - Sort shapes by attributes.
- ○ **DLM.MA.3.EE3.G.1_2** - Match shapes (e.g., squares, rectangles, circles, triangles).
- **DLM.MA.3.3.G.2_1** - Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.
- **DLM.MA.3.EE3.G.2_3** - Recognize that shapes can be partitioned into equal areas.
- ○ **DLM.MA.3.3.G.2** - Given shapes with multiple lines of symmetry, will be able to identify equal areas.
- ○ **DLM.MA.3.EE3.G.2** - Recognize that shapes can be partitioned into equal areas.
- ○ **DLM.MA.3.EE3.G.2_1** - Create shapes.
- ○ **DLM.MA.3.EE3.G.2_2** - Match shapes.
- **DLM.MA.4.4.OA** - Operations and Algebraic Thinking
- o **DLM.MA.4.OA.UFO** - Use the four operations with whole numbers to solve problems.
- ○ **DLM.MA.4.4.OA.1** - Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

- **DLM.MA.4.4.OA.2** - Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.
- **DLM.MA.4.EE4.OA.1-2_4** - Demonstrate the connection between repeated addition and multiplication.
- ○ **DLM.MA.4.EE4.OA.1-2** - Apply repeated addition to solve a multiplication problem represented with numbers.
- ○ **DLM.MA.4.EE4.OA.1-2_1** - Demonstrate the connection between repeated addition and multiplication.
- ○ **DLM.MA.4.EE4.OA.1-2_2** - Demonstrate repeated addition to sums of 10.
- ○ **DLM.MA.4.EE4.OA.1-2_3** - Make a set of 10 and count to 10.
- **DLM.MA.4.4.OA.3** - Solve multistep 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.
- **DLM.MA.4.EE4.OA.3_4** - Solve one-step word problems using addition or subtraction.
- ○ **DLM.MA.4.EE4.OA.3** - Solve two-step problems using addition or subtraction when a number in the problem is unknown (result, start, change, difference).
- ○ **DLM.MA.4.EE4.OA.3_1** - Solve one-step problems using addition or subtraction.
- ○ **DLM.MA.4.EE4.OA.3_2** - Solve one-step addition or subtraction problems when there is an unknown (result, start, change, difference) up to 10.
- ○ **DLM.MA.4.EE4.OA.3_3** - Add up to five.
- o **DLM.MA.4.OA.GFW** - Gain familiarity with factors and multiples.
- **DLM.MA.4.4.OA.4** - Find all factor pairs for a whole number in the range 1-100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1-100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1-100 is prime or composite.
- **DLM.MA.4.EE4.OA.4_4** - Show one way to arrive at product.
- ○ **DLM.MA.4.EE4.OA.4** - Show multiple ways to arrive at the same product.
- ○ **DLM.MA.4.EE4.OA.4_1** - Show one way to arrive at a product.
- ○ **DLM.MA.4.EE4.OA.4_2** - Make equal sets and count to determine the product.
- ○ **DLM.MA.4.EE4.OA.4_3** - Replicate one way to arrive at a product.
- o **DLM.MA.4.OA.GP.** - Generate and analyze patterns.
- **DLM.MA.4.4.OA.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.
- **DLM.MA.4.EE4.OA.5_4** - Use repeating patterns to make predictions.
- ○ **DLM.MA.4.EE4.OA.5** - Create a pattern based on a given rule and their prediction of what comes next.
- ○ **DLM.MA.4.EE4.OA.5_1** - Use repeating patterns to make predictions.
- ○ **DLM.MA.4.EE4.OA.5_2** - Replicate a pattern.
- ○ **DLM.MA.4.EE4.OA.5_3** - Differentiate between a pattern and a non-pattern.
- • **DLM.MA.4.4.NBT** - Number and Operations in Base Ten
- o **DLM.MA.4.NBT.GPV** - Generalize place value understanding for multi-digit whole numbers.

- **DLM.MA.4.4.NBT.1** - Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.
- **DLM.MA.4.EE4.NBT.1_4** - Compare numbers to each other based on place value groups by composing and decomposing to 50.
- ○ **DLM.MA.4.EE4.NBT.1** - Compare numbers to each other based on place value groups by composing and decomposing greater than 50.
- ○ **DLM.MA.4.EE4.NBT.1_1** - Compare numbers to each other based on place value groups by composing and decomposing to 50.
- ○ **DLM.MA.4.EE4.NBT.1_2** - Compose and decompose whole numbers to 20.
- ○ **DLM.MA.4.EE4.NBT.1_3** - Identify whole numbers to 10.
- **DLM.MA.4.4.NBT.2** - Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
- **DLM.MA.4.EE4.NBT.2_4** - Compare whole numbers (<, >, =).
- ○ **DLM.MA.4.EE4.NBT.2** - Compare whole numbers using symbols (<, >, =).
- ○ **DLM.MA.4.EE4.NBT.2_1** - Compare whole numbers (<, >, =).
- ○ **DLM.MA.4.EE4.NBT.2_2** - Compare whole numbers (<, >, =) from 0-20.
- ○ **DLM.MA.4.EE4.NBT.2_3** - Compare whole numbers (<, >) from 0-10.
- **DLM.MA.4.4.NBT.3** - Use place value understanding to round multi-digit whole numbers to any place.
- **DLM.MA.4.EE4.NBT.3_4** - Round one- and two-digit whole numbers from 0 50 to the nearest 10.
- ○ **DLM.MA.4.EE4.NBT.3** - Round one- and two-digit numbers, greater than 50, to the nearest 10.
- ○ **DLM.MA.4.EE4.NBT.3_1** - Round single one- and two-digit whole numbers from 0-50 to the nearest 10.
- ○ **DLM.MA.4.EE4.NBT.3_2** - Round single one-digit numbers to the nearest 10.
- ○ **DLM.MA.4.EE4.NBT.3_3** - Identify numbers that are more or less than five on a number line.
- ○ **DLM.MA.4.NBT.UPV** - Use place value understanding and properties of operations to perform multi-digit arithmetic.
- **DLM.MA.4.4.NBT.4** - Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- **DLM.MA.4.EE4.NBT 4** - Add and subtract double-digit whole numbers.
- ○ **DLM.MA.4.EE4.NBT.4** - Add and subtract multi-digit whole numbers.
- ○ **DLM.MA.4.EE4.NBT.4_1** - Add and subtract double-digit whole numbers.
- ○ **DLM.MA.4.EE4.NBT.4_2** - Solve addition with numbers 20-50 and subtraction problems with numbers 0-20.
- ○ **DLM.MA.4.EE4.NBT.4_3** - Solve single digit addition problems to add one to another number.
- **DLM.MA.4.4.NBT.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.
- ○ **DLM.MA.4.EE4.NBT 5** - N/A (See EE. 4.OA.1.)
- **DLM.MA.4.4.NBT.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.

- ○ **DLM.MA.4.EE4.NBT 6** - N/A
- **DLM.MA.4.4.NF** - Number and Operations-Fractions
o **DLM.MA.4.NF.EUF** - Extend understanding of fraction equivalence and ordering.
- ○ **DLM.MA.4.4.NF.1** - Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × 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.
- **DLM.MA.4.4.NF.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.
- **DLM.MA.4.EE4.NF.1-2_4** - Understand 2/4 = 1/2.
- ○ **DLM.MA.4.EE4.NF.1-2** - Understand two fractions having unlike denominators are equivalent if they represent the same size portion of a whole.
- ○ **DLM.MA.4.EE4.NF.1-2_1** - Understand 2/4 = 1/2.
- ○ **DLM.MA.4.EE4.NF.1-2_2** - Understand 4/4 or 2/2 = 1.
- ○ **DLM.MA.4.EE4.NF.1-2_3** - Understand that two halves is equivalent to one whole.
o **DLM.MA.4.NF.BFU** - Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
- **DLM.MA.4.4.NF.3** - Understand a fraction a/b with a > 1 as a sum of fractions 1/b.
- ○ **DLM.MA.4.4.NF.3.a** - Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
- ○ **DLM.MA.4.4.NF.3.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.
- ○ **DLM.MA.4.4.NF.3.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.
- **DLM.MA.4.4.NF.3.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.
- **DLM.MA.4.EE4.NF.3_4** - Differentiate between whole, half, and fourth.
- ○ **DLM.MA.4.EE4.NF.3** - Differentiate fractional parts less than 1/4.
- ○ **DLM.MA.4.EE4.NF.3_1** - Differentiate between whole, half, and fourth.
- ○ **DLM.MA.4.EE4.NF.3_2** - Differentiate between whole and half.
- ○ **DLM.MA.4.EE4.NF.3_3** - Recognize that fractions are part of a whole.
- **DLM.MA.4.4.NF.4** - Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
- ○ **DLM.MA.4.4.NF.4.a** - Understand a fraction a/b as a multiple of 1/b.

- ○ **DLM.MA.4.4.NF.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.
- ○ **DLM.MA.4.4.NF.4.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.
- ○ **DLM.MA.4.EE4.NF.4. N/A** - (See EE. 4.OA.1-2.)
- ○ **DLM.MA.4.NF.UDN** - Understand decimal notation for fractions, and compare decimal fractions.
- ○ **DLM.MA.4.4.NF.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.
- ○ **DLM.MA.4.4.NF.6** - Use decimal notation for fractions with denominators 10 or 100.
- ○ **DLM.MA.4.4.NF.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.
- **DLM.MA.4.4.MD** - Measurement and Data
- ○ **DLM.MA.4.MD.SPI** - Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- **DLM.MA.4.4.MD.1** - Know relative sizes of measurement units within one system of units including 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. Record measurement equivalents in a two-column table.
- **DLM.MA.4.EE4.MD.1_4** - Identify the smaller measurement units that divide a larger unit within a measurement system.
- ○ **DLM.MA.4.EE4.MD.1** - Solve problems by demonstrating whole units can be broken into smaller units.
- ○ **DLM.MA.4.EE4.MD.1_1** - Identify the smaller measurement units that divide a larger unit within a measurement system.
- ○ **DLM.MA.4.EE4.MD.1_2** - Identify standard units of measurements.
- ○ **DLM.MA.4.EE4.MD.1_3** - Use measurement tools.
- **DLM.MA.4.4.MD.2** - Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, 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.
- **DLM.MA.4.EE4.MD.2.a_4** - Tell time to the half hour using a digital or to the hour using an analog clock.
- ○ **DLM.MA.4.EE4.MD.2.a** - Tell time to the quarter hour using a digital or analog clock.
- ○ **DLM.MA.4.EE4.MD.2.a_1** - Tell time to the half hour using a digital clock or to the hour using an analog clock.
- ○ **DLM.MA.4.EE4.MD.2.a_2** - Relate time to the hour to activities.
- ○ **DLM.MA.4.EE4.MD.2.a_3** - Differentiate a digital and analog clock from other measurement tools as a tool for telling time.
- **DLM.MA.4.EE4.MD.2.b_4** - Select the appropriate measurement tool from two related options to solve problems.
- ○ **DLM.MA.4.EE4.MD.2.b** - Use the appropriate measurement tools to solve problems.

- ○ **DLM.MA.4.EE4.MD.2.b_1** - Select the appropriate measurement tool from two related options to solve problems.
- ○ **DLM.MA.4.EE4.MD.2.b_2** - Select the appropriate measurement tool from two unrelated options to solve problems.
- ○ **DLM.MA.4.EE4.MD.2.b_3** - Identify measurement tools.
- **DLM.MA.4.EE4.MD.2.c_4** - Use standard measurement to compare lengths of objects.
- ○ **DLM.MA.4.EE4.MD.2.c** - Use standard measurements to compare length of objects and indicate how many each is by standard measures.
- ○ **DLM.MA.4.EE4.MD.2.c_1** - Use standard measurement to compare lengths of objects.
- ○ **DLM.MA.4.EE4.MD.2.c_2** - Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks.
- ○ **DLM.MA.4.EE4.MD.2.c_3** - Identify items as long or short.
- **DLM.MA.4.EE4.MD.2.d_4** - Identify objects that have volume.
- ○ **DLM.MA.4.EE4.MD.2.d** - Determine volume of a cube by counting units of measure.
- ○ **DLM.MA.4.EE4.MD.2.d_1** - Identify objects that have volume.
- ○ **DLM.MA.4.EE4.MD.2.d_2** - Demonstrate solid or full, empty and part full.
- ○ **DLM.MA.4.EE4.MD.2.d_3** - Identify vocabulary related to volume (full, empty).
- **DLM.MA.4.EE4.MD.2.e_4** - Identify coins (penny, nickel, dime, quarter) and their values.
- ○ **DLM.MA.4.EE4.MD.2.e** - Identify relative value of different collections of coins.
- ○ **DLM.MA.4.EE4.MD.2.e_1** - Identify coins (penny, nickel, dime, quarter) and their values.
- ○ **DLM.MA.4.EE4.MD.2.e_2** - Match coins that are alike (penny, nickel, dime, quarter).
- ○ **DLM.MA.4.EE4.MD.2.e_3** - Select objects that are used for money.
- **DLM.MA.4.4.MD.3** - Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
- ○ **DLM.MA.4.EE4.MD.3** - N/A (Area begins at 6th grade and perimeter begins at 7th grade).
- ○ **DLM.MA.4.MD.RID** - Represent and interpret data.
- **DLM.MA.4.4.MD.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.
- **DLM.MA.4.EE4.MD.4.a_4** - Insert data into a preconstructed bar graph template.
- ○ **DLM.MA.4.EE4.MD.4.a** - Insert data into a graph to represent a data set with a scale equal to 10 (0 to 10 by ones).
- ○ **DLM.MA.4.EE4.MD.4.a_1** - Insert data into a preconstructed bar graph template.
- ○ **DLM.MA.4.EE4.MD.4.a_2** - Identify an appropriate scale for the data set.
- ○ **DLM.MA.4.EE4.MD.4.a_3** - Given a topic, identify appropriate data to collect.
- ○ **DLM.MA.4.MD.GMU** - Geometric measurement: understand concepts of angle and measure angles.
- **DLM.MA.4.4.MD.5** - Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:

- ○ **DLM.MA.4.4.MD.5.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 the two rays intersect the circle. An angle that turns through 1/360 of a circle is called a   one-degree angle,   and can be used to measure angles.
- **DLM.MA.4.4.MD.5.b** - An angle that turns through n one-degree angles is said to have an angle measure of n degrees.
- **DLM.MA.4.EE4.MD.5_4** - Recognize angles in geometric shapes.
- ○ **DLM.MA.4.EE4.MD.5** - Label different types of angles in geometric shapes.
- ○ **DLM.MA.4.EE4.MD.5_1** - Recognize angles in geometric shapes.
- ○ **DLM.MA.4.EE4.MD.5_2** - Identify an angle.
- ○ **DLM.MA.4.EE4.MD.5_3** - Identify shapes that contain angles.
- **DLM.MA.4.4.MD.6** - Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.
- **DLM.MA.4.EE4.MD.6_4** - Identify angles as larger and smaller.
- ○ **DLM.MA.4.EE4.MD.6** - Construct angles of various sizes.
- ○ **DLM.MA.4.EE4.MD.6_1** - Identify angles as larger and smaller.
- ○ **DLM.MA.4.EE4.MD.6_2** - Differentiate angles in shapes.
- ○ **DLM.MA.4.EE4.MD.6_3** - Replicate an angle.
- **DLM.MA.4.4.MD.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 symbol for the unknown angle measure.
- ○ **DLM.MA.4.EE4.MD.7** - N/A (See EE4.MD.5.)
- • **DLM.MA.4.4.G** - Geometry
- ○ **DLM.MA.4.G.DIL** - Draw and identify lines and angles, and classify shapes by properties of their lines and angles.
- **DLM.MA.4.4.G.1** - Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
- **DLM.MA.4.EE4.G.1_4** - Distinguish between parallel and intersecting lines.
- ○ **DLM.MA.4.EE4.G.1** - Create a representation of parallel and intersecting lines.
- ○ **DLM.MA.4.EE4.G.1_1** - Distinguish between parallel and intersecting lines.
- ○ **DLM.MA.4.EE4.G.1_2** - Identify an intersecting line.
- ○ **DLM.MA.4.EE4.G.1_3** - Identify a line.
- **DLM.MA.4.4.G.2** - Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
- **DLM.MA.4.EE4.G.2_4** - Distinguish between different attributes of shapes (lines, curves, angles).
- ○ **DLM.MA.4.EE4.G.2** - Classify shapes according to attributes.
- ○ **DLM.MA.4.EE4.G.2_1** - Distinguish between different attributes of shapes (lines, curves, angles).
- ○ **DLM.MA.4.EE4.G.2_2** - Identify attributes of geometric shapes.

- ○ **DLM.MA.4.EE4.G.2_3** - Identify curves.
- **DLM.MA.4.4.G.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.
- **DLM.MA.4.EE4.G.3_4** - Recognize a line of symmetry in a simple shape.
- ○ **DLM.MA.4.EE4.G.3** - Locate the line of symmetry in a geometric shape.
- ○ **DLM.MA.4.EE4.G.3_1** - Recognize a line of symmetry in a simple shape.
- ○ **DLM.MA.4.EE4.G.3_2** - Recognize polygons.
- ○ **DLM.MA.4.EE4.G.3_3** - Recognize simple shapes (square, triangle, and rectangle).
- **DLM.MA.5.5.OA** - Operations and Algebraic Thinking
o **DLM.MA.5.OA.WIN** - Write and interpret numerical expressions.
- ○ **DLM.MA.5.5.OA.1** - Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.
- **DLM.MA.5.5.OA.2** - Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.
- ○ **DLM.MA.5.EE5.OA.1-2** - N/A
o **DLM.MA.5.OA.APR** - Analyze patterns and relationships.
- **DLM.MA.5.5.OA.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.
- **DLM.MA.5.EE5.OA.3_4** - Identify and extend numerical patterns.
- ○ **DLM.MA.5.EE5.OA.3** - When given a rule, generate the pattern.
- ○ **DLM.MA.5.EE5.OA.3_1** - Identify and extend numerical patterns.
- ○ **DLM.MA.5.EE5.OA.3_2** - Extend a picture pattern.
- ○ **DLM.MA.5.EE5.OA.3_3** - Repeat a pattern.
- **DLM.MA.5.5.NBT** - Number and Operations in Base Ten
o **DLM.MA.5.NBT.UPV** - Understand the place value system.
- **DLM.MA.5.5.NBT.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.
- **DLM.MA.5.EE5.NBT.1_4** - Compare numbers to each other based on place value groups by composing and decomposing to 99.
- ○ **DLM.MA.5.EE5.NBT.1** - Compare numbers by composing and decomposing in two different ways.
- ○ **DLM.MA.5.EE5.NBT.1_1** - Compare numbers to each other based on place value groups by composing and decomposing to 99.
- ○ **DLM.MA.5.EE5.NBT.1_2** - Compare numbers to 20.
- ○ **DLM.MA.5.EE5.NBT.1_3** - Compare numbers 0-10.

- **DLM.MA.5.5.NBT.2** - Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
- **DLM.MA.5.EE5.NBT.2_4** - Recognize patterns in the number of zeros when multiplying a number by powers of 10.
- ○ **DLM.MA.5.EE5.NBT.2** - Extend patterns in the number of zeros when multiplying by the powers of 10 up to 1,000, order numbers to 100.
- ○ **DLM.MA.5.EE5.NBT.2_1** - Recognize patterns in the number of zeros when multiplying a number by powers of 10.
- ○ **DLM.MA.5.EE5.NBT.2_2** - Order multiples of ten ranging from 0-50 in sequential order least to greatest.
- ○ **DLM.MA.5.EE5.NBT.2_3** - Indicate the sequential order of numbers to 10.
- **DLM.MA.5.5.NBT.3** - Read, write, and compare decimals to thousandths.
- ○ **DLM.MA.5.5.NBT.3.a** - Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 × 100 + 4 × 10 + 7 × 1 + 3 × (1/10) + 9 × (1/100) + 2 × (1/1000).
- **DLM.MA.5.5.NBT.3.b** - Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.
- **DLM.MA.5.EE5.NBT.3_4** - Round two-digit whole numbers to the nearest 10 from 0 90.
- ○ **DLM.MA.5.EE5.NBT.3** - Round three-digit whole numbers to hundreds place.
- ○ **DLM.MA.5.EE5.NBT.3_1** - Round two-digit whole numbers to the nearest 10 from 0-90.
- ○ **DLM.MA.5.EE5.NBT.3_2** - Determine if a single-digit number is closer to zero or 10.
- ○ **DLM.MA.5.EE5.NBT.3_3** - Indicate more or less than five.
- **DLM.MA.5.5.NBT.4** - Use place value understanding to round decimals to any place.
- **DLM.MA.5.EE5.NBT.4_2** - Round money to a nearest dollar.
- ○ **DLM.MA.5.EE5.NBT.4** - Round money to the nearest dime.
- ○ **DLM.MA.5.EE5.NBT.4_1** - Round money to the nearest dollar.
- ○ **DLM.MA.5.EE5.NB.4** - Round money to the nearest dime.
- ○ **DLM.MA.5.EE5.NB.4_1** - Indicate which money amount is more.
- ○ **DLM.MA.5.NBT.POW** - Perform operations with multi-digit whole numbers and with decimals to hundredths.
- **DLM.MA.5.5.NBT.5** - Fluently multiply multi-digit whole numbers using the standard algorithm.
- **DLM.MA.5.EE5.NBT.5_4** - Multiply whole numbers up to 5 x 5.
- ○ **DLM.MA.5.EE5.NBT.5** - Identify basic multiplication facts for numbers greater than five.
- ○ **DLM.MA.5.EE5.NBT.5_1** - Multiply whole numbers up 5 x 5.
- ○ **DLM.MA.5.EE5.NBT.5_2** - Use repeated addition to show multiplication with single digits 1-5.
- ○ **DLM.MA.5.EE5.NBT.5_3** - Use concrete representations to show numbers 1-5.
- ○ **DLM.MA.5.5.NBT.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, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

- **DLM.MA.5.5.NBT.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; relate the strategy to a written method and explain the reasoning used.
- **DLM.MA.5.EE5.NBT.6-7_4** - Illustrate the concept of division using fair and equal shares.
- ○ **DLM.MA.5.EE5.NBT.6-7** - Apply the concept of fair share and equal shares to solve a division problem.
- ○ **DLM.MA.5.EE5.NBT.6-7_1** - Illustrate the concept of division using fair and equal shares.
- ○ **DLM.MA.5.EE5.NBT.6-7_2** - Construct equal sets.
- ○ **DLM.MA.5.EE5.NBT.6-7_3** - Replicate an equal set from a model.
- **DLM.MA.5.5.NF** - Number and Operations-Fractions
- ○ **DLM.MA.5.NF.UEF** - Use equivalent fractions as a strategy to add and subtract fractions.
- **DLM.MA.5.5.NF.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.
- **DLM.MA.5.EE5.NF.1_4** - Differentiate between halves, fourths, and eighths.
- ○ **DLM.MA.5.EE5.NF.1** - Differentiate fractional parts less than 1/4.
- ○ **DLM.MA.5.EE5.NF.1_1** - Differentiate between halves, fourths, and eighths.
- ○ **DLM.MA.5.EE5.NF.1_2** - Differentiate between whole and a part.
- ○ **DLM.MA.5.EE5.NF.1_3** - Recognize that fractions are part of a whole.
- **DLM.MA.5.5.NF.2** - 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. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.
- **DLM.MA.5.EE5.NF.2_3** - Solve two-step word problems using addition and subtraction of whole numbers.
- ○ **DLM.MA.5.EE5.NF.2** - Solve two-step word problems using addition and subtraction of numbers after showing the problem in numerals.
- ○ **DLM.MA.5.EE5.NF.2_1** - Solve two-step word problems using addition and subtraction of whole numbers.
- ○ **DLM.MA.5.EE5.NF.2_2** - Solve one-step problems using addition and subtraction.
- ○ **DLM.MA.5.EE5.NF.3** - Recognize words that are used for addition and subtraction.
- ○ **DLM.MA.5.NF.AEP** - Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
- **DLM.MA.5.5.NF.3** - Interpret a fraction as division of the numerator by the denominator (a/b = a ÷ 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.
- ○ **DLM.MA.5.EE5.NF.3_1** - N/A (See EE5.NF.1)
- **DLM.MA.5.5.NF.4** - Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.
- ○ **DLM.MA.5.5.NF.4.a** - Interpret the product (a/b) × q as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations a × q ÷ b.

- ○ **DLM.MA.5.5.NF.4.b** - Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
- **DLM.MA.5.5.NF.5** - Interpret multiplication as scaling (resizing), by:
- ○ **DLM.MA.5.5.NF.5.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.
- **DLM.MA.5.5.NF.5.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); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n×a)/(n×b)$ to the effect of multiplying a/b by 1.
- ○ **DLM.MA.5.EE5.NF.4-5** - N/A
- ○ **DLM.MA.5.5.NF.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.
- **DLM.MA.5.5.NF.7** - Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.
- ○ **DLM.MA.5.5.NF.7.a** - Interpret division of a unit fraction by a non-zero whole number, and compute such quotients.
- ○ **DLM.MA.5.5.NF.7.b** - Interpret division of a whole number by a unit fraction, and compute such quotients.
- **DLM.MA.5.5.NF.7.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.
- ○ **DLM.MA.5.EE5.NF.6-7** - N/A
- **DLM.MA.5.5.MD** - Measurement and Data
- **DLM.MA.5.MD.CLM** - Convert like measurement units within a given measurement system.
- **DLM.MA.5.5.MD.1** - Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems.
- **DLM.MA.5.EE5.MD.1.a_4** - Tell time using an analog or digital clock to the half or quarter hour.
- ○ **DLM.MA.5.EE5.MD.1.a** - Tell time using a digital clock to the minute and an analog clock to the nearest five minutes.
- ○ **DLM.MA.5.EE5.MD.1.a_1** - Tell time using an analog or digital clock to the half or quarter hour.
- ○ **DLM.MA.5.EE5.MD.1.a_2** - Tell time to the half hour using a digital clock and to the half hour using an analog clock.
- ○ **DLM.MA.5.EE5.MD.1.a_3** - Identify morning and afternoon.
- **DLM.MA.5.EE5.MD.1.b_4** - Use customary units to measure weight and length of objects.
- ○ **DLM.MA.5.EE5.MD.1.b** - Use two customary units to measure weight and length of objects.
- ○ **DLM.MA.5.EE5.MD.1.b_1** - Use customary units to measure weight and length of objects.
- ○ **DLM.MA.5.EE5.MD.1.b_2** - Identify customary units of measurement for weight and length.

- ○ **DLM.MA.5.EE5.MD.1.b_3** - Identify which tools are used to weigh.
- **DLM.MA.5.EE5.MD.1.c_4** - Indicate relative value of collections of coins.
- ○ **DLM.MA.5.EE5.MD.1.c** - Indicate relative value of coins and bills to each other.
- ○ **DLM.MA.5.EE5.MD.1.c_1** - Indicate relative value of collections of coins.
- ○ **DLM.MA.5.EE5.MD.1.c_2** - Identify coins (penny, nickel, dime, quarter) and their values.
- ○ **DLM.MA.5.EE5.MD.1.c_3** - Match coins that are alike (penny, nickel, dime, quarter).
- ○ **DLM.MA.5.MD.RID** - Represent and interpret data.
- **DLM.MA.5.5.MD.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.
- **DLM.MA.5.EE5.MD.2.a_4** - Represent and interpret data on a picture, line plot, or bar graph given a model and a graph to complete.
- ○ **DLM.MA.5.EE5.MD.2.a** - Collect, organize, and interpret data. Create a graph using a graph template, and display the data on the graph.
- ○ **DLM.MA.5.EE5.MD.2.a_1** - Represent and interpret data on a picture, line plot, or bar graph given a model and a graph to complete.
- ○ **DLM.MA.5.EE5.MD.2.a_2** - Display data on a picture, line plot, or bar graph and answer questions about the graph.
- ○ **DLM.MA.5.EE5.MD.2.a_3** - Identify a simple graph.
- ○ **DLM.MA.5.MD.GMU** - Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
- **DLM.MA.5.5.MD.3** - Recognize volume as an attribute of solid figures and understand concepts of volume measurement.
- ○ **DLM.MA.5.5.MD.3.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.
- ○ **DLM.MA.5.5.MD.3.b** - A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.
- ○ **DLM.MA.5.5.MD.4** - Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.
- **DLM.MA.5.5.MD.5** - Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.
- ○ **DLM.MA.5.5.MD.5.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.
- ○ **DLM.MA.5.5.MD.5.b** - Apply the formulas $V = l \times w \times h$ and $V = b \times h$ 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.

- **DLM.MA.5.5.MD.5.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.
- **DLM.MA.5.EE5.MD.3-5_3** - Determine volume of a cube by counting units of measure.
- ○ **DLM.MA.5.EE5.MD.3-5** - Determine volume of a cube by counting units of measure.
- ○ **DLM.MA.5.EE5.MD.3-5_1** - Identify objects that have volume.
- ○ **DLM.MA.5.EE5.MD.3-5_2** - Demonstrate solid or liquid, full or empty.
- **DLM.MA.5.5.G** - Geometry
- ○ **DLM.MA.5.G.GPO** - Graph points on the coordinate plane to solve real-world and mathematical problems.
- ○ **DLM.MA.5.5.G.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 indicates how far to travel from the origin in the direction of one axis, and the second number 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).
- ○ **DLM.MA.5.5.G.2** - Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.
- ○ **DLM.MA.5.5.G.3** - Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.
- **DLM.MA.5.5.G.4** - Classify two-dimensional figures in a hierarchy based on properties.
- **DLM.MA.5.EE5.G.1-5_4** - Sort two-dimensional figures and describe the common attributes such as angles, number of sides, corners (dimension), and color.
- ○ **DLM.MA.5.EE5.G.1-5** - Sort into quadrant tables and describe figures by two common attributes.
- ○ **DLM.MA.5.EE5.G.1-5_1** - Sort two-dimensional figures and describe the common attributes such as angles, number of sides, corners (dimension), and color.
- ○ **DLM.MA.5.EE5.G.1-5_2** - Sort figures based on a given attribute.
- ○ **DLM.MA.5.EE5.G.1-5_3** - Indicate two-dimensional shapes named.
- **DLM.MA.6.6.RP** - Ratios and Proportional Relationships
- ○ **DLM.MA.6.RP.URC** - Understand ratio concepts and use ratio reasoning to solve problems.
- **DLM.MA.6.6.RP.1** - Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
- **DLM.MA.6.EE6.RP.1_4** - Demonstrate a simple ratio relationship.
- ○ **DLM.MA.6.EE6.RP.1** - Use a ratio to describe a relationship using numbers and objects.
- ○ **DLM.MA.6.EE6.RP.1_1** - Demonstrate a simple ratio relationship.
- ○ **DLM.MA.6.EE6.RP.1_2** - Complete a pattern given a simple ratio.
- ○ **DLM.MA.6.EE6.RP.1_3** - Identify a one-to-one relationship.
- ○ **DLM.MA.6.6.RP.2** - Understand the concept of a unit rate a/b associated with a ratio a:b with b is not equal to 0, and use rate language in the context of a ratio relationship.

- **DLM.MA.6.6.RP.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.
  - ○ **DLM.MA.6.6.RP.3.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.
  - ○ **DLM.MA.6.6.RP.3.b** - Solve unit rate problems including those involving unit pricing and constant speed.
  - ○ **DLM.MA.6.6.RP.3.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.
  - ○ **DLM.MA.6.6.RP.3.d** - Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
- **DLM.MA.6.6.NS** - The Number System
- ○ **DLM.MA.6.NS.AEP** - Apply and extend previous understandings of multiplication and division to divide fractions by fractions.
- **DLM.MA.6.6.NS.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.
- **DLM.MA.6.EE6.NS.1_4** - Compare the relationships between two unit fractions.
- ○ **DLM.MA.6.EE6.NS.1** - Compare the relationships between the three unit fractions (1/2, 1/4, 1/8).
- ○ **DLM.MA.6.EE6.NS.1_1** - Compare the relationships between two unit fractions.
- ○ **DLM.MA.6.EE6.NS.1_2** - Demonstrate an amount of 1/2.
- ○ **DLM.MA.6.EE6.NS.1_3** - Distinguish between more or less.
- ○ **DLM.MA.6.NS.CFW** - Compute fluently with multi-digit numbers and find common factors and multiples.
- **DLM.MA.6.6.NS.2** - Fluently divide multi-digit numbers using the standard algorithm.
- **DLM.MA.6.EE6.NS.2_4** - Apply the concept of fair share and equal shares to divide.
- ○ **DLM.MA.6.EE6.NS.2** - Solve a division problem using the concept of equal shares.
- ○ **DLM.MA.6.EE6.NS.2_1** - Apply the concept of fair share and equal shares to divide.
- ○ **DLM.MA.6.EE6.NS.2_2** - Identify the concept of division using fair and equal shares.
- ○ **DLM.MA.6.EE6.NS.2_3** - Replicate equal sets.
- **DLM.MA.6.6.NS.3** - Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.
- **DLM.MA.6.EE6.NS.3_4** - Solve two factor multiplication problems with products up to 50 using concrete objects and/or calculators.
- ○ **DLM.MA.6.EE6.NS.3** - Solve multiplication problems with whole number products to 50 using numerical representations.
- ○ **DLM.MA.6.EE6.NS.3_1** - Solve two factor multiplication problems with products up to 50 using concrete objects and/or calculators.
- ○ **DLM.MA.6.EE6.NS.3_2** - Solve repeated addition problems where the addends are the same (i.e., 5 + 5 + 5 = 15 is equal to three groups of five) using concrete manipulatives and/or a calculator.
- ○ **DLM.MA.6.EE6.NS.3_3** - Identify a group of a given quantity.

- **DLM.MA.6.6.NS.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.
- ○ **DLM.MA.6.EE6.NS.4** - N/A
- **DLM.MA.6.NS.AEP_1** - Apply and extend previous understandings of numbers to the system of rational numbers.
- ○ **DLM.MA.6.6.NS.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.
- **DLM.MA.6.6.NS.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.
- ○ **DLM.MA.6.6.NS.6.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.
- ○ **DLM.MA.6.6.NS.6.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.
- ○ **DLM.MA.6.6.NS.6.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.
- **DLM.MA.6.6.NS.7** - Understand ordering and absolute value of rational numbers.
- ○ **DLM.MA.6.6.NS.7.a** - Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
- ○ **DLM.MA.6.6.NS.7.b** - Write, interpret, and explain statements of order for rational numbers in real-world contexts.
- ○ **DLM.MA.6.6.NS.7.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.
- ○ **DLM.MA.6.6.NS.7.d** - Distinguish comparisons of absolute value from statements about order.
- **DLM.MA.6.6.NS.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.
- **DLM.MA.6.EE6.NS.5-8_4** - Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).
- ○ **DLM.MA.6.EE6.NS.5-8** - Apply positive and negative numbers to a real-world context from greater than positive 10 and less than negative 10.
- ○ **DLM.MA.6.EE6.NS.5-8_1** - Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).
- ○ **DLM.MA.6.EE6.NS.5-8_2** - Order positive numbers from least to greatest.

- ○ **DLM.MA.6.EE6.NS.5-8_3** - Identify which is greater than and less than using fewer than 10.
- • **DLM.MA.6.6.EE** - Expressions and Equations
- ○ **DLM.MA.6.EE.AEP** - Apply and extend previous understandings of arithmetic to algebraic expressions.
- ○ **DLM.MA.6.6.EE.1** - Write and evaluate numerical expressions involving whole-number exponents.
- ○ **DLM.MA.6.6.EE.2** - Write, read, and evaluate expressions in which letters stand for numbers.
- ○ **DLM.MA.6.6.EE.2.a** - Write expressions that record operations with numbers and with letters standing for numbers.
- ○ **DLM.MA.6.6.EE.2.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.
- ○ **DLM.MA.6.6.EE.2.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).
- ○ **DLM.MA.6.EE6.EE.1-2** - Identify equivalent number sentences.
- ○ **DLM.MA.6.EE6.EE.1** - Generate a two-step math sentence using appropriate numbers and symbols.
- ○ **DLM.MA.6.EE6.EE.1_1** - Identify equivalent number sentences.
- ○ **DLM.MA.6.EE6.EE.1_2** - Match number sentence with the correct picture representation.
- ○ **DLM.MA.6.EE6.EE.1_3** - Identify math symbol = as meaning equal to.
- ○ **DLM.MA.6.6.EE.3** - Apply the properties of operations to generate equivalent expressions.
- ○ **DLM.MA.6.6.EE.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).
- ○ **DLM.MA.6.EE6.EE.3-4_4** - Demonstrate understanding of equivalent expressions.
- ○ **DLM.MA.6.EE6.EE.3-4** - Solve equivalent expressions to illustrate that they are equivalent.
- ○ **DLM.MA.6.EE6.EE.3-4_1** - Demonstrate understanding of equivalent expressions.
- ○ **DLM.MA.6.EE6.EE.3-4_2** - Recognize different displays of the equal quantities.
- ○ **DLM.MA.6.EE6.EE.3-4_3** - Match different displays of the same quantity.
- ○ **DLM.MA.6.EE.RSO** - Reason about and solve one-variable equations and inequalities.
- ○ **DLM.MA.6.6.EE.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.
- ○ **DLM.MA.6.6.EE.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.
- ○ **DLM.MA.6.6.EE.7** - Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers.
- ○ **DLM.MA.6.6.EE.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.

- **DLM.MA.6.EE6.EE.5-7** - Match an equation to a real-world problem in which variables are used to represent numbers.
  - ◯ **DLM.MA.6.EE6.EE.2** - Using a variable, generate an equivalent equation that represents a real-world problem.
  - ◯ **DLM.MA.6.EE6.EE.2_1** - Match an equation to a real-world problem in which variables are used to represent numbers.
  - ◯ **DLM.MA.6.EE6.EE.2_2** - Determine what is unknown in an equation.
  - ◯ **DLM.MA.6.EE6.EE.2_3** - Identify the letter in a mathematical sentence.
- ○ **DLM.MA.6.EE.RQR** - Represent and analyze quantitative relationships between dependent and independent variables.
- **DLM.MA.6.6.EE.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.
  - ◯ **DLM.MA.6.EE6.EE.9** - N/A
- ● **DLM.MA.6.6.G** - Geometry
- ○ **DLM.MA.6.G.SRW** - Solve real-world and mathematical problems involving area, surface area, and volume.
  - ◯ **DLM.MA.6.6.G.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.
- **DLM.MA.6.6.G.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 = l w h and V = b h to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
- **DLM.MA.6.EE6.G.1-2_4** - Demonstrate area.
  - ◯ **DLM.MA.6.EE6.G.1-2** - Find area.
  - ◯ **DLM.MA.6.EE6.G.1-2_1** - Demonstrate area.
- **DLM.MA.6.EE6.G.1-2_3** - Determine what is the larger area.
  - ◯ **DLM.MA.6.EE6.G.1-2_2** - Indicate the inside of a space.
  - ◯ **DLM.MA.6.6.G.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.
- **DLM.MA.6.6.G.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.
- **DLM.MA.6.EE6.G.4_4** - Identify common three-dimensional shapes.
  - ◯ **DLM.MA.6.EE6.G.4** - Relate real-world items as three-dimensional shapes to their two-dimensional representations.
  - ◯ **DLM.MA.6.EE6.G.4_1** - Identify common three-dimensional shapes.
  - ◯ **DLM.MA.6.EE6.G.4_2** - Sort three-dimensional shapes and two-dimensional shapes.

- ○ **DLM.MA.6.EE6.G.4_3** - Match shapes.
- **DLM.MA.6.6.SP** - Statistics and Probability
- **DLM.MA.6.SP.DUS** - Develop understanding of statistical variability.
- ○ **DLM.MA.6.6.SP.1** - Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
- **DLM.MA.6.6.SP.2** - Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
- **DLM.MA.6.EE6.SP.1-2_4** - Display data on a graph or table that shows variability in the data.
- ○ **DLM.MA.6.EE6.SP.1-2** - Collect, display, and describe data on a graph or table.
- ○ **DLM.MA.6.EE6.SP.1-2_1** - Display data on a graph or table that shows variability of data.
- ○ **DLM.MA.6.EE6.SP.1-2_2** - Organize data.
- ○ **DLM.MA.6.EE6.SP.1-2_3** - Sort information into categories of same and different.
- **DLM.MA.6.6.SP.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.
- ○ **DLM.MA.6.EE6.SP.3** - N/A
- **DLM.MA.6.SP.SDD** - Summarize and describe distributions.
- **DLM.MA.6.6.SP.4** - Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
- ○ **DLM.MA.6.EE6.SP.4** - N/A (See EE6.SP.1-2)
- **DLM.MA.6.6.SP.5** - Summarize numerical data sets in relation to their context, such as by:
- ○ **DLM.MA.6.6.SP.5.a** - Reporting the number of observations.
- ○ **DLM.MA.6.6.SP.5.b** - Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
- ○ **DLM.MA.6.6.SP.5.c** - Giving 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.
- **DLM.MA.6.6.SP.5.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.
- **DLM.MA.6.EE6.SP.5_4** - Summarize data distributions on a graph or table.
- ○ **DLM.MA.6.EE6.SP.5** - Summarize the data on a graph or table.
- ○ **DLM.MA.6.EE6.SP.5_1** - Summarize data distributions on a graph or table.
- ○ **DLM.MA.6.EE6.SP.5_2** - Use a graph to determine which category has the most.
- ○ **DLM.MA.6.EE6.SP.5_3** - Identify which has more or less.
- **DLM.MA.7.7.RP** - Ratios and Proportional Relationships
- **DLM.MA.7.RP.APR** - Analyze proportional relationships and use them to solve real-world and mathematical problems.
- ○ **DLM.MA.7.7.RP.1** - Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.
- **DLM.MA.7.7.RP.2** - Recognize and represent proportional relationships between quantities.

- ○ **DLM.MA.7.7.RP.2.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.
- ○ **DLM.MA.7.7.RP.2.b** - Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
- ○ **DLM.MA.7.7.RP.2.c** - Represent proportional relationships by equations.
- ○ **DLM.MA.7.7.RP.2.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.
- **DLM.MA.7.7.RP.3** - Use proportional relationships to solve multistep ratio and percent problems.
- **DLM.MA.7.EE7.RP.1-3_4** - Use a ratio to model or describe a relationship.
- ○ **DLM.MA.7.EE7.RP.1-3** - Complete the ratio using numbers to show relationships.
- ○ **DLM.MA.7.EE7.RP.1-3_1** - Use a ratio to model or describe a relationship.
- ○ **DLM.MA.7.EE7.RP.1-3_2** - Demonstrate a simple ratio relationship.
- ○ **DLM.MA.7.EE7.RP.1-3_3** - Identify one item as it relates to another.
- **DLM.MA.7.7.NS** - The Number System
- ○ **DLM.MA.7.NS.AEP** - Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.
- **DLM.MA.7.7.NS.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.
- ○ **DLM.MA.7.7.NS.1.a** - Describe situations in which opposite quantities combine to make 0.
- ○ **DLM.MA.7.7.NS.1.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.
- **DLM.MA.7.7.NS.1.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.
- **DLM.MA.7.EE7.NS.1_4** - Add fractions with like denominators (halves, thirds, fourths, and tenths) so the solution is less than or equal to one.
- **DLM.MA.7.EE7.NS.1_3** - Same as AA Students.
- ○ **DLM.MA.7.EE7.NS.1** - Add fractions with like denominators (halves, thirds fourths, and tenths) so the solution is less than or equal to one.
- ○ **DLM.MA.7.EE7.NS.1_1** - Use models to add halves, thirds, and fourths.
- ○ **DLM.MA.7.EE7.NS.1_2** - Use models to identify the whole and find the missing pieces of a whole.
- ○ **DLM.MA.7.NS.APO** - Apply properties of operations as strategies to add and subtract rational numbers.
- **DLM.MA.7.7.NS.2** - Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.
- **DLM.MA.7.7.NS.2.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.

- **DLM.MA.7.EE7.NS.2.a_4** - Solve multiplication problems with products to 100.
- ○ **DLM.MA.7.EE7.NS.2.a** - Solve multiplication problems with products to 144.
- ○ **DLM.MA.7.EE7.NS.2.a_1** - Solve multiplication problems with products to 100.
- ○ **DLM.MA.7.EE7.NS.2.a_2** - Solve multiplication problems using factors 1   10.
- ○ **DLM.MA.7.EE7.NS.2.a_3** - Skip count by twos and tens.
- **DLM.MA.7.7.NS.2.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.
- **DLM.MA.7.EE7.NS.2.b_4** - Solve division problems with divisors up to five and also with a divisor of 10 without remainders.
- ○ **DLM.MA.7.EE7.NS.2.b** - Solve division problems with divisors up to 10 using numbers.
- ○ **DLM.MA.7.EE7.NS.2.b_1** - Solve division problems with divisors up to five and also with a divisor of 10 without remainders.
- ○ **DLM.MA.7.EE7.NS.2.b_2** - Determine how many times a number can be subtracted from an equally divisible number.
- ○ **DLM.MA.7.EE7.NS.2.b_3** - Associate value with the number one by recognizing the group/set that has more than one.
- ○ **DLM.MA.7.7.NS.2.c** - Apply properties of operations as strategies to multiply and divide rational numbers.
- **DLM.MA.7.7.NS.2.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.
- **DLM.MA.7.EE7.NS.2.c-d** - Compare fractions to fractions and decimals to decimals using rational numbers less than one.
- ○ **DLM.MA.7.EE8.NS.2.c-d** - Compare and order fractions and decimals when all numbers are fractions or when all numbers are decimals or when fractions and decimals are mixed.
- ○ **DLM.MA.7.EE8.NS.2.c-d_1** - Compare fractions to fractions and decimals to decimals using rationale numbers less than one.
- ○ **DLM.MA.7.EE8.NS.2.c-d_2** - Identify the location of a fraction or decimal used in the real world and/or on a number line.
- ○ **DLM.MA.7.EE8.NS.2.c-d_3** - Identify decimals or fractions.
- **DLM.MA.7.7.NS.3** - Solve real-world and mathematical problems involving the four operations with rational numbers.
- **DLM.MA.7.EE7.NS.3_4** - Demonstrate the value of various money amounts using decimals.
- ○ **DLM.MA.7.EE7.NS.3** - Determine the total value of money written as a decimal given real-world situations.
- ○ **DLM.MA.7.EE7.NS.3_1** - Demonstrate the value of various money amounts using decimals.
- ○ **DLM.MA.7.EE7.NS.3_2** - Identify the decimal value of various coins.
- ○ **DLM.MA.7.EE7.NS.3_3** - Identify money.

- **DLM.MA.7.7.EE** - Expressions and Equations
- o **DLM.MA.7.EE.UPO** - Use properties of operations to generate equivalent expressions.
- ○ **DLM.MA.7.7.EE.1** - Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- **DLM.MA.7.7.EE.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.
- **DLM.MA.7.EE7.EE.1-2_4** - Use the relationship within addition and/or multiplication to illustrate that two expressions are equivalent.
- ○ **DLM.MA.7.EE7.EE.1-2** - Apply the commutative property to complete an equation.
- ○ **DLM.MA.7.EE7.EE.1-2_1** - Use the relationship within addition and/or multiplication to illustrate that two expressions are equivalent.
- ○ **DLM.MA.7.EE7.EE.1-2_2** - Use the relationship within addition to illustrate that two expressions are equivalent.
- ○ **DLM.MA.7.EE7.EE.1-2_3** - Understand that different displays of the same quantity are equal.
- o **DLM.MA.7.EE.SRL** - Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
- ○ **DLM.MA.7.7.EE.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.
- **DLM.MA.7.7.EE.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.
- ○ **DLM.MA.7.7.EE.4.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.
- **DLM.MA.7.7.EE.4.b** - Solve word problems leading to inequalities of the form px + q > r or px + q < 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.
- **DLM.MA.7.EE7.EE.3-4_4** - Use the concept of equality with models to solve one-step addition and subtraction equations.
- ○ **DLM.MA.7.EE7.EE.3-4** - Solve two-step addition and subtraction equations.
- ○ **DLM.MA.7.EE7.EE.3-4_1** - Use the concept of equality with models to solve one-step addition and subtraction equations.
- ○ **DLM.MA.7.EE7.EE.3-4_2** - Identify the amount needed to equal the value on the given side of an equation.
- ○ **DLM.MA.7.EE7.EE.3-4_3** - Recognize equal quantities on both sides of an equation.
- **DLM.MA.7.7.G** - Geometry
- o **DLM.MA.7.G.DCD** - Draw, construct, and describe geometrical figures and describe the relationships between them.
- ○ **DLM.MA.7.7.G.1** - Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

- **DLM.MA.7.7.G.2** - Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.
- **DLM.MA.7.EE7.G.1-2_3** - Draw or classify and recognize basic two-dimensional geometric shapes without a model (circle, triangle, rectangle/square).
- ○ **DLM.MA.7.EE7.G.1-2** - Draw or model two-dimensional shapes including a trapezoid and rhombus without a model.
- ○ **DLM.MA.7.EE7.G.1-3** - Draw or classify and recognize basic two-dimensional geometric shapes without a model (circle, triangle, rectangle/square).
- ○ **DLM.MA.7.EE7.G.1-2_1** - Demonstrate the ability to complete a two-dimensional shape (circle, triangle, rectangle, square).
- ○ **DLM.MA.7.EE7.G.1-2_2** - Demonstrate the ability to recognize a two-dimensional shape (circle, triangle, rectangle, square) when given a complete shape.
- **DLM.MA.7.7.G.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.
- **DLM.MA.7.EE7.G.3_4** - Match a two-dimensional shape with a three-dimensional shape that shares an attribute.
- ○ **DLM.MA.7.EE7.G.3** - Pair two- and three-dimensional shapes to complete a real-world task.
- ○ **DLM.MA.7.EE7.G.3_1** - Match a two-dimensional shape with a three- dimensional shape that shares an attribute.
- ○ **DLM.MA.7.EE7.G.3_2** - Identify the attributes of a three-dimensional shape (color, number of sides, faces, size, textures, shape, etc.).
- ○ **DLM.MA.7.EE7.G.3_3** - Replicate the two-dimensional cross-section of a three-dimensional shape (cube, sphere, cylinder) when given a complete shape.
- ○ **DLM.MA.7.G.SRL** - Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.
- **DLM.MA.7.7.G.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.
- ○ **DLM.MA.7.EE7.G.4** - N/A
- **DLM.MA.7.7.G.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.
- **DLM.MA.7.EE7.G.5_4** - Find the perimeter of a rectangle given the length and width.
- ○ **DLM.MA.7.EE7.G.5** - Solve simple perimeter problems with rectangles.
- ○ **DLM.MA.7.EE7.G.5_1** - Find the perimeter of a rectangle given the length and width.
- ○ **DLM.MA.7.EE7.G.5_2** - Identify the length and width of a rectangle.
- ○ **DLM.MA.7.EE7.G.5_3** - Outline the perimeter of an object.
- **DLM.MA.7.7.G.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.
- **DLM.MA.7.EE7.G.6_4** - Find the area of a rectangle given the length and width using a model.

- ○ **DLM.MA.7.EE7.G.6** - Solve simple area problems with rectangles.
- ○ **DLM.MA.7.EE7.G.6_1** - Find the area of a rectangle given the length and width using a model.
- ○ **DLM.MA.7.EE7.G.6_2** - Identify the length and width (dimensions) of a rectangle.
- ○ **DLM.MA.7.EE7.G.6_3** - Duplicate the area of a rectangle (square).
- **DLM.MA.7.7.SP** - Statistics and Probability
- ○ **DLM.MA.7.SP.URS** - Use random sampling to draw inferences about a population.
- ○ **DLM.MA.7.7.SP.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.
- **DLM.MA.7.7.SP.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.
- **DLM.MA.7.EE7.SP.1-2_4** - Answer a question related to the collected data from an experiment, given a model of data, or from data collected by the student.
- ○ **DLM.MA.7.EE7.SP.1-2** - Answer a question about data collected from an experiment and explain or demonstrate the results.
- ○ **DLM.MA.7.EE7.SP.1-2_1** - Answer a question related to the collected data from an experiment, given a model of data, or from data collected by the student.
- ○ **DLM.MA.7.EE7.SP.1-2_2** - Collect data to answer a given question.
- ○ **DLM.MA.7.EE7.SP.1-2_3** - Answer a question for data collection.
- ○ **DLM.MA.7.SP.DIC** - Draw informal comparative inferences about two populations.
- **DLM.MA.7.7.SP.3** - Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.
- **DLM.MA.7.EE7.SP.3_4** - Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph.
- ○ **DLM.MA.7.EE7.SP.3** - Compare data from two picture graphs, two line plots, or two bar graphs.
- ○ **DLM.MA.7.EE7.SP.3_1** - Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph.
- ○ **DLM.MA.7.EE7.SP.3_2** - Summarize data on a graph or table in one way.
- ○ **DLM.MA.7.EE7.SP.3_3** - Read data from one given source.
- ○ **DLM.MA.7.7.SP.4** - Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.
- ○ **DLM.MA.7.SP.ICP** - Investigate chance processes and develop, use, and evaluate probability models.
- ○ **DLM.MA.7.7.SP.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 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.

- ○ **DLM.MA.7.7.SP.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.
- **DLM.MA.7.7.SP.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.
- ○ **DLM.MA.7.7.SP.7.a** - Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.
- **DLM.MA.7.7.SP.7.b** - Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.
- **DLM.MA.7.EE7.SP.5-7_4** - Describe the probability of events occurring as possible or impossible.
- ○ **DLM.MA.7.EE7.SP.5-7** - Differentiate and describe examples of a situation that is possible, a situation that is likely, and a situation that is impossible.
- ○ **DLM.MA.7.EE7.SP.5-7_1** - Describe the probability of events occurring as possible or impossible.
- ○ **DLM.MA.7.EE7.SP.5-7_2** - Identify possible events that could occur in the natural environment.
- ○ **DLM.MA.7.EE7.SP.5-7_3** - Identify outcomes based on a possible event.
- **DLM.MA.8.8.NS** - The Number System
- ○ **DLM.MA.8.NS.KNN** - Know that there are numbers that are not rational, and approximate them by rational numbers.
- **DLM.MA.8.8.NS.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, and convert a decimal expansion which repeats eventually into a rational number.
- **DLM.MA.8.EE8.NS.1_4** - Subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends less than or equal to one.
- ○ **DLM.MA.8.EE8.NS.1** - Subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends that may be greater than one.
- ○ **DLM.MA.8.EE8.NS.1_1** - Subtract fractions with like denominators (halves, thirds, fourths, and tenths) with minuends less than or equal to one.
- ○ **DLM.MA.8.EE8.NS.1_2** - Use models to subtract halves, thirds, and fourths.
- ○ **DLM.MA.8.EE8.NS.1_3** - Use models to identify the whole and find the missing pieces of a whole using halves.
- **DLM.MA.8.8.NS.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., pi²).
- **DLM.MA.8.EE8.NS.2_4** - Represent different forms and values of decimal numbers using fractions with numerators that are multiples of five and a denominator of 100.
- ○ **DLM.MA.8.EE8.NS.2** - Represent different forms and values of decimal numbers to the hundreds place (decimal, fraction, hundreds grid, and money representation).
- ○ **DLM.MA.8.EE8.NS.2_1** - Represent different forms and values of decimal numbers using fractions with numerators that are multiples of five and a denominator of 100.
- ○ **DLM.MA.8.EE8.NS.2_2** - Distinguish between a part represented by a decimal and a whole number without decimals.

- ○ **DLM.MA.8.EE8.NS.2_3** - Identify a part of a whole in concrete real-world objects.
- **DLM.MA.8.8.EE** - Expressions and Equations
- ○ **DLM.MA.8.EE.WWR** - Work with radicals and integer exponents.
- ○ **DLM.MA.8.8.EE.1** - Know and apply the properties of integer exponents to generate equivalent numerical expressions.
- ○ **DLM.MA.8.8.EE.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 the square root of 2 is irrational.
- ○ **DLM.MA.8.8.EE.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.
- **DLM.MA.8.8.EE.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.
- **DLM.MA.8.EE8.EE.1-4_4** - Compose and decompose numbers to three digits.
- ○ **DLM.MA.8.EE8.EE.1-4** - Use powers of 10 to compose and decompose numbers.
- ○ **DLM.MA.8.EE8.EE.1-4_1** - Compose and decompose numbers to three digits.
- ○ **DLM.MA.8.EE8.EE.1-4_2** - Use models to represent the composition of numbers.
- ○ **DLM.MA.8.EE8.EE.1-4_3** - Recognize the specific value a number represents.
- ○ **DLM.MA.8.EE.UCB** - Understand the connections between proportional relationships, lines, and linear equations.
- ○ **DLM.MA.8.8.EE.5** - Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.
- **DLM.MA.8.8.EE.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.
- **DLM.MA.8.EE8.EE.5-6_4** - Graph a simple ratio using the x and y axis points when given the ratio in standard form (2:1) and convert to 2/1.
- ○ **DLM.MA.8.EE8.EE.5-6** - Graph a simple ratio using the x and y axis points when given the ratio in standard form (2:1) and expand on the ratio by two or more points.
- ○ **DLM.MA.8.EE8.EE.5-6_1** - Graph a simple ratio using the x and y axis points when given the ratio in standard form (2:1) and convert to 2/1.
- ○ **DLM.MA.8.EE8.EE.5-6_2** - Identify a specific data point when given the coordinates.
- ○ **DLM.MA.8.EE8.EE.5-6_3** - Place or locate data on a simple two-category graph.
- ○ **DLM.MA.8.EE.ASL** - Analyze and solve linear equations and pairs of simultaneous linear equations.
- **DLM.MA.8.8.EE.7** - Solve linear equations in one variable.
- ○ **DLM.MA.8.8.EE.7.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).

- **DLM.MA.8.8.EE.7.b** - Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.
- **DLM.MA.8.EE8.EE.7_4** - Solve algebraic expressions using simple addition and subtraction
- ○ **DLM.MA.8.EE8.EE.7** - Solve algebraic expressions using two-digit addition and subtraction.
- ○ **DLM.MA.8.EE8.EE.7_1** - Solve algebraic expressions using simple addition and subtraction.
- ○ **DLM.MA.8.EE8.EE.7_2** - Solve simple addition and subtraction problems.
- ○ **DLM.MA.8.EE8.EE.7_3** - Distinguish between a letter and a number.
- **DLM.MA.8.8.EE.8** - Analyze and solve pairs of simultaneous linear equations.
- ○ **DLM.MA.8.8.EE.8.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.
- ○ **DLM.MA.8.8.EE.8.b** - Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection.
- **DLM.MA.8.8.EE.8.c** - Solve real-world and mathematical problems leading to two linear equations in two variables.
- ○ **DLM.MA.8.EE8.EE.8** - N/A (See EE.8.EE.5-6)
- **DLM.MA.8.8.F** - Functions
○ **DLM.MA.8.F.DEC** - Define, evaluate, and compare functions.
- ○ **DLM.MA.8.8.F.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.
- ○ **DLM.MA.8.8.F.2** - Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
- **DLM.MA.8.8.F.3** - Interpret the equation y = mx + b as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.
- **DLM.MA.8.EE8.F.1-3_4** - Given a function table, identify the missing number.
- ○ **DLM.MA.8.EE8.F.1-3_1** - Given a function table, identify the rule and express the rule for the missing variable (e.g., n times 2).
- ○ **DLM.MA.8.EE8.F.1-3** - Given a function table, identify the missing number.
- ○ **DLM.MA.8.EE8.F.1-3_2** - Identify the relationship between two numbers.
- ○ **DLM.MA.8.EE8.F.1-3_3** - Given a sequence, match the element of a sequence.
○ **DLM.MA.8.F.UFM** - Use functions to model relationships between quantities.
- **DLM.MA.8.8.F.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.
- **DLM.MA.8.EE8.F.4_4** - Determine the values or rule of a function using a graph or a table.
- ○ **DLM.MA.8.EE8.F.4** - Given the input values and a rule, complete the output.
- ○ **DLM.MA.8.EE8.F.4_1** - Determine the values or rule of a function using a graph or a table.

- ○ **DLM.MA.8.EE8.F.4_2** - Navigate, read, use, or apply a graph or table.
- ○ **DLM.MA.8.EE8.F.4_3** - Identify the different parts of a graph or a table.
- **DLM.MA.8.8.F.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.
- **DLM.MA.8.EE8.F.5_4** - Describe how a graph represents a relationship between two quantities.
- ○ **DLM.MA.8.EE8.F.5** - Describe how a graph represents a relationship between two quantities and use the graph to answer questions using that relationship.
- ○ **DLM.MA.8.EE8.F.5_1** - Describe how a graph represents a relationship between two quantities.
- ○ **DLM.MA.8.EE8.F.5_2** - Answer questions about data from a graph.
- ○ **DLM.MA.8.EE8.F.5_3** - Place data in a graph.
- **DLM.MA.8.8.G** - Geometry
- ○ **DLM.MA.8.G.UCS** - Understand congruence and similarity using physical models, transparencies, or geometry software.
- **DLM.MA.8.8.G.1** - Verify experimentally the properties of rotations, reflections, and translations:
- ○ **DLM.MA.8.8.G.1.a** - Lines are taken to lines, and line segments to line segments of the same length.
- ○ **DLM.MA.8.8.G.1.b** - Angles are taken to angles of the same measure.
- ○ **DLM.MA.8.8.G.1.c** - Parallel lines are taken to parallel lines.
- ○ **DLM.MA.8.8.G.2** - Understand 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.
- **DLM.MA.8.8.G.3** - Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.
- **DLM.MA.8.EE8.G.1-3_3** - Identify similarity and congruence (same) in objects and shapes containing angles without translations.
- ○ **DLM.MA.8.EE8.G.1-3** - Identify similarity and congruence (same) in objects and shapes containing angles without translations.
- ○ **DLM.MA.8.EE8.G.1-3_1** - Match similar shapes.
- ○ **DLM.MA.8.EE8.G.1-3_2** - Match shapes using a three-dimensional object.
- **DLM.MA.8.8.G.4** - Understand 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.
- **DLM.MA.8.EE8.G.4_4** - Identify similar shapes with and without rotation.
- ○ **DLM.MA.8.EE8.G.4** - Determine if geometric shapes are similar with rotations or reflections.
- ○ **DLM.MA.8.EE8.G.4_1** - Identify similar shapes with and without rotation.
- ○ **DLM.MA.8.EE8.G.4_2** - Identify similar geometric shapes.
- ○ **DLM.MA.8.EE8.G.4_3** - Recognize geometric shapes.

- **DLM.MA.8.8.G.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.
- **DLM.MA.8.EE8.G.5_4** - Compare measures of angles to a right angle (greater than, less than, or equal to).
- ○ **DLM.MA.8.EE8.G.5** - Compare measures of angles formed by intersecting lines.
- ○ **DLM.MA.8.EE8.G.5_1** - Compare measures of angles to a right angle (greater than, less than, or equal to).
- ○ **DLM.MA.8.EE8.G.5_2** - Recognize a right angle.
- ○ **DLM.MA.8.EE8.G.5_3** - Recognize an angle.
- o **DLM.MA.8.G.UPT** - Understand and apply the Pythagorean Theorem.
- ○ **DLM.MA.8.8.G.6** - Explain a proof of the Pythagorean Theorem and its converse.
- ○ **DLM.MA.8.8.G.7** - Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.
- **DLM.MA.8.8.G.8** - Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.
- ○ **DLM.MA.8.EE8.G.6-8** - N/A
- o **DLM.MA.8.G.SRW** - Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.
- **DLM.MA.8.8.G.9** - Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.
- **DLM.MA.8.EE8.G.9_4** - Identify volume of common measures (cups, pints, quarts, gallons, etc.).
- ○ **DLM.MA.8.EE8.G.9** - Apply knowledge of volume.
- ○ **DLM.MA.8.EE8.G.9_1** - Identify volume of common measures (cups, pints, gallons, etc.).
- ○ **DLM.MA.8.EE8.G.9_2** - Identify which is more or less?
- ○ **DLM.MA.8.EE8.G.9_3** - Experience volume.
- • **DLM.MA.8.8.SP** - Statistics and Probability
- o **DLM.MA.8.SP.IPI** - Investigate patterns of association in bivariate data.
- ○ **DLM.MA.8.8.SP.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.
- ○ **DLM.MA.8.8.SP.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.
- **DLM.MA.8.8.SP.3** - Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.
- ○ **DLM.MA.8.EE8.SP.1-3** - N/A
- **DLM.MA.8.8.SP.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.

- **DLM.MA.8.EE8.SP.4_4** - Construct a graph or table from given categorical data and compare data categorized in the graph or table.
- ○ **DLM.MA.8.EE8.SP.4** - Conduct an experiment, collect data, and construct a graph or table.
- ○ **DLM.MA.8.EE8.SP.4_1** - Construct a graph or table from given categorical data and compare data categorized in the graph or table.
- ○ **DLM.MA.8.EE8.SP.4_2** - Collect and organize data.
- ○ **DLM.MA.8.EE8.SP.4_3** - Organize data into groups.
- **DLM.MA.9-12.N-RN** - The Real Number System
- o **DLM.MA.9-12.RN.EPE** - Extend the properties of exponents to rational exponents.
- **DLM.MA.9-12.N-RN.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.
- **DLM.MA.9-12.EEN-RN.1_4** - Solve division problems with remainders using concrete objects.
- ○ **DLM.MA.9-12.EEN-RN.1** - Illustrate concept of remainders using objects and numerical representations.
- ○ **DLM.MA.9-12.EEN-RN.1_1** - Solve division problems with remainders using concrete objects.
- ○ **DLM.MA.9-12.EEN-RN.1_2** - Identify the difference between equal and not equal groups.
- ○ **DLM.MA.9-12.EEN-RN.1_3** - Recognize that a whole can be divided into parts.
- **DLM.MA.9-12.N-RN.2** - Rewrite expressions involving radicals and rational exponents using the properties of exponents.
- ○ **DLM.MA.9-12.EEN-RN.2** - N/A
- o **DLM.MA.9-12.RN.UPR** - Use properties of rational and irrational numbers.
- **DLM.MA.9-12.N-RN.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.
- ○ **DLM.MA.9-12.EEN-RN.3** - N/A
- **DLM.MA.9-12.N-Q** - Quantities
- o **DLM.MA.9-12.Q.RQU** - Reason quantitatively and use units to solve problems.
- ○ **DLM.MA.9-12.N-Q.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.
- ○ **DLM.MA.9-12.N-Q.2** - Define appropriate quantities for the purpose of descriptive modeling.
- **DLM.MA.9-12.N-Q.3** - Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
- ○ **DLM.MA.9-12.EEN-Q.1-3** - Express solutions to problems using the appropriate precision of measurements.
- ○ **DLM.MA.9-12.EEN-Q.1-3_1** - Express quantities to the appropriate precision of measurement.
- ○ **DLM.MA.9-12.EEN-Q.1-3_2** - Select the appropriate type of unit as a measurement tool.
- ○ **DLM.MA.9-12.EEN-Q.1-3_3** - Identify measurement tools. Identify the attribute to be measured (weight, length, and temperature).
- **DLM.MA.9-12.N-CN** - The Complex Number System

- o **DLM.MA.9-12.CN.POW** - Perform arithmetic operations with complex numbers.
- ▪ **DLM.MA.9-12.N-CN.1** - Know there is a complex number i such that i² = 1, and every complex number has the form a + bi with a and b real.
- ▪ ◯ **DLM.MA.9-12.EEN-CN.1** - N/A
- ▪ **DLM.MA.9-12.N-CN.2** - Use the relation i² = 1 and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.
- ▪ **DLM.MA.9-12.EEN-CN.2_4** - Use the operations of addition, subtraction, and multiplication with decimals (decimal value x whole number) in real world situations using money as the standard units ($20, $10, $5, $1, $0.25, $0.10, $0.05, and $0.01).
- ▪ ◯ **DLM.MA.9-12.EEN-CN.2** - Apply the operations of addition, subtraction, and multiplication in real world situations using money as the standard units ($50, $20, $10, $5, $1, $0.25, $0.10, $0.05, and $0.01).
- ▪ ◯ **DLM.MA.9-12.EEN-CN.2_1** - Use the operations of addition, subtraction, and multiplication with decimals (decimal value x whole number) in real-world situations using money as the standard units ($20, $10, $5, $1, $0.25, $0.10, $0.05, and $0.01).
- ▪ ◯ **DLM.MA.9-12.EEN-CN.2_2** - Use the operations of addition, subtraction, and multiplication up to the tenths place with decimals.
- ▪ ◯ **DLM.MA.9-12.EEN-CN.2_3** - Use the operations of addition, subtraction, multiplication, and multiplication with whole numbers less than 20.
- o **DLM.MA.9-12.CN.UCN** - Use complex numbers in polynomial identities and equations.
- ▪ **DLM.MA.9-12.N-CN.7** - Solve quadratic equations with real coefficients that have complex solutions.
- ▪ ◯ **DLM.MA.9-12.EEN-CN.7** - N/A
- • **DLM.MA.9-12.N-VM** - Vector and Matrix Quantities
- o **DLM.MA.9-12.VM.RMW** - Represent and model with vector quantities.
- ▪ ◯ **DLM.MA.9-12.N-VM.1** - Recognize vector quantities as having both magnitude and direction. Represent vector quantities by directed line segments, and use appropriate symbols for vectors and their magnitudes (e.g., v, |v|, ||v||, v).
- ▪ ◯ **DLM.MA.9-12.N-VM.2** - Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.
- ▪ ◯ **DLM.MA.9-12.N-VM.3** - Solve problems involving velocity and other quantities that can be represented by vectors.
- o **DLM.MA.9-12.VM.POO** - Perform operations on vectors.
- ▪ **DLM.MA.9-12.N-VM.4** - Add and subtract vectors.
- ▪ ◯ **DLM.MA.9-12.N-VM.4.a** - Add vectors end-to-end, component-wise, and by the parallelogram rule. Understand that the magnitude of a sum of two vectors is typically not the sum of the magnitudes.
- ▪ ◯ **DLM.MA.9-12.N-VM.4.b** - Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.
- ▪ ◯ **DLM.MA.9-12.N-VM.4.c** - Understand vector subtraction v w as v + (w), where w is the additive inverse of w, with the same magnitude as w and pointing in the opposite direction. Represent vector subtraction graphically by connecting the tips in the appropriate order, and perform vector subtraction component-wise.

- **DLM.MA.9-12.N-VM.5** - Multiply a vector by a scalar.
  - ○ **DLM.MA.9-12.N-VM.5.a** - Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as c(v subscript x, v subscript y) = (cv subscript x, cv subscript y).
  - ○ **DLM.MA.9-12.N-VM.5.b** - Compute the magnitude of a scalar multiple cv using ||cv|| = |c|v. Compute the direction of cv knowing that when |c|v is not equal to 0, the direction of cv is either along v (for c > 0) or against v (for c < 0).
- ○ **DLM.MA.9-12.VM.POO_1** - Perform operations on matrices and use matrices in applications.
  - ○ **DLM.MA.9-12.N-VM.6** - Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.
  - ○ **DLM.MA.9-12.N-VM.7** - Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.
  - ○ **DLM.MA.9-12.N-VM.8** - Add, subtract, and multiply matrices of appropriate dimensions.
  - ○ **DLM.MA.9-12.N-VM.9** - Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.
  - ○ **DLM.MA.9-12.N-VM.10** - Understand that the zero and identity matrices play a role in matrix addition and multiplication similar to the role of 0 and 1 in the real numbers. The determinant of a square matrix is nonzero if and only if the matrix has a multiplicative inverse.
  - ○ **DLM.MA.9-12.N-VM.11** - Multiply a vector (regarded as a matrix with one column) by a matrix of suitable dimensions to produce another vector. Work with matrices as transformations of vectors.
  - ○ **DLM.MA.9-12.N-VM.12** - Work with 2 × 2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.
- **DLM.MA.9-12.A-SSE** - Seeing Structure in Expressions
- ○ **DLM.MA.9-12.SSE.ISE** - Interpret the structure of expressions
- **DLM.MA.9-12.A-SSE.1** - Interpret expressions that represent a quantity in terms of its context.
  - ○ **DLM.MA.9-12.A-SSE.1.a** - Interpret parts of an expression, such as terms, factors, and coefficients.
  - ○ **DLM.MA.9-12.A-SSE.1.b** - Interpret complicated expressions by viewing one or more of their parts as a single entity.
- **DLM.MA.9-12.EEA-SSE.1_4** - Match an algebraic expression involving one operation to represent a given word expression with an illustration.
  - ○ **DLM.MA.9-12.EEA-SSE.1** - Write or match an algebraic expression for a given word expression involving more than one operation.
  - ○ **DLM.MA.9-12.EEA-SSE.1_1** - Match an algebraic expression involving one operation to represent a given word expression with an illustration.
  - ○ **DLM.MA.9-12.EEA-SSE.1_2** - Identify the operation used for word expressions as indicated by an illustration.
  - ○ **DLM.MA.9-12.EEA-SSE.1_3** - Recognize the symbol for an operation.
- **DLM.MA.9-12.A-SSE.2** - Use the structure of an expression to identify ways to rewrite it.
  - ○ **DLM.MA.9-12.EEA-SSE.2** - N/A

- o **DLM.MA.9-12.SSE.WEI** - Write expressions in equivalent forms to solve problems
- ▪ **DLM.MA.9-12.A-SSE.3** - Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.
- ▪ ○ **DLM.MA.9-12.A-SSE.3.a** - Factor a quadratic expression to reveal the zeros of the function it defines.
- ▪ ○ **DLM.MA.9-12.A-SSE.3.b** - Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.
- ▪ ○ **DLM.MA.9-12.A-SSE.3.c** - Use the properties of exponents to transform expressions for exponential functions.
- ▪ **DLM.MA.9-12.EEA-SSE.3_4** - Solve simple one-step equations (multiplication and division) with a variable.
- ▪ ○ **DLM.MA.9-12.EEA-SSE.3_1** - Solve one-step equations (multiplication and division of two digits) with a variable.
- ▪ ○ **DLM.MA.9-12.EEA-SSE.3_2** - Solve simple one-step equations (multiplication and division) with a variable.
- ▪ ○ **DLM.MA.9-12.EEA-SSE.3** - Solve basic equations.
- ▪ ○ **DLM.MA.9-12.EEA-SSE.3_3** - Identify quantity and match to the number.
- ▪ **DLM.MA.9-12.A-SSE.4** - Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems.
- ▪ **DLM.MA.9-12.EEA-SSE.4_4** - Identify the missing part in any other equivalent ratio when given any ratio.
- ▪ ○ **DLM.MA.9-12.EEA-SSE.4** - Find the missing components when given various ratios that form proportions.
- ▪ ○ **DLM.MA.9-12.EEA-SSE.4_1** - Identify the missing part in any other equivalent ratio when given any ratio.
- ▪ ○ **DLM.MA.9-12.EEA-SSE.4_2** - Identify the missing part in the next ratio using concrete objects when given a ratio (1:_).
- ▪ ○ **DLM.MA.9-12.EEA-SSE.4_3** - Identify or demonstrate a ratio relationship (See the recommendation for 6.RP.1).
- • **DLM.MA.9-12.A-APR** - Arithmetic with Polynomials and Rational Expressions
- o **DLM.MA.9-12.APR.POO** - Perform arithmetic operations on polynomials
- ▪ **DLM.MA.9-12.A-APR.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.
- ▪ ○ **DLM.MA.9-12.EEA-APR.1** - N/A
- o **DLM.MA.9-12.APR.URB** - Understand the relationship between zeros and factors of polynomials
- ▪ ○ **DLM.MA.9-12.A-APR.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).
- ▪ ○ **DLM.MA.9-12.A-APR.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.
- o **DLM.MA.9-12.APR.UPI** - Use polynomial identities to solve problems
- ▪ ○ **DLM.MA.9-12.A-APR.4** - Prove polynomial identities and use them to describe numerical relationships.
- ▪ ○ **DLM.MA.9-12.A-APR.5** - Know and apply the Binomial Theorem for the expansion of (x + y) to the n power in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal s Triangle.
- o **DLM.MA.9-12.APR.RRE** - Rewrite rational expressions

- ○ **DLM.MA.9-12.A-APR.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.
- ○ **DLM.MA.9-12.A-APR.7** - Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.
- **DLM.MA.9-12.A-CED** - Creating Equations
- ○ **DLM.MA.9-12.CED.CED** - Create equations that describe numbers or relationships
- **DLM.MA.9-12.A-CED.1** - Create equations and inequalities in one variable and use them to solve problems.
- **DLM.MA.9-12.EEA-CED.1_1** - Solve an algebraic expression using subtraction.
- ○ **DLM.MA.9-12.EEA-CED.1** - Solve an algebraic expression with more than one variable.
- ○ **DLM.MA.9-12.EEA-SSE.3_5** - Solve an algebraic expression using subtraction.
- ○ **DLM.MA.9-12.EEA-SSE.3_6** - Solve simple equations with unknown/missing values (without variables).
- ○ **DLM.MA.9-12.EEA-SSE.3_7** - Identify what is unknown.
- ○ **DLM.MA.9-12.A-CED.2** - Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
- ○ **DLM.MA.9-12.A-CED.3** - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.
- **DLM.MA.9-12.A-CED.4** - Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
- **DLM.MA.9-12.EEA-CED.2-4_4** - Solve one-step inequalities.
- ○ **DLM.MA.9-12.EEA-CED.2-4_1** - Solve two-step inequalities with a variable.
- ○ **DLM.MA.9-12.EEA-CED.2-4** - Solve one-step inequalities.
- ○ **DLM.MA.9-12.EEA-CED.2-4_2** - Verify the solution to an inequality with one variable.
- ○ **DLM.MA.9-12.EEA-CED.2-4_3** - Identify quantities that are greater than or less than a given quantity.
- **DLM.MA.9-12.A-REI** - Reasoning with Equations and Inequalities
- ○ **DLM.MA.9-12.REI.USE** - Understand solving equations as a process of reasoning and explain the reasoning
- ○ **DLM.MA.9-12.A-REI.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.
- **DLM.MA.9-12.A-REI.2** - Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.
- ○ **DLM.MA.9-12.EEA-REI.1-2** - N/A
- ○ **DLM.MA.9-12.REI.SEI** - Solve equations and inequalities in one variable
- **DLM.MA.9-12.A-REI.3** - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
- ○ **DLM.MA.9-12.EEA-REI.3** - N/A (See EEAECED. 1-2.)
- **DLM.MA.9-12.A-REI.4..SQE** - Solve quadratic equations in one variable.

- ○ **DLM.MA.9-12.A-REI.4.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.
- ○ **DLM.MA.9-12.A-REI.4.b** - Solve quadratic equations by inspection (e.g., for x² = 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 ± bi for real numbers a and b.
- ○ **DLM.MA.9-12.REI.SSE** - Solve systems of equations
- ▪ **DLM.MA.9-12.A-REI.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.
- ▪ ○ **DLM.MA.9-12.EEA-REI.5** - N/A
- ▪ ○ **DLM.MA.9-12.A-REI.6** - Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.
- ▪ **DLM.MA.9-12.A-REI.7** - Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.
- ▪ ○ **DLM.MA.9-12.EEA-REI.6-7** - N/A (See EEAREI. 10-12.)
- ▪ ○ **DLM.MA.9-12.A-REI.8** - Represent a system of linear equations as a single matrix equation in a vector variable.
- ▪ ○ **DLM.MA.9-12.A-REI.9** - Find the inverse of a matrix if it exists and use it to solve systems of linear equations (using technology for matrices of dimension 3 × 3 or greater).
- ○ **DLM.MA.9-12.REI.RSE** - Represent and solve equations and inequalities graphically
- ▪ ○ **DLM.MA.9-12.A-REI.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).
- ▪ ○ **DLM.MA.9-12.A-REI.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.
- ▪ **DLM.MA.9-12.A-REI.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.
- ▪ **DLM.MA.9-12.EEA-REI.10.-12** - Determine the two pieces of information that are plotted on a graph of an equation with two variables that form a line when plotted.
- ▪ ○ **DLM.MA.9-12.EEA-REI.10** - Make a prediction using the graph of an equation with two variables that form a line when plotted using the trend of the line.
- ▪ ○ **DLM.MA.9-12.EEA-REI.10_1** - Determine the two pieces of information that are plotted on a graph of an equation with two variables that form a line when plotted.
- ▪ ○ **DLM.MA.9-12.A-REI.10_1** - Use a graph of two variables to find the answer to a real-world problem.
- ▪ ○ **DLM.MA.9-12.A-REI.10_2** - Identify major parts of a graph.
- • **DLM.MA.9-12.F-IF** - Interpreting Functions
- ○ **DLM.MA.9-12.IF.UCF** - Understand the concept of a function and use function notation

- ○ **DLM.MA.9-12.F-IF.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).
- ○ **DLM.MA.9-12.F-IF.2** - Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
- **DLM.MA.9-12.F-IF.3** - Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.
- **DLM.MA.9-12.EEF-IF.1-3_4** - Use the concept of function to solve problems.
- ○ **DLM.MA.9-12.EEF-IF.1-3** - Use the concept of functions to identify how the two variables are affected.
- ○ **DLM.MA.9-12.EEF-IF.1-3_1** - Use the concept of function to solve problems.
- ○ **DLM.MA.9-12.EEF-IF.1-3_2** - Solve problems using a table that shows basic relationships (may not involve a true function).
- ○ **DLM.MA.9-12.EEF-IF.1-3_3** - Identify basic information located on graphs.
- ○ **DLM.MA.9-12.IF.IFI** - Interpret functions that arise in applications in terms of the context
- ○ **DLM.MA.9-12.F-IF.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.
- ○ **DLM.MA.9-12.F-IF.5** - Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.
- **DLM.MA.9-12.F-IF.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.
- **DLM.MA.9-12.EEF-IF.4-6_4** - Interpret rate of change (e.g., higher/lower, faster/slower).
- ○ **DLM.MA.9-12.EEF-IF.4-6** - Evaluate key features of a graph (e.g. increasing, decreasing, constant.).
- ○ **DLM.MA.9-12.EEF-IF.4-6_1** - Interpret rate of change (e.g. higher/lower, faster/slower).
- ○ **DLM.MA.9-12.EEF-IF.4-6_2** - Graph a simple linear equation represented by a table of values.
- ○ **DLM.MA.9-12.EEF-IF.4-6_3** - Read a table.
- ○ **DLM.MA.9-12.IF.AFU** - Analyze functions using different representations
- **DLM.MA.9-12.F-IF.7** - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.
- ○ **DLM.MA.9-12.F-IF.7.a** - Graph linear and quadratic functions and show intercepts, maxima, and minima.
- ○ **DLM.MA.9-12.F-IF.7.b** - Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.
- ○ **DLM.MA.9-12.F-IF.7.c** - Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.
- ○ **DLM.MA.9-12.F-IF.7.d** - Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.

- **DLM.MA.9-12.F-IF.7.e** - Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.
- ○ **DLM.MA.9-12.EEF-IF.7** - N/A (See EEF-IF.1- 3)
- **DLM.MA.9-12.F-IF.8** - Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.
- ○ **DLM.MA.9-12.F-IF.8.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.
- **DLM.MA.9-12.F-IF.8.b** - Use the properties of exponents to interpret expressions for exponential functions.
- ○ **DLM.MA.9-12.EEF-IF.8** - N/A
- **DLM.MA.9-12.F-IF.9** - Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).
- ○ **DLM.MA.9-12.EEF-IF.9** - N/A
- **DLM.MA.9-12.F-BF** - Building Functions
- ○ **DLM.MA.9-12.BF.BFM** - Build a function that models a relationship between two quantities
- **DLM.MA.9-12.F-BF.1** - Write a function that describes a relationship between two quantities.
- ○ **DLM.MA.9-12.F-BF.1.a** - Determine an explicit expression, a recursive process, or steps for calculation from a context.
- ○ **DLM.MA.9-12.F-BF.1.b** - Combine standard function types using arithmetic operations.
- **DLM.MA.9-12.F-BF.1.c** - Compose functions.
- **DLM.MA.9-12.EEF-BF.1** - Select the appropriate graphical representation (first quadrant) given a situation involving constant rate of change.
- ○ **DLM.MA.9-12.EEF.BF.1** - Complete the appropriate graphical representation (first quadrant) given a situation involving constant rate of change.
- **DLM.MA.9-12.F-BF.2** - Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.
- **DLM.MA.9-12.EEF-BF.2_3** - Build an arithmetic sequence when provided a recursive rule with whole numbers.
- ○ **DLM.MA.9-12.EEF-BF.2** - Build an arithmetic sequence when provided a recursive rule with decreasing terms, decimals, or fractions.
- ○ **DLM.MA.9-12.EEF-FB.2** - Build an arithmetic sequence when provided a recursive rule with whole numbers.
- ○ **DLM.MA.9-12.EEF-BF.2_1** - Identify a term in a sequence.
- ○ **DLM.MA.9-12.EEF-BF.2_2** - Recognize a sequence.
- ○ **DLM.MA.9-12.BF.BNF** - Build new functions from existing functions
- ○ **DLM.MA.9-12.F-BF.3** - Identify the effect on the graph of replacing f(x) by f(x) + k, k f(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.
- **DLM.MA.9-12.F-BF.4** - Find inverse functions.
- ○ **DLM.MA.9-12.F-BF.4.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.

- ○ **DLM.MA.9-12.F-BF.4.b** - Verify by composition that one function is the inverse of another.
- ○ **DLM.MA.9-12.F-BF.4.c** - Read values of an inverse function from a graph or a table, given that the function has an inverse.
- **DLM.MA.9-12.F-BF.4.d** - Produce an invertible function from a non-invertible function by restricting the domain.
- ○ **DLM.MA.9-12.EEF-BF.3-4** - N/A
- ○ **DLM.MA.9-12.F-BF.5** - Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.
- **DLM.MA.9-12.F-LE** - Linear, Quadratic, and Exponential Models
- o **DLM.MA.9-12.LE.CCL** - Construct and compare linear, quadratic, and exponential models and solve problems
- **DLM.MA.9-12.F-LE.1** - Distinguish between situations that can be modeled with linear functions and with exponential functions.
- ○ **DLM.MA.9-12.F-LE.1.a** - Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.
- ○ **DLM.MA.9-12.F-LE.1.b** - Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.
- **DLM.MA.9-12.F-LE.1.c** - Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.
- **DLM.MA.9-12.EEF-LE.1_4** - Model a simple linear function such as y=mx to show functions grow by equal factors over equal intervals.
- ○ **DLM.MA.9-12.EEF-LE.1** - Plot points using pictures in first quadrant on a graph using whole numbers and explain how y increases/decreases as x changes.
- ○ **DLM.MA.9-12.EEF-LE.1_1** - Model a simple linear function such as y = mx to show functions grow by equal factors over equal intervals.
- ○ **DLM.MA.9-12.EEF-LE.1_2** - Identify a specific data point in the first quadrant and explain the meaning behind it.
- ○ **DLM.MA.9-12.EEF-LE.1_3** - Interpret major ideas of a graph with linear functions.
- ○ **DLM.MA.9-12.F-LE.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).
- ○ **DLM.MA.9-12.F-LE.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.
- ○ **DLM.MA.9-12.F-LE.4** - For exponential models, express as a logarithm the solution to ab to the ct power = d where a, c, and d are numbers and the base b is 2, 10, or e; evaluate the logarithm using technology.
- o **DLM.MA.9-12.LE.IEF** - Interpret expressions for functions in terms of the situation they model
- **DLM.MA.9-12.F-LE.5** - Interpret the parameters in a linear or exponential function in terms of a context.
- ○ **DLM.MA.9-12.EEF-LE.5** - N/A
- **DLM.MA.9-12.F-TF** - Trigonometric Functions
- o **DLM.MA.9-12.TF.EDT** - Extend the domain of trigonometric functions using the unit circle

- ○ **DLM.MA.9-12.F-TF.1** - Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle.
- **DLM.MA.9-12.F-TF.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.
- ○ **DLM.MA.9-12.EEF-TF.1-2** - N/A
- ○ **DLM.MA.9-12.F-TF.3** - Use special triangles to determine geometrically the values of sine, cosine, tangent for pi/3, pi/4 and pi/6, and use the unit circle to express the values of sine, cosine, and tangent for pi x, pi+x, and 2pi x in terms of their values for x, where x is any real number.
- ○ **DLM.MA.9-12.F-TF.4** - Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.
- ○ **DLM.MA.9-12.TF.MPP** - Model periodic phenomena with trigonometric functions
- ○ **DLM.MA.9-12.F-TF.5** - Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.
- ○ **DLM.MA.9-12.F-TF.6** - Understand that restricting a trigonometric function to a domain on which it is always increasing or always decreasing allows its inverse to be constructed.
- ○ **DLM.MA.9-12.F-TF.7** - Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context.
- ○ **DLM.MA.9-12.TF.PTI** - Prove and apply trigonometric identities
- **DLM.MA.9-12.F-TF.8** - Prove the Pythagorean identity $\sin^2(\text{theta}) + \cos^2(\text{theta}) = 1$ and use it to find sin(theta), cos(theta), or tan(theta) given sin(theta), cos(theta), or tan(theta) and the quadrant of the angle.
- ○ **DLM.MA.9-12.EEF-TF.8** - N/A
- ○ **DLM.MA.9-12.F-TF.9** - Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.
- • **DLM.MA.9-12.G-CO** - Congruence
- ○ **DLM.MA.9-12.CO.EWT** - Experiment with transformations in the plane
- **DLM.MA.9-12.G-CO.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.
- **DLM.MA.9-12.EEG-CO.1_4** - Know the attributes of perpendicular lines, parallel lines, and line segments, angles, and circles.
- ○ **DLM.MA.9-12.EEG-CO.1** - Compare attributes of perpendicular lines, parallel lines, line segments, angles, and circles.
- ○ **DLM.MA.9-12.EEG-CO.1_1** - Know the attributes of perpendicular lines, parallel lines, and line segments, angles, and circles.
- ○ **DLM.MA.9-12.EEG-CO.1_2** - Know the attributes of lines, circles, and angles with equivalent measure.
- ○ **DLM.MA.9-12.EEG-CO.1_3** - Identify a line and a shape (i.e. circle, square, triangle).
- **DLM.MA.9-12.G-CO.2** - Represent transformations in the plane using, e.g., transparencies and 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).

- ○ **DLM.MA.9-12.EEG-CO.2** - N/A
- **DLM.MA.9-12.G-CO.3** - Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
- ○ **DLM.MA.9-12.EEG-CO.3** - N/A
- ○ **DLM.MA.9-12.G-CO.4** - Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
- **DLM.MA.9-12.G-CO.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.
- **DLM.MA.9-12.EEG-CO.4-5_4** - Identify rotations, reflections, and slides.
- ○ **DLM.MA.9-12.EEG-CO.4-5** - Demonstrate what happens when a figure is transformed.
- ○ **DLM.MA.9-12.EEG-CO.4-5_1** - Identify rotations, reflections, and slides.
- ○ **DLM.MA.9-12.EEG-CO.4-5_2** - Recognize rotation, reflection, or slide (key terms, vocabulary, and movement).
- ○ **DLM.MA.9-12.EEG-CO.4-5_3** - Attend to movement demonstrating rotations, reflections, and slides.
- o **DLM.MA.9-12.CO.UCI** - Understand congruence in terms of rigid motions
- ○ **DLM.MA.9-12.G-CO.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.
- ○ **DLM.MA.9-12.G-CO.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.
- **DLM.MA.9-12.G-CO.8** - Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.
- **DLM.MA.9-12.EEG-CO.6-8_4** - Identify corresponding congruent (the same) parts of shapes.
- ○ **DLM.MA.9-12.EEG-CO.6-8** - Demonstrate why shapes are congruent.
- ○ **DLM.MA.9-12.EEG-CO.6-8_1** - Identify corresponding congruent (the same) parts of shapes.
- ○ **DLM.MA.9-12.EEG-CO.6-8_2** - Recognize congruent parts (angles and sides).
- ○ **DLM.MA.9-12.EEG-CO.6-8_3** - Recognize shapes that are congruent.
- o **DLM.MA.9-12.CO.PG** - Prove geometric theorems
- ○ **DLM.MA.9-12.G-CO.9** - Prove theorems about lines and angles.
- ○ **DLM.MA.9-12.G-CO.10** - Prove theorems about triangles.
- **DLM.MA.9-12.G-CO.11** - Prove theorems about parallelograms.
- ○ **DLM.MA.9-12.EEG-CO.9-11** - N/A
- o **DLM.MA.9-12.CO.MGC** - Make geometric constructions
- ○ **DLM.MA.9-12.G-CO.12** - Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).
- **DLM.MA.9-12.G-CO.13** - Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.

- ○ **DLM.MA.9-12.EEG-CO.12-13** - N/A
- **DLM.MA.9-12.G-SRT** - Similarity, Right Triangles, and Trigonometry
- ○ **DLM.MA.9-12.SRT.USI** - Understand similarity in terms of similarity transformations
- **DLM.MA.9-12.G-SRT.1** - Verify experimentally the properties of dilations given by a center and a scale factor:
- ○ **DLM.MA.9-12.G-SRT.1.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.
- ○ **DLM.MA.9-12.G-SRT.1.b** - The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
- ○ **DLM.MA.9-12.G-SRT.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.
- **DLM.MA.9-12.G-SRT.3** - Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.
- ○ **DLM.MA.9-12.EEG-SRT.1-3** - N/A (See EEG-CO.6-8.)
- ○ **DLM.MA.9-12.SRT.PIS** - Prove theorems involving similarity
- ○ **DLM.MA.9-12.G-SRT.4** - Prove theorems about triangles.
- **DLM.MA.9-12.G-SRT.5** - Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
- ○ **DLM.MA.9-12.EEG-SRT.4-5** - N/A
- ○ **DLM.MA.9-12.SRT.DTR** - Define trigonometric ratios and solve problems involving right triangles
- ○ **DLM.MA.9-12.G-SRT.6** - Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.
- ○ **DLM.MA.9-12.G-SRT.7** - Explain and use the relationship between the sine and cosine of complementary angles.
- **DLM.MA.9-12.G-SRT.8** - Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
- ○ **DLM.MA.9-12.EEG-SRT.6-8** - N/A
- ○ **DLM.MA.9-12.SRT.ATG** - Apply trigonometry to general triangles
- ○ **DLM.MA.9-12.G-SRT.9** - Derive the formula $A = 1/2\ ab\ \sin(C)$ for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.
- ○ **DLM.MA.9-12.G-SRT.10** - Prove the Laws of Sines and Cosines and use them to solve problems.
- ○ **DLM.MA.9-12.G-SRT.11** - Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces).
- **DLM.MA.9-12.G-C** - Circles
- ○ **DLM.MA.9-12.C.UC** - Understand and apply theorems about circles
- ○ **DLM.MA.9-12.G-C.1** - Prove that all circles are similar.
- ○ **DLM.MA.9-12.G-C.2** - Identify and describe relationships among inscribed angles, radii, and chords.

- **DLM.MA.9-12.G-C.3** - Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
  - ○ **DLM.MA.9-12.EEG-C.1-3** - N/A
  - ○ **DLM.MA.9-12.G-C.4** - Construct a tangent line from a point outside a given circle to the circle.
- ○ **DLM.MA.9-12.C.FLS** - Find arc lengths and areas of sectors of circles
  - **DLM.MA.9-12.G-C.5** - Derive using similarity the fact 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.
  - ○ **DLM.MA.9-12.EEG-C.5** - N/A
- **DLM.MA.9-12.G-GPE** - Expressing Geometric Properties with Equations
- ○ **DLM.MA.9-12.GPE.TBG** - Translate between the geometric description and the equation for a conic section
  - **DLM.MA.9-12.G-GPE.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.
  - ○ **DLM.MA.9-12.EEG-GPE.1** - N/A
  - **DLM.MA.9-12.G-GPE.2** - Derive the equation of a parabola given a focus and directrix.
  - ○ **DLM.MA.9-12.EEG-GPE.2-4** - N/A
  - ○ **DLM.MA.9-12.G-GPE.3** - Derive the equations of ellipses and hyperbolas given the foci, using the fact that the sum or difference of distances from the foci is constant.
- ○ **DLM.MA.9-12.GPE.UCP** - Use coordinates to prove simple geometric theorems algebraically
  - **DLM.MA.9-12.G-GPE.4** - Use coordinates to prove simple geometric theorems algebraically.
  - ○ **DLM.MA.9-12.EEG-GPE.4** - N/A (See EEGGPE)
  - ○ **DLM.MA.9-12.G-GPE.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).
  - **DLM.MA.9-12.G-GPE.6** - Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
  - ○ **DLM.MA.9-12.EEG-GPE.5-6** - N/A (See EEG.CO.1)
  - **DLM.MA.9-12.G-GPE.7** - Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.
  - **DLM.MA.9-12.EEG-GPE.7_3** - Find perimeter and area of squares and rectangles to solve real-world problems.
  - ○ **DLM.MA.9-12.EEG-GPE.7** - Use formulas to find perimeter and area of squares and rectangles to solve real-world problems.
  - ○ **DLM.MA.9-12.EEG-GPE.7_1** - Find perimeter and area of squares and rectangles to solve real-world problems.
  - ○ **DLM.MA.9-12.EEG-GPE.7_2** - Find perimeter or area by counting on a grid.
  - ○ **DLM.MA.9-12.EEG-CPE.7** - Identify inside, around, and outside of a closed figure.
- **DLM.MA.9-12.G-GMD** - Geometric Measurement and Dimension
- ○ **DLM.MA.9-12.GMD.EVU** - Explain volume formulas and use them to solve problems

- ○ **DLM.MA.9-12.G-GMD.1** - Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.
- ○ **DLM.MA.9-12.G-GMD.2** - Give an informal argument using Cavalieri s principle for the formulas for the volume of a sphere and other solid figures.
- **DLM.MA.9-12.G-GMD.3** - Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
- **DLM.MA.9-12.EEG-GMD.1-3_4** - Make a prediction based on knowledge of volume to identify volume of common containers (cups, pints, gallons, etc.).
- ○ **DLM.MA.9-12.EEG-GMD.1-3** - Apply knowledge of volume to make appropriate volumetric estimates.
- ○ **DLM.MA.9-12.EEG-GMD.1-3_1** - Make a prediction based on knowledge of volume to identify volume of common containers (cups, pints, gallons, etc.).
- ○ **DLM.MA.9-12.EEG-GMD.1-3_2** - Which is more or less?
- ○ **DLM.MA.9-12.EEG-GMD.1-3_3** - Experience volume.
- ○ **DLM.MA.9-12.GMD.VRB** - Visualize relationships between two-dimensional and three-dimensional objects
- **DLM.MA.9-12.G-GMD.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.
- **DLM.MA.9-12.EEG-GMD.4_4** - Distinguish between two-dimensional and three-dimensional objects to solve real-world problems.
- ○ **DLM.MA.9-12.EEG-GMD.4** - Use the properties of two-dimensional and three-dimensional objects to solve real-world problems.
- ○ **DLM.MA.9-12.EEG-GMD.4_1** - Distinguish between two-dimensional and three-dimensional objects to solve real-world problems.
- ○ **DLM.MA.9-12.EEG-GMD.4_2** - Distinguish between two-dimensional and three-dimensional
- ○ **DLM.MA.9-12.EEG-GMD.4_3** - Identify two-dimensional shapes.
- **DLM.MA.9-12.G-MG** - Modeling with Geometry
- ○ **DLM.MA.9-12.MG.AGC** - Apply geometric concepts in modeling situations
- ○ **DLM.MA.9-12.G-MG.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).
- ○ **DLM.MA.9-12.G-MG.2** - Apply concepts of density based on area and volume in modeling situations (e.g., persons per square mile, BTUs per cubic foot).
- **DLM.MA.9-12.G-MG.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).
- **DLM.MA.9-12.EEG-MG.1-3_3** - Use properties of geometric shapes to describe real-life objects.
- ○ **DLM.MA.9-12.G-MG.1-3** - Apply geometric methods to solve design problems.
- ○ **DLM.MA.9-12.EEG-MG.1-3** - Use properties of geometric shapes to describe real-life objects.
- ○ **DLM.MA.9-12.EEG-MG.1-3_1** - Identify geometric shapes.
- ○ **DLM.MA.9-12.EEG-MG.1-3_2** - Compare the capacity of three-dimensional objects.
- **DLM.MA.9-12.S-ID** - Interpreting Categorical and Quantitative Data
- ○ **DLM.MA.9-12.ID.SRI** - Summarize, represent, and interpret data on a single count or measurement variable

- ○ **DLM.MA.9-12.S-ID.1** - Represent data with plots on the real number line (dot plots, histograms, and box plots).
- **DLM.MA.9-12.S-ID.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.
- **DLM.MA.9-12.EES-ID.1-2_4** - Given data, construct a simple graph (table, line, pie, bar, or picture) and answer questions about the data.
- ○ **DLM.MA.9-12.EES-ID.1-2** - Collect and organize data in simple graphs and use findings to draw conclusions from the data.
- ○ **DLM.MA.9-12.EES-ID.1-2_1** - Given data, construct a simple graph (table, line, pie, bar, or picture) and answer questions about the data.
- ○ **DLM.MA.9-12.EES-ID.1-2_2** - Given a graph, answer simple questions.
- ○ **DLM.MA.9-12.EES-ID.1-2_3** - Identify any part of a simple graph.
- **DLM.MA.9-12.S-ID.3** - Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).
- **DLM.MA.9-12.EES-ID.3_4** - Indicate general trends on a graph or chart.
- ○ **DLM.MA.9-12.EES-ID.3** - Extend a graph or chart to make a prediction.
- ○ **DLM.MA.9-12.EES-ID.3_1** - Indicate general trends on a graph or chart.
- ○ **DLM.MA.9-12.EES-ID.3_2** - Demonstrate increase and decrease over time.
- ○ **DLM.MA.9-12.EES-ID.3_3** - Determine categories needed on a graph.
- **DLM.MA.9-12.S-ID.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.
- **DLM.MA.9-12.EES-ID.4_1** - Calculate the mean of a given data set (limit data points to less than five).
- ○ **DLM.MA.9-12.EES-ID.4** - Calculate the mean of a given data set (more than five data points).
- ○ **DLM.MA.9-12.EES-ID.4_2** - Calculate the mean of a given data set (limit data points to less than five).
- ○ **DLM.MA.9-12.EES-ID.4_3** - Identify the average between two consecutive numbers.
- ○ **DLM.MA.9-12.EES-ID.4_4** - Identify the missing number between two data points.
- ○ **DLM.MA.9-12.ID.SRI_1** - Summarize, represent, and interpret data on two categorical and quantitative variables
- ○ **DLM.MA.9-12.S-ID.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.
- **DLM.MA.9-12.S-ID.6** - Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.
- ○ **DLM.MA.9-12.S-ID.6.a** - Fit a function to the data; use functions fitted to data to solve problems in the context of the data.
- ○ **DLM.MA.9-12.S-ID.6.b** - Informally assess the fit of a function by plotting and analyzing residuals.
- **DLM.MA.9-12.S-ID.6.c** - Fit a linear function for a scatter plot that suggests a linear association.
- ○ **DLM.MA.9-12.EES-ID.5. N/A** - (See EEF-IF.1. and EEA-REI.6-7)
- ○ **DLM.MA.9-12.ID.ILM** - Interpret linear models

- **DLM.MA.9-12.S-ID.7** - Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.
  - ○ **DLM.MA.9-12.EES-ID.7** - N/A (See EEF.IF.4- 6)
- **DLM.MA.9-12.S-ID.8** - Compute (using technology) and interpret the correlation coefficient of a linear fit.
  - ○ **DLM.MA.9-12.EES-ID.8-9** - N/A
  - ○ **DLM.MA.9-12.S-ID.9** - Distinguish between correlation and causation.
- **DLM.MA.9-12.S-IC** - Making Inferences and Justifying Conclusions
- o **DLM.MA.9-12.IC.UER** - Understand and evaluate random processes underlying statistical experiments
  - ○ **DLM.MA.9-12.S-IC.1** - Understand statistics as a process for making inferences about population parameters based on a random sample from that population.
- **DLM.MA.9-12.S-IC.2** - Decide if a specified model is consistent with results from a given data-generating process, e.g., using simulation.
- **DLM.MA.9-12.EES-IC.1-2_4** - Determine the likelihood of an event occurring when the outcomes are equally likely to occur.
  - ○ **DLM.MA.9-12.EES-IC.1-2** - Determine the likelihood of an event occurring when the outcomes are not equally likely to occur.
  - ○ **DLM.MA.9-12.EES-IC.1-2_1** - Determine the likelihood of an event occurring when the outcomes are equally likely to occur.
  - ○ **DLM.MA.9-12.EES-IC.1-2_2** - Determine the possible outcomes of an event occurring.
  - ○ **DLM.MA.9-12.EES-IC.1-2_3** - Identify one event or outcome of an event occurring.
- o **DLM.MA.9-12.IC.MIJ** - Make inferences and justify conclusions from sample surveys, experiments, and observational studies
  - ○ **DLM.MA.9-12.S-IC.3** - Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.
  - ○ **DLM.MA.9-12.S-IC.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.
  - ○ **DLM.MA.9-12.S-IC.5** - Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant.
  - ○ **DLM.MA.9-12.S-IC.6** - Evaluate reports based on data.
- **DLM.MA.9-12.S-CP** - Conditional Probability and the Rules of Probability
- o **DLM.MA.9-12.CP.UIC** - Understand independence and conditional probability and use them to interpret data
  - ○ **DLM.MA.9-12.S-CP.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).
  - ○ **DLM.MA.9-12.S-CP.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.

- ○ **DLM.MA.9-12.S-CP.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.
- **DLM.MA.9-12.S-CP.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.
- **DLM.MA.9-12.EES-CP.1-4_4** - Identify when events are independent or dependent.
- ○ **DLM.MA.9-12.EES-CP.1-4** - Find the probability of an event after another event has occurred.
- ○ **DLM.MA.9-12.EES-CP.1-4_1** - Identify when events are independent or dependent.
- ○ **DLM.MA.9-12.EES-CP.1-4_2** - Identify the outcomes of an event.
- ○ **DLM.MA.9-12.EES-CP.1-4_3** - Determine which event occurs first in a sequence.
- ○ **DLM.MA.9-12.S-CP.5** - Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.
- ○ **DLM.MA.9-12.CP.URP** - Use the rules of probability to compute probabilities of compound events in a uniform probability model
- ○ **DLM.MA.9-12.S-CP.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.
- **DLM.MA.9-12.S-CP.7** - Apply the Addition Rule, P(A or B) = P(A) + P(B)   P(A and B), and interpret the answer in terms of the model.
- ○ **DLM.MA.9-12.EES-CP.6-7** - N/A (See EESIC. 1-2)
- ○ **DLM.MA.9-12.S-CP.8** - Apply the general Multiplication Rule in a uniform probability model, P(A and B) = P(A)P(B|A) = P(B)P(A|B), and interpret the answer in terms of the model.
- ○ **DLM.MA.9-12.S-CP.9** - Use permutations and combinations to compute probabilities of compound events and solve problems.
- **DLM.MA.9-12.S-MD** - Using Probability to Make Decisions
- ○ **DLM.MA.9-12.MD.CEV** - Calculate expected values and use them to solve problems
- ○ **DLM.MA.9-12.S-MD.1** - Define a random variable for a quantity of interest by assigning a numerical value to each event in a sample space; graph the corresponding probability distribution using the same graphical displays as for data distributions.
- ○ **DLM.MA.9-12.S-MD.2** - Calculate the expected value of a random variable; interpret it as the mean of the probability distribution.
- ○ **DLM.MA.9-12.S-MD.3** - Develop a probability distribution for a random variable defined for a sample space in which theoretical probabilities can be calculated; find the expected value.
- ○ **DLM.MA.9-12.S-MD.4** - Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.
- ○ **DLM.MA.9-12.MD.UPE** - Use probability to evaluate outcomes of decisions
- **DLM.MA.9-12.S-MD.5** - Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.

- ○ **DLM.MA.9-12.S-MD.5.a** - Find the expected payoff for a game of chance.
- ○ **DLM.MA.9-12.S-MD.5.b** - Evaluate and compare strategies on the basis of expected values.
- ○ **DLM.MA.9-12.S-MD.6..UPM** - Use probabilities to make fair decisions (e.g., drawing by lots, using a random number generator).
- ○ **DLM.MA.9-12.S-MD.7** - Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).