ESSENTIAL ELEMENTS CROSSWALK WITH IDAHO CONTENT STANDARDS

Idaho Dynamic Learning Maps Essential Elements Mathematics

IDAHO DEPARTMENT OF EDUCATION

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TABLE OF CONTENTS

INTRODUCTION

Idaho is transitioning to the Dynamic Learning Maps® (DLM®) instructionally embedded alternate assessment, with training in school year 2025–2026 and full implementation of the DLM through-year, instructionally embedded model in school year 2026–2027. The Idaho DLM Essential Elements (DLM EEs) are specific statements of knowledge and skills linked to the grade-level expectations identified in the Idaho Content Standards. The purpose of the Idaho DLM EEs is to build a bridge from the content in the Idaho Content Standards to academic expectations for students with the most significant cognitive disabilities.

The Idaho DLM EEs in mathematics are intended to be used by Idaho educators who teach students with the most significant cognitive disabilities. Educators may use the Idaho DLM EEs in multiple ways, as listed below.

- To understand how students with the most significant cognitive disabilities can access grade-level mathematics content in meaningful ways.
- To have a foundation when accessing the Learning Map Model and DLM Instructional Resources.
- To develop and deliver meaningful mathematics instruction to students in kindergarten through Grade 12.
- To inform the development of standards-based IEP goals and objectives.

This crosswalk between the Idaho DLM EEs and the Idaho Content Standards in mathematics were drafted by DLM content experts and reviewed by Idaho educators before being finalized into this document.

The Idaho Department of Education would like to thank the Idaho educators who shared their content and special education expertise during their review of the mathematics crosswalk in spring 2025.

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More detailed information regarding the development of the DLM EEs for mathematics can be found at DLM Instructional Resources (Mathematics).

NOTE: Not every Idaho Content Standard has a corresponding DLM EE, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity. Standards without a corresponding DLM EE are indicated with an asterisk (*) in the tables.

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IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR KINDERGARTEN

Kindergarten Mathematics Domain: Counting and Cardinality

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Know number names and the count sequence.	
K.CC.A.1 Count to 100 by ones and by tens.	**M.EE.K.CC.1.** Starting with one, count to 10 by ones.
K.CC.A.2 Starting at a given number, count forward within 100 and backward within 20.	**M.EE.K.CC.1.** Starting with one, count to 10 by ones.
K.CC.A.3 Write numbers from 0 to 20. Represent a number of objects with a written numeral 0–20 (with 0 representing a count of no objects).	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Count to tell the number of objects.	
K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality.	**M.EE.K.CC.4.** Demonstrate one-to-one correspondence, pairing each object with one and only one number and each number with one and only one object.
K.CC.B.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.	
K.CC.B.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.	
K.CC.B.4.c. Understand that each successive number name refers to a quantity that is one larger. Recognize the “one more” pattern of counting using objects.	

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Count to tell the number of objects.	
K.CC.B.5 Given a group of up to 20 objects, count the number of objects in that group and state the number of objects in a rearrangement of that group without recounting. Given a verbal or written number from zero to 20, count out that many objects.	**M.EE.K.CC.5.** Count out up to three objects from a larger set, pairing each object with one and only one number name to tell how many.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Compare numbers.	
K.CC.C.6 Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group for groups with up to ten objects.	**M.EE.K.CC.6.** 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.
K.CC.C.7 Compare two numbers between one and ten presented as written numerals.	*

Kindergarten Mathematics Domain: Operations and Algebraic Thinking

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	
K.OA.A.1 Represent addition and subtraction of two whole numbers within ten. Use objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.	**M.EE.K.OA.1.** Represent addition as “putting together” or subtraction as “taking from” in everyday activities.
K.OA.A.2 Solve addition and subtraction word problems within ten by using physical, visual, and symbolic representations.	*
K.OA.A.3 Decompose whole numbers from one to ten into pairs in more than one way by using physical, visual, or symbolic representations.	*
K.OA.A.4 For a given whole number from one to nine, find the number that makes ten when added to the number by using physical, visual, or symbolic representations.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.	
K.OA.A.5 Fluently add and subtract within five, including zero.	*

Kindergarten Mathematics Domain: Number and Operations in Base Ten

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Work with numbers 11–19 to gain foundations for place value.	
K.NBT.A.1 Compose (put together) and decompose (break apart) numbers from 11 to 19 into ten ones and some further ones, and record each composition or decomposition by using physical, visual, or symbolic representations; understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.	*

Kindergarten Mathematics Domain: Measurement and Data

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Describe and compare measurable attributes.	
K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.	*
K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference.	**M.EE.K.MD.1-3.** Classify objects according to attributes (big/small, heavy/light).

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Classify objects and count the number of objects in each category.	
K.MD.B.3 Classify objects into given categories; count the numbers of objects in each category (up to and including ten) and sort the categories by count.	**M.EE.K.MD.1-3.** Classify objects according to attributes (big/small, heavy/light).

Kindergarten Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).	
K.G.A.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as “above,” “below,” beside, “in front of,” “behind,” and “next to.”	*
K.G.A.2 Correctly name shapes regardless of their orientations or overall size.	*
K.G.A.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Analyze, compare, create, and compose shapes.	
K.G.B.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts, and other attributes.	**M.EE.K.G.2–3.** Match shapes of same size and orientation (circle, square, rectangle, triangle).
K.G.B.5 Model shapes in the world by building shapes from components/materials and drawing shapes.	*
K.G.B.6 Compose simple shapes to form larger two dimensional shapes.	*

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADE 1

Grade 1 Mathematics Domain: Operations and Algebraic Thinking

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and solve problems involving addition and subtraction.	
1.OA.A.1 Solve addition and subtraction word problems within 20 involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, by using physical, visual, and symbolic representations.	**M.EE.1.OA.1.a**. Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), or acting out situations.
1.OA.A.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20 by using physical, visual, and symbolic representations.	**M.EE.1.OA.2.** Use "putting together" to solve problems with two sets.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand and apply properties of operations and the relationship between addition and subtraction.	
1.OA.B.3 Apply properties of operations to add.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*
1.OA.B.4 Restate a subtraction problem as a missing addend problem using the relationship between addition and subtraction.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Add and subtract within 20.	
1.OA.C.5 Relate counting to addition and subtraction.	**M.EE.1.OA.5.a.** Use manipulatives or visual representations to indicate the number that results when adding one more.
	M.EE.1.OA.5.b. Apply knowledge of "one less" to subtract one from a number.
1.OA.C.6 Demonstrate fluency for addition and subtraction within ten, use strategies to add and subtract within 20.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Work with addition and subtraction equations.	
1.OA.D.7 Understand the meaning of the equal sign, and determine if equations involving addition and subtraction are true or false.	**M.EE.1.OA.1.b.** Recognize two groups that have the same or equal quantity.
1.OA.D.8 Determine the unknown whole number in an addition or subtraction equation relating three whole numbers, with the unknown in any position.	*

Grade 1 Mathematics Domain: Number and Operations in Base Ten

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Extend the counting sequence.	
1.NBT.A.1 Starting at a given number, count forward and backwards within 120 by ones. Skip count by twos to 20, by fives to 100, and by tens to 120. In this range, read and write numerals and represent a number of objects with a written numeral.	**M.EE.1.NBT.1.a.** Count by ones to 30.
	M.EE.1.NBT.1.b. Count as many as 10 objects and represent the quantity with the corresponding numeral.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand place value.	
1.NBT.B.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand:	**M.EE.1.NBT.2.** Create sets of 10.
1.NBT.B.2.a. 10 can be thought of as a bundle of ten ones—called a "ten."	

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand place value.	
1.NBT.B.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.	
1.NBT.B.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 zero ones).	
1.NBT.B.3 Compare two two-digit numbers based on meanings of the tens and ones digits, recording the results of comparisons with the symbols >, =, and <.	**M.EE.1.NBT.3.** Compare two groups of 10 or fewer items when the number of items in each group is similar.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use place value understanding and properties of operations to add and subtract.	
1.NBT.C.4 Add whole numbers within 100 by using physical, visual, and symbolic representations, with an emphasis on place value, properties of operations, and/or the relationship between addition and subtraction.	*
1.NBT.C.4.a. Add a two-digit number and a one-digit number.	*
1.NBT.C.4.b. Add a two-digit number and a multiple of ten.	*
1.NBT.C.4.c. Understand that when adding two-digit numbers, combine like base-ten units such as tens and tens, ones and ones, and sometimes it is necessary to compose a ten.	*
1.NBT.C.5 Given a two-digit number, mentally find ten more or ten less than the number, without having to count; explain the reasoning used.	*
1.NBT.C.6 Subtract multiples of ten in the range 10 – 90 from multiples of ten in the range 10 – 90 by using physical, visual, and symbolic representations, with an emphasis on place value, properties of operations, and/or the relationships between addition and subtraction; relate the strategy to a written method and explain the reasoning used.	*

Grade 1 Mathematics Domain: Measurement and Data

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Measure lengths indirectly and by iterating (repeating) length units.	
1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.	**M.EE.1.MD.1–2**. Compare lengths to identify which is longer/shorter, taller/shorter.
1.MD.A.2 Express the length of an object as a whole number of length units by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Tell and write time.	
1.MD.B.3 Tell and write time in hours and half-hours using analog and digital clocks.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and interpret data.	
1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	**M.EE.1.MD.4.** Organize data into categories by sorting.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Work with money.	
1.MD.D.5 Identify quarters, dimes, and nickels and relate their values to pennies. Find equivalent values (e.g., a nickel is equivalent to five pennies).	*

Grade 1 Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Reason with shapes and their attributes.	
1.G.A.1 Compare defining attributes and non-defining attributes of two- and three-dimensional shapes; build and draw shapes that possess defining attributes.	*
1.G.A.2 Compose two-dimensional (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.	*
1.G.A.3 Partition circles and rectangles into two and four equal shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	**M.EE.1.G.3.** 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).
1.G.A.3.a. Describe the shares using the words “halves,” “fourths,” and “quarters,” and use the phrases “half of,” “a fourth of,” and “a quarter of.”	
1.G.A.3.b. Describe the whole as two of, or four of, the shares.	

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADE 2

Grade 2 Mathematics Domain: Operations and Algebraic Thinking

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and solve problems involving addition and subtraction.	
2.OA.A.1 Use addition and subtraction within 100 to solve one- and two-step word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, by using physical, visual, and symbolic representations.	**M.EE.2.NBT.6-7.** Use objects, representations, and numbers (0–20) to add and subtract.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Add and subtract within 20.	
2.OA.B.2 Demonstrate fluency for addition and subtraction within 20 using mental strategies. By the end of grade two, recall basic facts to add and subtract within 20 with automaticity.	**M.EE.2.NBT.6-7.** Use objects, representations, and numbers (0–20) to add and subtract.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Work with equal groups of objects to gain foundations for multiplication.	
2.OA.C.3 Determine whether a group of objects (up to 20) has an odd or even number of members and write an equation to express an even number as a sum of two equal addends.	**M.EE.2.OA.3.** Equally distribute even numbers of objects between two groups.
2.OA.C.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.	**M.EE.2.OA.4.** Use addition to find the total number of objects arranged within equal groups up to a total of 10.

Grade 2 Mathematics: Number and Operations in Base Ten

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand place value.	
2.NBT.A.1 Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones. Understand:	**M.EE.2.NBT.1.** Represent numbers up to 30 with sets of tens and ones using objects in columns or arrays.
2.NBT.A.1.a. 100 can be thought of as a bundle of ten tens—called a "hundred."	
2.NBT.A.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).	
2.NBT.A.2 Count within 1,000; skip-count by fives, tens, and 100s. Identify patterns in skip counting starting at any number.	**M.EE.2.NBT.2.a.** Count from 1 to 30 (count with meaning; cardinality).
2.NBT.A.3 Read and write numbers from 0 to 1,000 using standard form, expanded form, and word form.	**M.EE.2.NBT.3.** Identify numerals 1 to 30.
2.NBT.A.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, recording the results of comparisons with the symbols >, =, and <.	**M.EE.2.NBT.4.** Compare sets of objects and numbers using appropriate vocabulary (more, less, equal).

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use place value understanding and properties of operations to add and subtract.	
2.NBT.B.5 Fluently add and subtract whole numbers within 100 using understanding of place value and properties of operations.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use place value understanding and properties of operations to add and subtract.	
2.NBT.B.6 Add up to four two-digit numbers using strategies based on place value and properties of operations.	**M.EE.2.NBT.6-7.** Use objects, representations, and numbers (0–20) to add and subtract.
2.NBT.B.7 Add and subtract whole numbers within 1,000, by using physical, visual, and symbolic representations, with an emphasis on place value, properties of operations, and/or the relationships between addition and subtraction.	*
2.NBT.B.7.a. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones.	*
2.NBT.B.7.b. Understand that sometimes it is necessary to compose or decompose tens or hundreds.	*
2.NBT.B.8 Use mental strategies to add or subtract a number that is ten more, ten less, one hundred more, and one hundred less than a given three-digit number.	*
2.NBT.B.9 Explain why addition and subtraction strategies work, using place value and the properties of operations.	*

Grade 2 Mathematics Domain: Measurement and Data

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Measure and estimate lengths in standard units.	
2.MD.A.1 Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.	**M.EE.2.MD.1.** Measure the length of objects using non-standard units.
2.MD.A.2 Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.	*
2.MD.A.3 Estimate lengths using units of inches, feet, centimeters, and meters.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Measure and estimate lengths in standard units.	
2.MD.A.4 Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Relate addition and subtraction to length.	
2.MD.B.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units.	**M.EE.2.MD.5.** Increase or decrease length by adding or subtracting unit(s).
2.MD.B.6 Represent whole numbers as lengths from zero 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.	**M.EE.2.MD.6.** Use a number line to add one more unit of length.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Work with time and money.	
2.MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.	**M.EE.2.MD.7**. Identify on a digital clock the hour that matches a routine activity.
2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies (up to $10), using $ and ¢ symbols appropriately and whole-dollar amounts.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and interpret data.	
2.MD.D.9 Generate measurement data by measuring lengths of several objects to the nearest whole unit, or by making repeated measurements of the same object. Organize and record data on a line plot (dot plot) where the horizontal scale is marked off in whole-number units.	*
2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in the graph.	**M.EE.2.MD.9-10.** Create picture graphs from collected measurement data.

Grade 2 Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Reason with shapes and their attributes.	
2.G.A.1 Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. Identify triangles, squares, rectangles, rhombi, trapezoids, pentagons, hexagons, octagons, and cubes.	**M.EE.2.G.1.** Identify common two-dimensional shapes: square, circle, triangle, and rectangle.
2.G.A.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.	*
2.G.A.3 Partition circles and rectangles into two, three, or four equal shares. Understand for these examples that decomposing into more equal shares creates smaller shares.	*
2.G.A.3.a. Describe the shares using the words “halves,” “thirds,” “fourths,” and “quarter,” and use the phrases “half of,” “a third of,” “a fourth of,” and “quarter of.”	*
2.G.A.3.b. Describe the whole as two of, three of, or four of the shares.	*
2.G.A.3.c. Recognize that equal shares of identical wholes need not have the same shape.	*

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADE 3

Grade 3 Mathematics Domain: Operations and Algebraic Thinking

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and solve problems involving multiplication and division.	
3.OA.A.1 Interpret a product of whole numbers as a grouping of sets, e.g., 5 × 7 as five groups of seven objects each.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*
3.OA.A.2 Interpret a quotient of whole numbers as equal sharing, e.g., 56 ÷ 8 as the number in each share when 56 objects are split into 8 equal shares, or as the number of shares when 56 objects are split into equal shares of 8 objects each.	*
3.OA.A.3 Use multiplication and division within 100 to solve word problems involving equal groups, arrays, and measurements by using visual and symbolic representations, with a symbol for an unknown number.	*
3.OA.A.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand properties of multiplication and the relationship between multiplication and division.	
3.OA.B.5 Apply the properties of operations to multiply and divide.	*
3.OA.B.6 Understand division as determining an unknown factor in a multiplication problem.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Multiply and divide within 100.	
3.OA.C.7 Demonstrate fluency for multiplication within 100.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Multiply and divide within 100.	
3.OA.C.7.a. Demonstrate understanding of strategies that make use of the relationship between multiplication and division or properties of operations**.**	*
3.OA.C.7.b. Know from memory all products of two single-digit numbers and related division facts.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve problems involving the four operations, and identify and explain patterns in arithmetic.	
3.OA.D.8 Solve two-step word problems involving whole numbers using the four operations.	*
3.OA.D.8.a. Represent these problems using equations with a letter standing for the unknown quantity.	*
3.OA.D.8.b. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding.	*
3.OA.D.9 Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations.	**M.EE.3.OA.9.** Identify arithmetic patterns.

Grade 3 Mathematics Domain: Number and Operations in Base Ten

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use place value understanding and properties of operations to perform multi-digit arithmetic.[1]	
3.NBT.A.1 Round a whole number to the tens or hundreds place, using place value understanding or a visual representation.	*
3.NBT.A.2 Fluently add and subtract whole numbers within 1,000 using understanding of place value and properties of operations.	*

[1] A range of algorithms may be used.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use place value understanding and properties of operations to perform multi-digit arithmetic.[1]	
3.NBT.A.3 Multiply one-digit whole numbers by multiples of ten in the range 10–90 using understanding of place value and properties of operations.	**M.EE.3.NBT.3**. Count by tens using models such as objects, base ten blocks, or money.

Grade 3 Mathematics Domain: Number and Operations—Fractions[2]

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Develop understanding of fractions as numbers.	
3.NF.A.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.*	**M.EE.3.NF.1–3.** Differentiate a fractional part from a whole.
3.NF.A.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.	*
3.NF.A.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 fraction 1/*b* is located 1/*b* of a whole unit from 0 on the number line.	*
3.NF.A.2.b. Represent a fraction *a*/*b* on a number line diagram by marking off a length 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.	*
3.NF.A.3 Explain equivalence of fractions and compare fractions by reasoning about their size, in limited cases.	*
3.NF.A.3.a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	*
3.NF.A.3.b. Recognize and generate simple equivalent fractions, and explain why the fractions are equivalent, such as by using a visual fraction model.	*

[2] Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, 8.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Develop understanding of fractions as numbers.	
3.NF.A.3.c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.	*
3.NF.A.3.d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize the comparisons are valid only when the two fractions refer to the same whole. Record the results of the comparisons with the symbols >, =, and <, and justify the conclusion using visual representations and/or verbal reasoning.	*

Grade 3 Mathematics Domain: Measurement and Data

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	
3.MD.A.1 Tell and write time to the nearest minute within the same hour and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes.	**M.EE.3.MD.1.** Tell time to the hour on a digital clock.
3.MD.A.2 Identify and use the appropriate tools and units of measurement, both customary and metric, to solve one-step word problems using the four operations involving weight, mass, liquid volume, and capacity (within the same system and unit).	**M.EE.3.MD.2.** Identify the appropriate measurement tool to solve one-step word problems involving mass and volume.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and interpret data.	
3.MD.B.3 Draw a scaled picture graph and 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.	**M.EE.3.MD.3.** Use picture or bar graph data to answer questions about data.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and interpret data.	
3.MD.B.4 Generate measurement data by measuring lengths of objects using rulers marked with halves and fourths of an inch. Record and show the data by making a line plot (dot plot), where the horizontal scale is marked off in appropriate units—whole numbers, halves, or fourths.	**M.EE.3.MD.4.** Measure length of objects using standard tools, such as rulers, yardsticks, and meter sticks.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Geometric measurement: understand concepts of area, and relate area to multiplication and to addition.	
3.MD.C.5 Recognize area as an attribute of plane figures and understand concepts of area measurement.	*
3.MD.C.5.a. A square with side length of one unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area.	*
3.MD.C.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.	*
3.MD.C.6 Measure areas by counting unit squares (square cm, square m, square in., square ft, and improvised units).	*
3.MD.C.7 Relate area to the operations of multiplication and addition.	*
3.MD.C.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.	*
3.MD.C.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.	*
3.MD.C.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 $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Geometric measurement: understand concepts of area, and relate area to multiplication and to addition.	
3.MD.C.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.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	
3.MD.D.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.	*

Grade 3 Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Reason with shapes and their attributes.	
3.G.A.1 Understand that shapes in different categories may share attributes, and that the shared attributes can define a larger category. Compare and classify shapes by their sides and angles. Recognize rhombi, rectangles, squares, and trapezoids as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.	**M.EE.3.G.1.** Describe attributes of two-dimensional shapes.
3.G.A.2 Partition two-dimensional figures into equal areas, and express the area of each part as a unit fraction of the whole.	**M.EE.3.G.2.** Recognize that shapes can be partitioned into equal areas.

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADE 4

Grade 4 Mathematics Domain: Operations and Algebraic Thinking

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use the four operations with whole numbers to solve problems.	
4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., 35 = 5 × 7, as 35 is 5 times as many as 7. Represent verbal multiplicative comparisons as equations.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*
4.OA.A.2 Multiply or divide to solve word problems involving multiplicative comparison.	*
4.OA.A.3 Solve multi-step whole-number word problems using the four operations, including problems in which remainders must be interpreted**.**	*
4.OA.A.3.a. Represent these problems using equations with a letter standing for the unknown quantity.	*
4.OA.A.3.b. Assess the reasonableness of answers using mental computation and estimation strategies, including rounding.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Gain familiarity with factors and multiples.	
4.OA.B.4. Find all factor pairs for a whole number in the range 1–100.	**M.EE.4.OA.4.** Show one way to arrive at a product.
4.OA.B.4.a. Recognize that a whole number is a multiple of each of its factors.	
4.OA.B.4.b. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number.	*
4.OA.B.4.c. Determine whether a given whole number in the range 1–100 is prime or composite.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Generate and analyze patterns.	
4.OA.C.5 Generate a number or shape pattern that follows a given rule. Identify and explain features of the pattern that were not explicit in the rule itself.	**M.EE.4.OA.5.** Use repeating patterns to make predictions.

Grade 4 Mathematics Domain: Numbers and Operations in Base Ten[3]

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Generalize place value understanding for multi-digit whole numbers.	
4.NBT.A.1 Recognize that in a multi-digit whole number, a digit in any place represents ten times as much as it represents in the place to its right.	*
4.NBT.A.2 Read and write multi-digit whole numbers using standard form, expanded form, and word form. Compare two multi-digit numbers based on meanings of the digits and each place, recording the results of comparisons with the symbols >, =, and <.	**M.EE.4.NBT.2.** Compare whole numbers to 10 using symbols (<, >, =).
4.NBT.A.3 Use place value understanding or visual representation to round multi-digit whole numbers to any place.	**M.EE.4.NBT.3.** Round any whole number 0–30 to the nearest ten.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use place value understanding and properties of operations to perform multi-digit arithmetic.	
4.NBT.B.4 Fluently use the standard algorithm for multi-digit whole-number addition and subtraction.	**M.EE.4.NBT.4.** Add and subtract two-digit whole numbers.
	M.EE.4.OA.3. Solve one-step real-world problems using addition or subtraction within 100.
4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers.	*
4.NBT.B.5.a. Use strategies based on place value and the properties of operations.	*
4.NBT.B.5.b. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	*

[3] Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use place value understanding and properties of operations to perform multi-digit arithmetic.	
4.NBT.B.6 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors.	*
4.NBT.6.a. Use strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.	*
4.NBT.6.b. Illustrate and explain the calculation by using rectangular arrays, area models, and/or equations.	*

Grade 4 Mathematics Domain: Number and Operations—Fractions[4]

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand decimal notation for fractions, and compare decimal fractions.	
4.NF.A.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 numbers and sizes of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions, including fractions greater than 1.	*
4.NF.A.2 Compare two fractions with different numerators and different denominators, by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2.	*
4.NF.A.2.a. Recognize that comparisons are valid only when the two fractions refer to the same whole.	*
4.NF.A.2.b. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, by using a visual fraction model and/or verbal reasoning.	*

[4] Grade 4 expectations in this domain are limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	
4.NF.B.3. Understand a fraction a/b with a > 1 as a sum of fractions 1/b.	*
4.NF.B.3.a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.	*
4.NF.B.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 the conclusions by using a visual fraction model and/or verbal reasoning.	*
4.NF.B.3.c. Add and subtract mixed numbers with like denominators by replacing the mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction.	*
4.NF.B.3.d. Solve word problems involving addition and subtraction of fractions, including mixed numbers, with the same denominator. Justify the conclusions using a visual fraction model and/or verbal reasoning.	*
4.NF.B.4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.	*
4.NF.B.4.a. Understand a fraction a/b as a multiple of 1/b.	*
4.NF.B.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.	*
4.NF.B.4.c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and/or equations to represent the problem.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand decimal notation for fractions, and compare decimal fractions.	
4.NF.C.5 Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand decimal notation for fractions, and compare decimal fractions.	
4.NF.C.6 Use decimal notation to represent fractions with denominators 10 or 100.	*
4.NF.C.7 Compare two decimals to hundredths by reasoning about their size.	*
4.NF.C.7.a. Recognize that comparisons are valid only when the two decimals refer to the same whole.	*
4.NF.C.7.b. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions using visual representations and/or verbal reasoning.	*

Grade 4 Mathematics Domain: Measurement and Data

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	
4.MD.A.1 Know relative sizes of measurement units within any one system of units.	**M.EE.4.MD.1.** Identify the smaller measurement unit that comprises a larger unit within a measurement system (inches/foot, centimeter/meter, minutes/hour).
4.MD.A.1.a. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.	
4.MD.A.1.b. Record measurement equivalents in a two-column table.	*
4.MD.A.2 Use the four operations to solve word problems involving measurements.	*
4.MD.A.2.a. Include problems involving simple fractions or decimals.	*
4.MD.A.2.b. Include problems that require expressing measurements given in a larger unit in terms of a smaller unit.	*
4.MD.A.2.c. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.	*
4.MD.A.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and interpret data.	
4.MD.B.4 Make a line plot (dot plot) to show a 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 (dot plots).	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Geometric measurement: Understand concepts of angle and measure angles.	
4.MD.C.5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.	*
4.MD.C.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.	*
4.MD.C.5.b. An angle that turns through *n* one-degree angles is said to have an angle measure of *n* degrees.	*
4.MD.C.6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.	*
4.MD.C.7 Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems.	*
4.MD.C.7.a. Use an equation with a symbol for the unknown angle measure.	*
4.MD.C.7.b. 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.	*

Grade 4 Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.	**M.EE.4.G.1.** Recognize parallel lines and intersecting lines.
4.G.A.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines, or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	**M.EE.4.G.2.** Describe the defining attributes of two-dimensional shapes.
4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	**M.EE.4.G.3.** Recognize that lines of symmetry partition shapes into equal areas.

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADE 5

Grade 5 Mathematics Domain: Operations and Algebraic Thinking

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Write and interpret numerical expressions.	
5.OA.A.1 Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*
5.OA.A.2 Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Analyze patterns and relationships.	
5.OA.B.3 Generate two numerical patterns using two given rules.	**M.EE.5.OA.3.** Identify and extend numerical patterns.
5.OA.B.3.a. Identify apparent relationships between corresponding terms.	
5.OA.B.3.b. Form ordered pairs consisting of corresponding terms from the two patterns.	*
5.OA.B.3.c. Graph the ordered pairs on a coordinate plane.	*

Grade 5 Mathematics Domain: Number and Operations in Base Ten

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand the place value system.	
5.NBT.A.1 Recognize that in a multi-digit number, including decimals, a digit in any place represents ten 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.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand the place value system.	
5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of ten, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of ten. Use whole-number exponents to denote powers of ten.	*
5.NBT.3 Read, write, and compare decimals to thousandths.	*
5.NBT.3.a. Read and write decimals to thousandths using standard form, expanded form, and word from.	*
5.NBT.3.b. Compare two decimals to thousandths based on meanings of the digits in each place, and record the results of the comparisons using >, =, and <.	**M.EE.5.NBT.3.** Compare whole numbers up to 100 using symbols (<, >, =).
5.NBT.A.4 Use place value understanding to round decimals to any place.	**M.EE.5.NBT.4.** Round two-digit whole numbers to the nearest 10 from 0–90.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Perform operations with multi-digit whole numbers and with decimals to hundredths.	
5.NBT.B.5 Demonstrate fluency for multiplication of multi-digit whole numbers using the standard algorithm. Include two-digit × four-digit numbers and three-digit × three-digit numbers.	**M.EE.5.NBT.5.** Multiply whole numbers up to 5 × 5.
5.NBT.B.6 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.	*
5.NBT.B.6.a. Use strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.	*
5.NBT.B.6.b. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	**M.EE.5.NBT.6–7.** Illustrate the concept of division using fair and equal shares.
5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Perform operations with multi-digit whole numbers and with decimals to hundredths.	
5.NBT.B.7.a. Use concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction and between multiplication and division.	*
5.NBT.B.7.b. Relate the strategy to a written method and explain the reasoning used.	*

Grade 5 Mathematics Domain: Number and Operations—Fractions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use equivalent fractions as a strategy to add and subtract fractions.	
5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions to produce an equivalent sum or difference of fractions with like denominators.	*
5.NF.A.2 Solve word problems involving addition and subtraction of fractions referring to the same whole (the whole can be a set of objects), including cases of unlike denominators.	*
5.NF.A.2.a. Justify the conclusions by using visual fraction models and/or equations to represent the problem.	*
5.NF.A.2.b. Use benchmark fractions and number sense of fraction to estimate mentally and assess the reasonableness of answers.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	
5.NF.B.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 by using visual fraction models and/or equations to represent the problem.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	
5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.	*
5.NF.B.4.a. Interpret the product (a/b) × q as a parts of a partitions of q into b equal parts, and equivalently, as the result of the sequence of operations a × q ÷ b.	*
5.NF.B.4.b. Find the area of a rectangle with fractional side lengths.	*
5.NF.B.4.b.i. Tile it with unit squares of the appropriate unit fraction side lengths.	*
5.NF.B.4.b.ii. Show that the area is the same by tiling as would be found by multiplying the side lengths.	*
5.NF.B.4.b.iii. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	*
5.NF.B.5. Interpret multiplication as scaling (resizing), by:	*
5.NF.B.5.a. Comparing the size of a fractional product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	*
5.NF.B.5.b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number, 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.	*
5.NF.B.6 Solve real-world problems involving multiplication of fractions and mixed numbers by using visual fraction models and/or equations to represent the problem.	*
5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	
5.NF.B.7.a. Represent division of a unit fraction by a nonzero whole number and compute such quotients using a visual fraction model. Use the relationship between multiplication and division to explain that 1/b÷c = 1/bc because 1/bc×c = 1/b.	*
5.NF.B.7.b. Represent division of a whole number by a unit fraction, and compute such quotients using a visual fraction model. Use the relationship between multiplication and division to explain that a÷1/b = ab because ab×1/b = a.	*
5.NF.B.7.c. Solve real-world problems involving division of unit fractions by nonzero whole numbers and division of whole numbers by unit fractions by using visual fraction models and/or equations to represent the problem.	*

Grade 5 Mathematics Domain: Measurement and Data

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Convert like measurement units within a given measurement system.	
5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system. Use conversions in solving multi-step, real-world problems.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and interpret data.	
5.MD.B.2 Collect, represent, and interpret numerical data, including whole numbers, and fractional and decimal values.	**M.EE.5.MD.2.** Represent and interpret data on a picture graph, line plot, or bar graph.
5.MD.B.2.a. Interpret numerical data, with whole-number values, represented with tables or line plots.	
5.MD.B.2.b. Use graphic displays of data (line plots [dot plots], tables, etc.) to solve real- world problems using fractional data.	

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Geometric measurement: Understand concepts of volume, and relate volume to multiplication and to addition.	
5.MD.C.3. Recognize volume as an attribute of solid figures and understand volume measurement in terms of cubic units.	*
5.MD.C.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.	*
5.MD.C.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.	**M.EE.5.MD.4–5.** Determine the volume of a rectangular prism by counting units of measure (unit cubes).
5.MD.C.4. Use concrete and/or visual models to measure the volume of rectangular prisms in cubic units by counting cubic cm, cubic in, cubic ft, and nonstandard units.	**M.EE.5.MD.4–5.** Determine the volume of a rectangular prism by counting units of measure (unit cubes).
5.MD.C.5. Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.	**M.EE.5.MD.4–5.** Determine the volume of a rectangular prism by counting units of measure (unit cubes).
5.MD.C.5.a. Find the volume of a right rectangular prism with whole-number edge 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.	**M.EE.5.MD.4–5.** Determine the volume of a rectangular prism by counting units of measure (unit cubes).
5.MD.C.5.b. Apply the formulas V=l×w×h and V=B×h (where B stands for the area of the base) for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths, and in the context of solving real-world and mathematical problems.	*
5.MD.C.5.c. Recognize volume as additive.	*
5.MD.C.5.c.i. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts.	*
5.MD.C.5.c.ii. Apply this technique to solve real-world problems.	*

Grade 5 Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Graph points on the coordinate plane to solve real-world and mathematical problems.	
5.G.A.1 Describe and understand the key attributes of the coordinate plane.	*
5.G.A.1.a. Use a pair of perpendicular number lines (axes) with the intersection of the lines (the origin (0,0)) 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.	*
5.G.A.1.b. Understand that the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin; and the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin.	*
5.G.A.2 Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane (x and y both have positive values), and interpret coordinate values of points in the context of the situation.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Classify two-dimensional figures into categories based on their properties.	
5.G.B.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all of the subcategories of that category.	**M.EE.5.G.1–4.** Sort two-dimensional figures and identify the attributes (angles, number of sides, corners, color) they have in common.
5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties.	

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADE 6

Grade 6 Mathematics Domain: Ratios and Proportional Relationships

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand ratio and rate concepts and use ratio and rate reasoning to solve problems.	
6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	**M.EE.6.RP.1.** Demonstrate a simple ratio relationship.
6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b≠0, and use rate language in the context of a ratio relationship.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*
6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	*
6.RP.A.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.	*
6.RP.A.3.b. Solve unit-rate problems, including those involving unit pricing and constant speed.	*
6.RP.A.3.c. Find a percent of a quantity as a rate per 100; solve problems involving finding the whole, given a part and the percent.	*
6.RP.A.3.d. Use ratio reasoning to convert measurement units within and between measurement systems; manipulate and transform units appropriately when multiplying or dividing quantities.	*

Grade 6 Mathematics Domain: The Number System

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	
6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Compute fluently with multi-digit numbers, and find common factors and multiples.	
6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm. Example: What is the quotient of 657 and 3 using the standard algorithm?	**M.EE.6.NS.2.** Apply the concept of fair share and equal shares to divide.
6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.	*
6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of numbers to the system of rational numbers.	
6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values. Use positive and negative numbers (including fractions and decimals) to represent quantities in real-world contexts, explaining the meaning of zero in each situation.	**M.EE.6.NS.5–8.** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of numbers to the system of rational numbers.	
6.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.	**M.EE.6.NS.5–8.** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero).
6.NS.C.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.	*
6.NS.C.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.	*
6.NS.C.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.	*
6.NS.C.7 Understand ordering and absolute value of rational numbers.	*
6.NS.C.7.a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.	*
6.NS.C.7.b. Write, interpret, and explain statements of order for rational numbers in real-world contexts.	*
6.NS.C.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.	*
6.NS.C.7.d. Distinguish comparisons of absolute value from statements about order.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of numbers to the system of rational numbers.	
6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	*

Grade 6 Mathematics Domain: Expressions and Equations

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of arithmetic to algebraic expressions.	
6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.	*
6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers.	*
6.EE.A.2.a. Write expressions that record operations with numbers and with letters standing for numbers.	*
6.EE.A.2.b. Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity.	*
6.EE.A.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).	*
6.EE.A.3 Apply the properties of operations to generate equivalent expressions.	**M.EE.6.EE.3.** Apply the properties of addition to identify equivalent numerical expressions.
6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).	**M.EE.6.EE.1–2.** Identify equivalent number sentences.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Reason about and solve one-variable equations and inequalities.	
6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	*
6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or depending on the purpose at hand, any number in a specified set.	**M.EE.6.EE.5–7.** Match an equation to a real-world problem in which variables are used to represent numbers.
6.EE.B.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.	**M.EE.6.EE.5–7.** Match an equation to a real-world problem in which variables are used to represent numbers.
6.EE.B.8 Write an inequality of the form x>c or x<c to represent a constraint or condition in a real-world or mathematical problem.	*
6.EE.B.8.a. Recognize that inequalities of the form x>c or x<c have infinitely many solutions.	*
6.EE.B.8.b. Represent solutions of such inequalities on number line diagrams.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and analyze quantitative relationships between two variables.	
6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write equations to represent the relationship between the two quantities. Analyze the relationship using graphs and tables and relate these to the equations. Include an understanding of independent and dependent variables.	*

Grade 6 Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve real-world and mathematical problems involving area, surface area, and volume.	
6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.	**M.EE.6.G.1.** Solve real-world and mathematical problems about area using unit squares.
6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V=lwh and V=Bh to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.	**M.EE.6.G.2.** Solve real-world and mathematical problems about volume using unit cubes.
6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side and area by 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.	*
6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	*

Grade 6 Mathematics Domain: Statistics and Probability

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Develop understanding of statistical variability.	
6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Develop understanding of statistical variability.	
6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution, which can be described by its center (median and/or mean), spread (range, interquartile range, and/or mean absolute deviation), and overall shape. The focus of mean absolute deviation (MAD) is visualizing deviations from the mean as a measure of variability as opposed to a focus on calculating MAD.	*
6.SP.A.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Summarize and describe distributions.	
6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.	**M.EE.6.SP.1–2.** Display data on a graph or table that shows variability in the data.
6.SP.B.5 Summarize numerical data sets in relation to their context, such as by:	*
6.SP.B.5.a. Reporting the number of observations.	*
6.SP.B.5.b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.	*
6.SP.B.5.c. Giving quantitative measures of center (median, and/or mean) and variability (range, 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.	*
6.SP.B.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.	**M.EE.6.SP.5.** Summarize data distributions shown in graphs or tables.

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADE 7

Grade 7 Mathematics Domain: Ratios and Proportional Relationships

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Analyze proportional relationships and use them to solve real-world and mathematical problems.	
7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*
7.RP.A.2 Recognize and represent proportional relationships between quantities.	*
7.RP.A.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.	*
7.RP.A.2.b. Identify the constant of proportionality in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. Recognize the constant of proportionality as both the unit rate and as the multiplicative comparison between two quantities.	*
7.RP.A.2c. Represent proportional relationships by equations.	**M.EE.7.RP.1–3.** Use a ratio to model or describe a relationship.
7.RP.A.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.	*
7.RP.A.3 Use proportional relationships to solve multi-step ratio, rate, and percent problems.	*

Grade 7 Mathematics Domain: The Number System

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	
7.NS.A.1 Apply and extend previous understandings of addition and subtraction to add and subtract integers and other rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.	*
7.NS.A.1.a. Describe situations in which opposite quantities combine to make zero.	*
7.NS.A.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 are additive inverses because they have a sum of 0 (e.g., 12.5+(-12.5)=0). Interpret sums of rational numbers by describing real-world contexts.	**M.EE.7.NS.1.** Add fractions with like denominators (halves, thirds, fourths, and tenths) with sums less than or equal to one.
7.NS.A.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.	*
7.NS.A.1.d. Apply properties of operations as strategies to add and subtract rational numbers.	*
7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide integers and other rational numbers.	*
7.NS.A.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 (-1/2)(-1) = 1/2 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.	
7.NS.A.2.b. Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with nonzero 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. Interpret quotients of rational numbers by describing real-world contexts.	**M.EE.7.NS.2.b.** Solve division problems with divisors up to five and also with a divisor of 10 without remainders.
7.NS.A.2.c. Apply properties of operations as strategies to multiply and divide rational numbers.	*
7.NS.A.2.d. Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates or eventually repeats.	**M.EE.7.NS.2.c–d.** Express a fraction with a denominator of 10 as a decimal.
7.NS.A.3 Solve real-world and mathematical problems involving the four operations with integers and other rational numbers.	*

Grade 7 Mathematics Domain: Expressions and Equations

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use properties of operations to generate equivalent expressions.	
7.EE.A.1 Apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients.	**M.EE.7.EE.1.** Use the properties of operations as strategies to demonstrate that expressions are equivalent.
7.EE.A.2 Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.	*
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (integers, fractions, and decimals). 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.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use properties of operations to generate equivalent expressions.	
7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	*
7.EE.B.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.	**M.EE.7.EE.4.** Use the concept of equality with models to solve one-step addition and subtraction equations.
7.EE.B.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.	*

Grade 7 Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Draw, construct, and describe geometrical figures and describe the relationships between them	
7.G.A.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.	*
7.G.A.2 Draw (freehand, with ruler and protractor, and with technology) two-dimensional geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine unique triangles, more than one triangle, or no triangle.	*
7.G.A.3 Describe the shape of the two-dimensional face of the figure that results from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.	
7.G.B.4 Understand the attributes and measurements of circles.	*
7.G.B.4.a. Know that a circle is a two-dimensional shape created by connecting all of the points equidistant from a fixed point called the center of the circle.	*
7.G.B.4.b. Develop an understanding of circle attributes including radius, diameter, circumference, and area and investigate the relationships between each.	*
7.G.B.4.c. Informally derive and know the formulas for the area and circumference of a circle and use them to solve problems.	*
7.G.B.5 Use facts about supplementary, complementary, vertical, and adjacent angles to write equations and use them to solve for an unknown angle in a figure.	*
7.G.B.6 Generalize strategies for finding area, volume, and surface areas of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. Solve real-world and mathematical problems in each of these areas.	**M.EE.7.G.6.** Determine the area of a rectangle using the formula for length × width, and confirm the result using tiling or partitioning into unit squares.

Grade 7 Mathematics Domain: Statistics and Probability

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use random sampling to draw inferences about a population.	
7.SP.A.1 Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use random sampling to draw inferences about a population.	
7.SP.A.2 Use data from a random sample about an unknown characteristic of a population. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions, i.e., generate a sampling distribution.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Draw informal comparative inferences about two populations.	
7.SP.B.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.	**M.EE.7.SP.3.** Compare two sets of data within a single data display such as a picture graph, line plot, or bar graph.
7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Investigate chance processes, and develop, use, and evaluate probability models.	
7.SP.C.5 Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. 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.	**M.EE.7.SP.5–7.** Describe the probability of events occurring as possible or impossible.
7.SP.C.6 Approximate the (theoretical) probability of a chance event by collecting data and observing its long-run relative frequency (experimental probability). Predict the approximate relative frequency given the (theoretical) probability.	*
7.SP.C.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Investigate chance processes, and develop, use, and evaluate probability models.	
7.SP.C.7.a. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.	*
7.SP.C.7.b. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	*
7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	*
7.SP.C.8.a. Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	*
7.SP.C.8.b. Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.	*
7.SP.C.8.c. Design and use a simulation to generate frequencies for compound events.	*

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADE 8

Grade 8 Mathematics Domain: The Number System

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Know that there are numbers that are not rational, and approximate them by rational numbers.	
8.NS.A.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*
8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.	**M.EE.8.NS.2.b.** Compare quantities represented as decimals in real-world examples to hundredths.

Grade 8 Mathematics Domain: Expressions and Equations

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Work with radicals and integer exponents.	
8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions.	**M.EE.8.EE.1.** Identify the meaning of an exponent (limited to exponents of 2 and 3).
8.EE.A.2 Use square root and cube root symbols to represent solutions to equations of the form x^2=p and x^3=p, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.	*
8.EE.A.3 Use numbers expressed in the form of a single digit multiplied by an integer power of ten (scientific notation) to estimate very large or very small quantities, and express how many times as much one is than the other.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Work with radicals and integer exponents.	
8.EE.A.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities. Interpret scientific notation that has been generated by technology.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand the connections between proportional relationships, lines, and linear equations.	
8.EE.B.5 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways.	**M.EE.8.EE.5–6.** Graph a simple ratio by connecting the origin to a point representing the ratio in the form of y/x. For example, when given a ratio in standard form (2:1), convert to 2/1, and plot the point (1,2).
8.EE.B.6 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane. Derive the equation y=mx for a line through the origin and the equation y=mx+b for a line intercepting the vertical axis at b.	*

Idaho Grade-Level Standards	DLM Essential Elements
Analyze and solve linear equations and pairs of simultaneous linear equations.	
8.EE.C.7 Solve linear equations in one variable.	*
8.EE.C.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 (1 solution), a=a (infinitely many solutions), or a=b (no solution) results (where a and b are different numbers).	*

Idaho Grade-Level Standards	DLM Essential Elements
Analyze and solve linear equations and pairs of simultaneous linear equations.	
8.EE.C.7.b. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.	**M.EE.8.EE.7.** Solve simple algebraic equations with one variable using addition and subtraction.
8.EE.C.8 Analyze and solve pairs of simultaneous linear equations.	*
8.EE.C.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.	*
8.EE.C.8.b. Solve systems of two linear equations in two variables algebraically (including but not limited to using substitution and elimination strategies), and estimate solutions by graphing the equations; solve simple cases by inspection.	*
8.EE.C.8.c. Solve real-world and mathematical problems leading to two linear equations in two variables.	*

Grade 8 Mathematics Domain: Functions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Define, evaluate, and compare functions.	
8.F.A.1 Understand that a function is a rule that assigns to each input exactly one output and that the graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	*
8.F.A.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	*
8.F.A.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.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use functions to model relationships between quantities.	
8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	**M.EE.8.F.4.** Determine the values or rule of a function using a graph or a table.
8.F.B.5 Describe qualitatively the functional relationship between two quantities by analyzing and sketching 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.	**M.EE.8.F.5.** Describe how a graph represents a relationship between two quantities.

Grade 8 Mathematics Domain: Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand congruence and similarity using physical models, transparencies, or geometry software.	
8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations:	**M.EE.8.G.1.** Recognize translations, rotations, and reflections of shapes.
8.G.A.1.a. Lines are transformed to lines, and line segments to line segments of the same length.	**M.EE.8.G.1.** Recognize translations, rotations, and reflections of shapes.
8.G.A.1.b. Angles are transformed to angles of the same measure.	**M.EE.8.G.1.** Recognize translations, rotations, and reflections of shapes.
8.G.A.1.c. Parallel lines are transformed to parallel lines.	**M.EE.8.G.1.** Recognize translations, rotations, and reflections of shapes.
8.G.A.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.	**M.EE.8.G.2.** Identify shapes that are congruent.
8.G.A.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand congruence and similarity using physical models, transparencies, or geometry software.	
8.G.A.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.	**M.EE.8.G.4.** Identify similar shapes with and without rotation.
8.G.A.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand and apply the Pythagorean Theorem.	
8.G.B.6 Analyze and justify the Pythagorean Theorem and its converse using pictures, diagrams, narratives, or models.	*
8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	*
8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres.	
8.G.C.9 Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems.	**M.EE.8.G.9.** Use the formulas for perimeter, area, and volume to solve real-world and mathematical problems (limited to perimeter and area of rectangles and volume of rectangular prisms).

Grade 8 Mathematics Domain: Statistics and Probability

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Investigate patterns of association in bivariate data.	
8.SP.A.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	*
8.SP.A.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	*
8.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	*
8.SP.A.4 Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table. Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables.	**M.EE.8.SP.4.** Construct a graph or table from given categorical data, and compare data categorized in the graph or table.

IDAHO CONTENT STANDARDS CROSSWALK WITH DLM ESSENTIAL ELEMENTS FOR GRADES 9–12

Grades 9–12 Mathematics Domain: Number and Quantity—The Real Number System

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Extend the properties of exponents to rational exponents.	
N.RN.A.1 Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.	**M.EE.N.RN.1.** Determine the value of a quantity that is squared or cubed.
N.RN.A.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents.	** Not every Idaho Content Standard has a corresponding DLM Essential Element, because the alternate assessment assesses students on grade-level content at a reduced breadth, depth, and complexity.*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use properties of rational and irrational numbers.	
N.RN.B.3 Explain why the sum or product of two rational numbers is rational; why the sum of a rational number and an irrational number is irrational; and why the product of a nonzero rational number and an irrational number is irrational.	*

Grades 9–12 Mathematics Domain: Number and Quantity—Quantities

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Reason quantitatively and use units to solve problems.	
N.Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.	*
N.Q.A.2 Define appropriate quantities for the purpose of descriptive modeling.	*
N.Q.A.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	**M.EE.N.Q.1–3.** Express quantities to the appropriate precision of measurement.

Grades 9–12 Mathematics Domain: Number and Quantity—The Complex Number System

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Perform arithmetic operations with complex numbers.	
N.CN.A.1 Know there is a complex number i such that i^2=-1, and show that every complex number has the form a+bi where a and b are real.	*
N.CN.A.2 Use the relation i^2=-1 and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.	**M.EE.N.CN.2.a.** Use the commutative, associative, and distributive properties to add, subtract, and multiply whole numbers.
N.CN.A.3 (+) Find the conjugate of a complex number; use conjugates to find absolute value and quotients of complex numbers.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent complex numbers and their operations on the complex plane.	
N.CN.B.4 (+) Represent complex numbers on the complex plane in rectangular and polar form (including real and imaginary numbers), and explain why the rectangular and polar forms of a given complex number represent the same number.	*
N.CN.B.5 (+) Represent addition, subtraction, multiplication, and conjugation of complex numbers geometrically on the complex plane; use properties of this representation for computation.	*
N.CN.B.6 (+) Calculate the distance between numbers in the complex plane as the absolute value of the difference, and the midpoint of a segment as the average of the numbers at its endpoints.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use complex numbers in polynomial identities and equations.	
N.CN.C.7 Solve quadratic equations with real coefficients that have complex solutions.	*
N.CN.C.8 (+) Extend polynomial identities to the complex numbers.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use complex numbers in polynomial identities and equations.	
N.CN.C.9 (+) Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.	*

Grades 9–12 Mathematics Domain: Number and Quantity—Vector and Matrix Quantities

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and model with vector quantities.	
N.VM.A.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).	*
N.VM.A.2 (+) Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.	*
N.VM.A.3 (+) Solve problems involving velocity and other quantities that can be represented by vectors.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Perform operations on vectors.	
N.VM.B.4 (+) Add and subtract vectors.	*
N.VM.B.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.	*
N.VM.B.4.b. (+) Given two vectors in magnitude and direction form, determine the magnitude and direction of their sum.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Perform operations on vectors.	
N.VM.B.4.c. (+) Demonstrate understanding of 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.	*
N.VM.B.5 (+) Multiply a vector by a scalar.	*
N.VM.B.5.a. (+) Represent scalar multiplication graphically by scaling vectors and possibly reversing their direction; perform scalar multiplication component-wise, e.g., as c(vx ,vy)=(cvx ,cvy).	*
N.VM.B.5.b. (+) Compute the magnitude of a scalar multiple cv using $\|\|cv\|\| = \|c\|v$. Compute the direction of cv, knowing that when $\|c\|v \neq 0$, the direction of cv is either along v (for $c>0$) or against v (for $c<0$).	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Perform operations on matrices and use matrices in applications.	
N.VM.C.6 (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.	*
N.VM.C.7 (+) Multiply matrices by scalars to produce new matrices, e.g., as when all of the payoffs in a game are doubled.	*
N.VM.C.8 (+) Add, subtract, and multiply matrices of appropriate dimensions.	*
N.VM.C.9 (+) Demonstrate understanding that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Perform operations on matrices and use matrices in applications.	
N.VM.C.10 (+) Demonstrate understanding 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.	*
N.VM.C.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.	*
N.VM.C.12 (+) Work with 2×2 matrices as transformations of the plane, and interpret the absolute value of the determinant in terms of area.	*

Grades 9–12 Mathematics Domain: Algebra—Seeing Structure in Expressions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Interpret the structure of linear, quadratic, exponential, polynomial, and rational expressions.	
A.SSE.A.1 Interpret expressions that represent a quantity in terms of its context.	**M.EE.A.SSE.1.** Identify an algebraic expression involving one arithmetic operation to represent a real-world problem.
A.SSE.A.1.a. Interpret parts of an expression, such as terms, factors, and coefficients.	**M.EE.A.SSE.1.** Identify an algebraic expression involving one arithmetic operation to represent a real-world problem.
A.SSE.A.1.b. Interpret complicated expressions by viewing one or more of their parts as a single entity.	*
A.SSE.A.2 Use the structure of an expression to identify ways to rewrite it.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Write expressions in equivalent forms to solve problems.	
A.SSE.B.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.	*
A.SSE.B.3.a. Factor a quadratic expression to reveal the zeros of the function it defines.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Write expressions in equivalent forms to solve problems.	
A.SSE.B.3.b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines.	*
A.SSE.B.3.c. Use the properties of exponents to transform expressions for exponential functions.	*
A.SSE.B.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.	**M.EE.A.SSE.4.** Determine the successive term in a geometric sequence given the common ratio.

Grades 9–12 Mathematics Domain: Algebra—Arithmetic with Polynomials and Rational Expressions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Perform arithmetic operations on polynomials.	
A.APR.A.1 Demonstrate understanding that polynomials form a system analogous to the integers; namely, they are closed under certain operations.	*
A.APR.A.1.a. Perform operations on polynomial expressions (addition, subtraction, multiplication, division) and compare the system of polynomials to the system of integers when performing operations.	*
A.APR.A.1.b. Factor and/or expand polynomial expressions, identify and combine like terms, and apply the distributive property.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand the relationship between zeros and factors of polynomials.	
A.APR.B.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).	*
A.APR.B.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use polynomial identities to solve problems.	
A.APR.C.4 Prove polynomial identities and use them to describe numerical relationships.	*
A.APR.C.5 (+) Know and apply the Binomial Theorem for the expansion of (x+y)^n 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.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Rewrite rational expressions.	
A.APR.D.6 Rewrite simple rational expressions in different forms using inspection, long division, or, for the more complicated examples, a computer algebra system.	*
A.APR.D.7 (+) Demonstrate understanding 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.	*

Grades 9–12 Mathematics Domain: Algebra—Creating Equations

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Create equations that describe numbers or relationships.	
A.CED.A.1 Create one-variable equations and inequalities to solve problems, including linear, quadratic, rational, and exponential functions.	**M.EE.A.CED.1.** Create an equation involving one operation with one variable, and use it to solve a real-world problem.
A.CED.A.2 Interpret the relationship between two or more quantities.	*
A.CED.A.2.a. Define variables to represent the quantities and write equations to show the relationship.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Create equations that describe numbers or relationships.	
A.CED.A.2.b. Use graphs to show a visual representation of the relationship while adhering to appropriate labels and scales.	*
A.CED.A.3 Represent constraints using equations or inequalities and interpret solutions as viable or non-viable options in a modeling context.	**M.EE.A.CED.2–4.** Solve one-step inequalities.
A.CED.A.4 Represent constraints using systems of equations and/or inequalities and interpret solutions as viable or non-viable options in a modeling context.	*
A.CED.A.5 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	*

Grades 9–12 Mathematics Domain: Algebra—Reasoning with Equations and Inequalities

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand solving equations as a process of reasoning, and explain the reasoning.	
A.REI.A.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify or refute a solution method.	*
A.REI.A.2 Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.	**M.EE.A.CED.1.** Create an equation involving one operation with one variable, and use it to solve a real-world problem.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve equations and inequalities in one variable.	
A.REI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. a. Solve linear equations and inequalities in one variable involving absolute value.	**M.EE.A.CED.1.** Create an equation involving one operation with one variable, and use it to solve a real-world problem. **M.EE.A.CED.2–4.** Solve one-step inequalities.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve equations and inequalities in one variable.	
A.REI.B.3.a. Solve linear equations and inequalities in one variable involving absolute value.	**M.EE.A.CED.1.** Create an equation involving one operation with one variable, and use it to solve a real-world problem. **M.EE.A.CED.2–4.** Solve one-step inequalities.
A.REI.B.4 Solve quadratic equations in one variable.	*
A.REI.B.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.	*
A.REI.B.4.b. Solve quadratic equations by inspection (e.g., for x^2=49), taking square roots, completing the square, the quadratic formula, and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a±bi for real numbers a and b.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve systems of equations.	
A.REI.C.5 Verify 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.	*
A.REI.C.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.	**M.EE.A.REI.10–12.** Interpret the meaning of a point on the graph of a line. For example, on a graph of pizza purchases, trace the graph to a point and tell the number of pizzas purchased and the total cost of the pizzas.
A.REI.C.7 Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically.	*
A.REI.C.8 (+) Represent a system of linear equations as a single matrix equation in a vector variable.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Solve systems of equations.	
A.REI.C.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).	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Represent and solve equations and inequalities graphically.	
A.REI.D.10 Demonstrate understanding that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane. Show that any point on the graph of an equation in two variables is a solution to the equation.	**M.EE.A.REI.10–12.** Interpret the meaning of a point on the graph of a line. For example, on a graph of pizza purchases, trace the graph to a point and tell the number of pizzas purchased and the total cost of the pizzas.
A.REI.D.11 Explain why the x-coordinates of the points where the graphs of the equations y=f(x) and y=g(x) intersect are the solutions of the equation f(x)=g(x); find the solutions approximately. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.	*
A.REI.D.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.	*

Grades 9–12 Mathematics Domain: Functions—Interpreting Functions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand the concept of a function, and use function notation.	
F.IF.A.1 Demonstrate understanding that a function is a correspondence from one set (called the domain) to another set (called the range) that 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).	**M.EE.F.IF.1–3.** Use the concept of function to solve problems.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand the concept of a function, and use function notation.	
F.IF.A.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.	**M.EE.F.IF.1–3.** Use the concept of function to solve problems.
F.IF.A.3 Demonstrate that a sequence is a function, sometimes defined recursively, whose domain is a subset of the integers.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Interpret functions that arise in applications in terms of the context. Include linear, quadratic, exponential, rational, polynomial, square root and cube root, trigonometric, and logarithmic functions.	
F.IF.B.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maxima and minima; symmetries; end behavior; and periodicity.	**M.EE.F.IF.4–6.** Construct graphs that represent linear functions with different rates of change and interpret which is faster/slower, higher/lower, etc.
F.IF.B.5 Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	*
F.IF.B.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.	**M.EE.F.IF.4–6.** Construct graphs that represent linear functions with different rates of change and interpret which is faster/slower, higher/lower, etc.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Analyze functions using different representations.	
F.IF.C.7 Graph functions expressed symbolically and show key features of the graphs, by hand in simple cases and using technology for more complicated cases.	*
F.IF.C.7.a. Graph linear and quadratic functions and show intercepts, maxima, and minima.	*
F.IF.C.7.b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions.	*
F.IF.C.7.c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior.	*
F.IF.C.7.d. (+) Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior.	*
F.IF.C. 7.e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.	*
F.IF.C.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.	*
F.IF.C.8.a. Use the process of factoring and/or completing the square in quadratic and polynomial functions, where appropriate, to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context.	*
F.IF.C.8.b. Use the properties of exponents to interpret expressions for exponential functions. Apply to financial situations such as identifying appreciation and depreciation rate for the value of a house or car sometime after its initial purchase.	*
F.IF.C.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Analyze functions using different representations.	
F.IF.C.10 Given algebraic, numeric and/or graphical representations of functions, recognize the function as polynomial, rational, logarithmic, exponential, or trigonometric.	*

Grades 9–12 Mathematics Domain: Functions—Building Functions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Build a function that models a relationship between two quantities.	
F.BF.A.1 Write a function that describes a relationship between two quantities. Functions could include linear, exponential, quadratic, simple rational, radical, logarithmic, and trigonometric.	*
F.BF.A.1.a. Determine an explicit expression, a recursive process, or steps for calculation from a context.	*
F.BF.A.1.b. Combine standard function types using arithmetic operations.	*
F.BF.A.1.c. (+) Compose functions.	*
F.BF.A.2 Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.	**M.EE.F-BF.2.** Determine an arithmetic sequence with whole numbers when provided a recursive rule.
	M.EE.A.SSE.4. Determine the successive term in a geometric sequence given the common ratio.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Build new functions from existing functions.	
F.BF.B.3 Identify the effect on the graph of replacing f(x) by f(x)+k,kf(x),f(kx), and f(x+k) for specific values of k (both positive and negative); find the value of k given the graphs. Include, linear, quadratic, exponential, absolute value, simple rational and radical, logarithmic, and trigonometric functions. Utilize technology to experiment with cases and illustrate an explanation of the effects on the graph. Include recognizing even and odd functions from their graphs and algebraic expressions for them.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Build new functions from existing functions.	
F.BF.B.4 Find inverse functions algebraically and graphically.	*
F.BF.B.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. Include linear and simple polynomial, rational, and exponential functions.	*
F.BF.B.4.b. (+) Verify by composition that one function is the inverse of another.	*
F.BF.B.4.c. (+) Read values of an inverse function from a graph or a table, given that the function has an inverse.	*
F.BF.B.4.d. (+) Produce an invertible function from a non-invertible function by restricting the domain.	*
F.BF.B.5 (+) Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.	*

Grades 9–12 Mathematics Domain: Functions—Linear, Quadratic, and Exponential Models

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Construct and compare linear, quadratic, and exponential models, and solve problems.	
F.LE.A.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.	**M.EE.F.LE.1–3.** Model a simple linear function such as y = mx to show that these functions increase by equal amounts over equal intervals.
F.LE.A.1.a. Demonstrate that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.	**M.EE.F.LE.1–3.** Model a simple linear function such as y = mx to show that these functions increase by equal amounts over equal intervals.
F.LE.A.1.b. Identify situations in which one quantity changes at a constant rate per unit interval relative to another.	*
F.LE.A.1.c. Identify situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Construct and compare linear, quadratic, and exponential models, and solve problems.	
F.LE.A.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (including reading these from a table).	*
F.LE.A.3 Use graphs and tables to demonstrate that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.	*
F.LE.A.4 For exponential models, express as a logarithm the solution to ab^ct=d where a, c, and d are numbers and the base b is 2,10, or e; evaluate the logarithm using technology.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Interpret expressions for functions in terms of the situation they model.	
F.LE.B.5 Interpret the parameters in a linear or exponential function (of the form f(x)=b^x+k) in terms of a context.	*

Grades 9–12 Mathematics Domain: Functions—Trigonometric Functions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Extend the domain of trigonometric functions using the unit circle.	
F.TF.A.1 Demonstrate radian measure as the ratio of the arc length subtended by a central angle to the length of the radius of the unit circle.	*
F.TF.A.1.a. Use radian measure to solve problems.	*
F.TF.A.2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Extend the domain of trigonometric functions using the unit circle.	
F.TF.A.3 (+) Use special triangles to determine geometrically the values of sine, cosine, tangent for π/3, π/4, and π/6, and use the unit circle to express the values of sine, cosine, and tangent for π-x, π+x, and 2π-x in terms of their values for x, where x is any real number.	*
F.TF.A.4 (+) Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Model periodic phenomena with trigonometric functions.	
F.TF.B.5 Model periodic phenomena using trigonometric functions with specified amplitude, frequency, and midline.	*
F.TF.B.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.	*
F.TF.B.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.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Prove and apply trigonometric identities	
F.TF.C.8 Relate the Pythagorean Theorem to the unit circle to discover the Pythagorean identity 〖sin〗^2 (θ)+〖cos〗^2 (θ)=1 and use the Pythagorean identity to find the value of a trigonometric function (sin(θ),cos(θ),or tan(θ)) given one trigonometric function (sin(θ),cos(θ),or tan(θ)) and the quadrant of the angle.	*
F.TF.C.9 (+) Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.	*

Grades 9–12 Mathematics Domain: Geometry—Congruence

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Experiment with transformations in the plane.	
G.CO.A.1 Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	**M.EE.G.CO.1.** Know the attributes of perpendicular lines, parallel lines, and line segments; angles; and circles.
G.CO.A.2 Represent transformations in the plane and 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.	*
G.CO.A.3 Describe the rotations and reflections that carry a given figure (rectangle, parallelogram, trapezoid, or regular polygon) onto itself.	*
G.CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	**M.EE.G.CO.4–5.** Given a geometric figure and a rotation, reflection, or translation of that figure, identify the components of the two figures that are congruent.
G.CO.A.5 Draw the transformation (rotation, reflection, or translation) for a given geometric figure.	*
G.CO.A.6 Specify a sequence of transformations that will carry a given figure onto another.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand congruence in terms of rigid motions.	
G.CO.B.7 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.	**M.EE.G.CO.6–8.** Identify corresponding congruent and similar parts of shapes.
G.CO.B.8 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.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand congruence in terms of rigid motions.	
G.CO.B.9 Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Prove geometric theorems and, when appropriate, the converse of theorems.	
G.CO.C.10 Prove theorems about lines and angles. Theorems include: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent, and conversely prove lines are parallel; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.	*
G.CO.C.11 Prove theorems about triangles. Theorems include: measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent, and conversely prove a triangle is isosceles; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.	*
G.CO.C.12 Prove theorems about parallelograms. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.	*
G.CO.C.12.a. Prove theorems about polygons. Theorems include: the measures of interior and exterior angles; apply properties of polygons to the solutions of mathematical and contextual problems.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Make geometric constructions.	
G.CO.D.13 Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.) Constructions include: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.	*
G.CO.D.14 Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	*

Grades 9–12 Mathematics Domain: Geometry—Similarity, Right Triangles, and Trigonometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand similarity in terms of similarity transformations.	
G.SRT.A.1 Verify experimentally the properties of dilations given by a center and a scale factor.	*
G.SRT.A.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.	*
G.SRT.A.1.b. The dilation of a line segment is longer or shorter in the ratio given by the scale factor.	*
G.SRT.A.2 Use the definition of similarity to decide if two given figures 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.	**M.EE.G.CO.6–8.** Identify corresponding congruent and similar parts of shapes.
G.SRT.A.3 Use the properties of similarity transformations to establish the Angle-Angle (AA) criterion for two triangles to be similar.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Prove theorems involving similarity.	
G.SRT.B.4 Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.	*
G.SRT.B.5 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	**M.EE.G.CO.6–8.** Identify corresponding congruent and similar parts of shapes.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Define trigonometric ratios and solve problems involving right triangles.	
G.SRT.C.6 Demonstrate understanding 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.	*
G.SRT.C.7 Explain and use the relationship between the sine and cosine of complementary angles.	*
G.SRT.C.8 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply trigonometry to general triangles.	
G.SRT.D.9 (+) Derive the formula A=1/2 absin(C) for the area of a triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side.	*
G.SRT.D.10 (+) Prove the Laws of Sines and Cosines and use them to solve problems.	*
G.SRT.D.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).	*

Grades 9–12 Mathematics Domain: Geometry—Circles

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand and apply theorems about circles.	
G.C.A.1 Prove that all circles are similar.	*
G.C.A.2 Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle.	*
G.C.A.3 Prove properties of angles for a quadrilateral and other polygons inscribed in a circle, by constructing the inscribed and circumscribed circles of a triangle.	*
G.C.A.4 (+) Construct a tangent line to a circle from a point outside the given circle.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Find arc lengths and areas of sectors of circles.	
G.C.B.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.	*

Grades 9–12 Mathematics Domain: Geometry––Expressing Geometric Properties with Equations

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Translate between the geometric description and the equation for a conic section.	
G.GPE.A.1 Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.	*
G.GPE.A.2 Derive the equation of a parabola given a focus and directrix.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Translate between the geometric description and the equation for a conic section.	
G.GPE.A.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.	*
G.GPE.A.3.a. (+) Use equations and graphs of conic sections to model real-world problems.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use coordinates to prove simple geometric theorems algebraically.	
G.GPE.B.4 Use coordinates to prove simple geometric theorems algebraically, including the distance formula and its relationship to the Pythagorean Theorem.	*
G.GPE.B.5 Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.	**M.EE.G.CO.1.** Know the attributes of perpendicular lines, parallel lines, and line segments; angles; and circles.
G.GPE.B.6 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	*
G.GPE.B.7 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles (e.g., using the distance formula).	**M.EE.G.GPE.7.** Find perimeters and areas of squares and rectangles to solve real-world problems.

Grades 9–12 Mathematics Domain: Geometry—Geometric Measurement and Dimension

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Explain volume formulas and use them to solve problems.	
G.GMD.A.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. Use dissection arguments, Cavalieri's principle, and informal limit arguments.	**M.EE.G.GMD.1–3.** Make a prediction about the volume of a container, the area of a figure, and the perimeter of a figure, and then test the prediction using formulas or models.
G.GMD.A.2 (+) Give an informal argument using Cavalieri's principle for the formulas for the volume of a sphere and other solid figures.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Explain volume formulas and use them to solve problems.	
G.GMD.A.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.	**M.EE.G.GMD.1–3.** Make a prediction about the volume of a container, the area of a figure, and the perimeter of a figure, and then test the prediction using formulas or models.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Visualize relationships between two-dimensional and three-dimensional objects.	
G.GMD.B.4 Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	**M.EE.G.GMD.4.** Identify the shapes of two-dimensional cross-sections of three-dimensional objects.

Grades 9–12 Mathematics Domain: Geometry—Modeling with Geometry

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Apply geometric concepts in modeling situations.	
G.MG.A.1 Use geometric shapes, their measures, and their properties to describe objects.	**M.EE.G.MG.1–3.** Use properties of geometric shapes to describe real-life objects.
G.MG.A.2 Apply concepts of density based on area and volume in modeling situations.	*
G.MG.A.3 Apply geometric methods to solve design problems.	*
G.MG.A.4 Use dimensional analysis for unit conversions to confirm that expressions and equations make sense.	*

Grades 9–12 Mathematics Domain: Statistics and Probability—Interpreting Categorical and Quantitative Data

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Summarize, represent, and interpret data on a single count or measurement variable. Use calculators, spreadsheets, and other technology as appropriate.	
S.ID.A.1 Differentiate between count data and measurement variable.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Summarize, represent, and interpret data on a single count or measurement variable. Use calculators, spreadsheets, and other technology as appropriate.	
S.ID.A.2 Represent measurement data with plots on the real number line (dot plots, histograms, and box plots).	**M.EE.S.ID.1–2.** Given data, construct a simple graph (line, pie, bar, or picture) or table, and interpret the data.
S.ID.A.3 Compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different variables, using statistics appropriate to the shape of the distribution for each measurement variable.	**M.EE.S.ID.3.** Interpret general trends on a graph or chart. **M.EE.S.ID.4.** Calculate the mean of a given data set (limit the number of data points to fewer than five).
S.ID.A.4 Interpret differences in shape, center, and spread in the context of the variables accounting for possible effects of extreme data points (outliers) for measurement variables.	**M.EE.S.ID.3.** Interpret general trends on a graph or chart.
S.ID.A.5 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.	**M.EE.S.ID.4.** Calculate the mean of a given data set (limit the number of data points to fewer than five).

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Summarize, represent, and interpret data on two categorical and quantitative variables.	
S.ID.B.6 Represent data on two categorical variables on a clustered bar chart and describe how the variables are related. 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.	*
S.ID.B.7 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.	*
S.ID.B.7.a. Fit a linear function to data where a scatter plot suggests a linear relationship and use the fitted function to solve problems in the context of the data.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Summarize, represent, and interpret data on two categorical and quantitative variables.	
S.ID.B.7.b. Use functions fitted to data, focusing on quadratic and exponential models, or choose a function suggested by the context. Utilize technology where appropriate.	*
S.ID.B.7.c. Informally assess the fit of a function by plotting and analyzing residuals.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Interpret linear models.	
S.ID.C.8 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.	*
S.ID.C.9 Compute (using technology) and interpret the linear correlation coefficient.	*
S.ID.C.10 Distinguish between (linear) correlation and causation.	*

Grades 9–12 Mathematics Domain: Statistics and Probability—Making Inferences and Justifying Conclusions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand and evaluate random processes underlying statistical experiments. Use calculators, spreadsheets, and other technology as appropriate.	
S.IC.A.1 Understand statistics as a process for making inferences about population parameters based on a random sample from that population.	*
S.IC.A.2 Decide if a specified model is consistent with results from a given data-generating process (e.g., using simulation or validation with given data).	**M.EE.S.IC.1–2.** Determine the likelihood of an event occurring when the outcomes are equally likely to occur.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Make inferences and justify conclusions from sample surveys, experiments, and observational studies.	
S.IC.B.3 Recognize the purposes of and differences among sample surveys, experiments, and observational studies; explain how randomization relates to each.	*
S.IC.B.4 Use data from a sample survey to estimate a population mean or proportion and a margin of error.	*
S.IC.B.5 Use data from a randomized and controlled experiment to compare two treatments; use margins of error to decide if differences between treatments are significant.	*
S.IC.B.6 Evaluate reports of statistical information based on data.	*

Grades 9–12 Mathematics Domain: Statistics and Probability—Conditional Probability and the Rules of Probability

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand independence and conditional probability, and use them to interpret data from simulations or experiments.	
S.CP.A.1 Describe events as subsets of a sample space (the set of outcomes) using characteristics (or categories) of the outcomes, or as unions, intersections, or complements of other events ("or," "and," "not").	*
S.CP.A.2 Demonstrate understanding 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.	**M.EE.S.CP.1–5.** Identify when events are independent or dependent.
S.CP.A.3 Understand the conditional probability of A given B as (P(A∩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.	**M.EE.S.CP.1–5.** Identify when events are independent or dependent.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Understand independence and conditional probability, and use them to interpret data from simulations or experiments.	
S.CP.A.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.	*
S.CP.A.5 Recognize and explain the concepts of conditional probability and independence in everyday language and everyday situations.	**M.EE.S.CP.1–5.** Identify when events are independent or dependent.

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use the rules of probability to compute probabilities of compound events in a uniform probability model.	
S.CP.B.6 Find the conditional probability of A given B as the fraction of B's outcomes that also belong to A, and interpret the answer in terms of the model.	**M.EE.S.IC.1–2.** Determine the likelihood of an event occurring when the outcomes are equally likely to occur.
S.CP.B.7 Apply the Addition Rule, $P(A \cup B)=P(A)+P(B)-P(A \cap B)$, and interpret the answer in terms of the model.	**M.EE.S.IC.1–2.** Determine the likelihood of an event occurring when the outcomes are equally likely to occur.
S.CP.B.8 (+) Apply the general Multiplication Rule in a uniform probability model $P(A \cap B)=P(A)P(B \mid A)=P(B)P(A \mid B)$, and interpret the answer in terms of the model.	*
S.CP.B.9 (+) Use permutations and combinations to compute probabilities of compound events and solve problems.	*

Grades 9–12 Mathematics Domain: Statistics and Probability—Using Probability to Make Decisions

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Calculate expected values and use them to solve problems.	
S.MD.A.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.	*
S.MD.A.2 (+) Calculate the expected value of a random variable; interpret it as the mean of the probability distribution of the variable.	*
S.MD.A.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.	*
S.MD.A.4 (+) Develop a probability distribution for a random variable defined for a sample space in which probabilities are assigned empirically; find the expected value.	*

Idaho Grade-Level Standards	DLM Essential Elements
CLUSTER: Use probability to evaluate outcomes of decisions.	
S.MD.B.5 (+) Weigh the possible outcomes of a decision by assigning probabilities to payoff values and finding expected values.	*
S.MD.B.5.a. Find the expected payoff for a game of chance.	*
S.MD.B.5.b. Evaluate and compare strategies on the basis of expected values.	*
S.MD.B.6 (+) Use probabilities to make objective decisions.	*
S.MD.B.7 (+) Analyze decisions and strategies using probability concepts.	*