Alabama Item Specifications

Grade 3 Mathematics

Alabama Comprehensive Assessment Program

The draft Alabama Comprehensive Assessment Program (ACAP) item specifications are based upon the development of summative assessments that measure the Alabama Course of Study Standards. The item specifications define the purpose of the ACAP and provide important information regarding the content to be measured. The item specifications serve to provide a road map designed to guide Alabama educators in the development of items and subsequent review of items that best measure the Course of Study Standards for a given grade and content area. Each content-area and grade-level item specification aligned to the given domain, cluster, and standard includes the following key information regarding each domain:

- Evidence statements
- Assessment limits/Content constraints
- Recommended depth-of-knowledge (DOK) or cognitive levels
- Calculator usage
- Item types for measuring a given standard
- Information regarding whether context is allowable
- Sample stem information

Definitions

Course of Study Standards: The Course of Study Standards are a set of content curriculum statements that define what students should know and be able to do at a given grade level. The goal is to prepare students for future opportunities and options in the workplace and for everyday life. Through the implementation of the Alabama Course of Study for Mathematics, students will be well equipped for the workforce upon graduation or ready to pursue higher levels of education in Alabama's colleges and universities.

Domain: A domain is a group of related clusters and content standards. Sometimes standards from different domains may be closely related.

Cluster: A cluster is a group of related content standards. Because mathematics is a connected subject, standards from different clusters may sometimes be closely related.

Standard: The standard defines what students should understand (know) and be able to do at the conclusion of a course or grade. The standard text in the item specification is preceded by a standard identifier (e.g., 4.OA.1) to indicate the student grade level as fourth (4), the domain as Operations and Algebraic Thinking (OA), and the standard number as one (1).

Evidence Statements: Evidence statements are closely aligned to the standard and do not deviate from the requirements of the standard. Standards that are substantial in content do provide for a better opportunity to "unpack the standard," which is the case for many of the Alabama Course of Study Standards. The evidence statements serve that purpose.

Assessment Limits/Content Constraints: Assessment limits and/or content constraints define the range of content knowledge and the degree of difficulty allowable when items are written to measure a given standard.

Depth of Knowledge (DOK): Depth of knowledge involves the cognitive complexity or the nature of thinking regarding a given item. Most recently Webb's depth-of-knowledge levels are used in the development of items for cognitive demand. Therefore, when developing items for depth of knowledge, the item should be as demanding cognitively as what the actual standard expects. Webb's depth of knowledge includes four levels, from the lowest (basic recall) to the highest (extended thinking.) The mathematics ACAP assessment items are written to one of three cognitive levels of complexity:

- Level 1: Recall
- Level 2: Application of a Skill/Concept
- Level 3: Strategic Thinking

Item Types: The ACAP summative assessments are composed of various item types. These item types are described in the following section.

Context: Context provides information regarding the types of stimulus materials that can be used in the items. If a context is allowable, it means that the item may have context. If context is required, then the item measuring the given standard must have context. If no context is noted, then the items measuring the given standard should not have context.

Sample Stem Information: This statement explains what students are expected to do when they respond to a given item.

Item Types

The Alabama Comprehensive Assessment Program (ACAP) summative assessments are composed of various item types. These item types are described below.

Multiple-Choice (MC) Items: MC items have four answer choices, including three distractors and one correct answer. Distractors for mathematics represent common misconceptions, incorrect logic, incorrect application of an algorithm, computational errors, etc. A correct response to an MC item is worth one score point in the mathematics ACAP.

Multiple-Select (MS) Items: MS items are similar in structure to MC items. MC items have a stem and four answer options, one of which is correct. However, unlike an MC item, and MS item has more than four options and more than one correct answer. In other words, there are multiple responses required for a given item. For mathematics, there are two types of MS configurations. One has five answer options of which two are correct, and the other has six answer options of which two or three are correct. Directions for the number of options to select are provided with each item. A correct response to an MS item is worth one score point in the mathematics ACAP.

Short-Answer (SA) Items: SA items are constructed-response items that require a keyed response from the student. As such, they often require a brief series of objective, concise answers of just a few characters entered into a small response space (no extemporaneous test or explanatory work is required). In the mathematics ACAP, this item type is autoscored using scoring guidelines for the correct answer. A correct response to an SA item is worth one score point in the mathematics ACAP.

Technology-Enhanced (TE) Items: TE items share the same functional structure as traditional paper- and-pencil test items; however, the expansive features and functions of a computer-based medium allow for the incorporation of technical enhancements into traditional elements of a test item, such as the stem, the stimulus (if any), the response area, or a combination of all three. These items require the use of one or more tools. A correct response to a TE item is worth one score point in the mathematics ACAP. Grade 4 mathematics TE items include the following types:

- **Angle Draw Input:** These TE items provide a student with a given ray, and then the student completes the angle by drawing a second ray.
- **Drag-and Drop-Input**: These TE items provide a student with draggable entities that can be configured to be used once or multiple times.
- **Drop-Down List Input:** These TE items allow a student to select elements in drop-down lists that can be embedded within text or tables.
- **Hot Spot:** These TE items allow for one image to replace another image when a given hot spot is selected.
- **Line Plot Input:** These TE items provide another way for a student to graphically represent data when the structure is provided. Certain labeling on the line plot can be done by the student.
- **Matching:** These TE items allow for the use of text or graphics as the matching objects. The student selects one object and then selects a second object to connect them.
- **Matching Table:** These TE items include a table with multiple rows and columns, and the student makes matches between the given elements in the rows and columns. The table can be customized to allow for only a single selection in a row and/or column or for multiple selections within each.
- **Number Line Input:** These TE items allow a student to create a number line graph that might involve plotting points only or points and lines. Both closed and open points are available, as well as line segments and rays.

Math Reference Sheets

An online reference sheet is available as a pop-up window in certain grades.

Grade	Conversions	Formulas
2	No	No
3	No	No
4	Yes	Yes
5	Yes	Yes
6	Yes	Yes
7	Yes	Yes
8	Yes	Yes

Standards for Mathematical Practices

The Standards for Mathematical Practice are based on important "processes and proficiencies" that have longstanding importance in mathematics education. The first of these are the National Council of Teachers of Mathematics (NCTM) process standards of problem solving, reasoning and proof, communication, representation, and connections. The second are the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up: Helping Children Learn Mathematics*. These proficiencies include adaptive reasoning, strategic competence, conceptual understanding (comprehension of mathematical concepts, operations, and relations), procedural fluency (skill in carrying out procedures flexibly, accurately, efficiently, and appropriately), and productive disposition (habitual inclination to see mathematics as sensible, useful, and worthwhile, coupled with a belief in diligence and one's own efficacy). Because these practices are an important part of the curriculum, they will be assessed throughout the mathematics ACAP. The eight Standards for Mathematical Practice are listed below, but more detail is provided in the Alabama Course of Study for Mathematics.

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

Domain	OA: Operations and Algebraic Thinking
Cluster	Represent and solve problems involving multiplication and division.
Standard	3.OA.1: Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. [3-OA1] Example: Describe a context in which a total number of objects can be expressed as 5 × 7.
Evidence Statements	The student will interpret products of whole numbers.
Assessment Limits / Content Constraints	Tasks involve interpreting rather than calculating products in terms of equal groups, arrays, area, and/or measurement quantities. For example, "the total number of books if 5 shelves each have 7 books" can be represented by the expression 5 × 7 rather than "Marcie placed 7 books on each of 5 shelves. How many books does she have?" Tasks do not require students to interpret products in terms of repeated addition, skip-counting, or jumps on the number line. The example above refers to describing a real-world context, but describing a context is not the only way to meet the standard. For example, another way to meet the standard would be to identify contexts in which a total can be expressed as a specified product.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a multiplication expression, identify a situation that is modeled by that expression.

Domain	OA: Operations and Algebraic Thinking
Cluster	Represent and solve problems involving multiplication and division.
Standard	3.OA.2: Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. [3-OA2] Example: Describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.
Evidence Statements	The student will interpret whole-number quotients.
Assessment Limits / Content Constraints	Tasks involve interpreting rather than calculating quotients in terms of equal groups, arrays, area, and/or measurement quantities. For example, “35 books are placed equally on 7 shelves” can be represented by the expression 35 ÷ 7 rather than “Marcie has 35 books. She placed the same number on each of 7 shelves. How many books did she place on each shelf?” Tasks do not require students to interpret quotients in terms of repeated subtraction, skip-counting, or jumps on the number line. The example above refers to describing a real-world context, but describing a context is not the only way to meet the standard. For example, another way to meet the standard would be to identify contexts in which a number of objects can be expressed as a specified quotient.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a division expression, identify a situation that is modeled by that expression.

Domain	OA: Operations and Algebraic Thinking
Cluster	Represent and solve problems involving multiplication and division.
Standard	3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. (See Appendix A, Table 2.) [3-OA3]
Evidence Statements	The student will use multiplication and division within 100 to solve word problems involving equal groups, arrays, and measurement quantities.
Assessment Limits / Content Constraints	Tasks involve multiplying to find the total measure or area. Tasks involve dividing to find the number in each equal group or in each equal row/column of an array. Tasks involve dividing to find the number of equal groups or the number of equal rows/columns of an array. Tasks involve dividing an area by a side length to find an unknown side length. Tasks involve dividing to find the number of equal pieces or finding the measure of each piece.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Evaluate multiplication expressions in word problems with whole numbers that have a product less than or equal to 100. Evaluate division expressions in word problems with whole numbers that have a dividend less than or equal to 100.

Domain	OA: Operations and Algebraic Thinking
Cluster	Represent and solve problems involving multiplication and division.
Standard	3.OA.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers. [3-OA4] Example: Determine the unknown number that makes the equation true in each of the equations, 8 × ? = 48, 5 = □ ÷ 3, and 6 × 6 = ?.
Evidence Statements	The student will use the inverse relationship of multiplication and division to determine the unknown whole number in a multiplication or division equation relating three whole numbers.
Assessment Limits / Content Constraints	Tasks do not have a context. Only the answer is required. Products are less than or equal to 100. Dividends are less than or equal to 100.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Not Allowable
Sample Stem Information (as applicable)	Determine the unknown whole number in multiplication equations. Determine the unknown whole number in division equations.

Domain	OA: Operations and Algebraic Thinking
Cluster	Understand properties of multiplication and the relationship between multiplication and division.
Standard	3.OA.5: Apply properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.) [3-OA5] Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property)
Evidence Statements	The student will apply properties of operations as strategies to multiply and divide.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Identify an equivalent expression where the commutative, associative, or distributive property has been applied. Identify the missing number to make an expression equivalent after the commutative, associative, or distributive property has been applied.

Domain	OA: Operations and Algebraic Thinking
Cluster	Understand properties of multiplication and the relationship between multiplication and division.
Standard	3.OA.6: Understand division as an unknown-factor problem. [3-OA6] Example: Find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.
Evidence Statements	The student will demonstrate an understanding of division as an unknown-factor problem.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a division equation with the unknown isolated, find the equivalent multiplication equation. Given a multiplication equation with the unknown as a factor, find the equivalent division equation.

Domain	OA: Operations and Algebraic Thinking
Cluster	Multiply and divide within 100.
Standard	3.OA.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. [3-OA7]
Evidence Statements	The student will fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division.
Assessment Limits / Content Constraints	Tasks do not have a context. Only the answer is required. Tasks are not timed.
DOK(s)	1
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Not Allowable
Sample Stem Information (as applicable)	Evaluate a multiplication or division expression with all terms less than 100.

Domain	OA: Operations and Algebraic Thinking
Cluster	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
Standard	3.OA.8: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (This standard is limited to problems posed with whole numbers and having whole-number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).) [3-OA8]
Evidence Statements	The student will use the four operations to solve two-step word problems, use equations with a letter standing for the unknown quantity to represent these problems, and use mental computation and estimation strategies, including rounding, to assess the reasonableness of answers.
Assessment Limits / Content Constraints	Tasks do not require a student to write a single equation with a letter standing for the unknown quantity in a two-step problem and then solve that equation. Tasks may require students to write an equation as part of their work to find a solution, but students are not required to use a letter for the unknown. Addition, subtraction, multiplication, and division situations in these problems may involve any of the basic situation types with unknowns in various positions.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Solve a two-step word problem. Given a two-step word problem, identify the equation that models the problem with an unknown isolated. Given a two-step word problem in a constructed response, demonstrate a way to estimate the solution.

Domain	OA: Operations and Algebraic Thinking
Cluster	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
Standard	3.OA.9: Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. [3-OA9] Example: Observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.
Evidence Statements	The student will identify arithmetic patterns and explain them using properties of operations.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a number pattern, find the next number or numbers in the pattern. Given a number pattern, find a characteristic of the next number or numbers in the pattern. Given an addition table or multiplication table, find missing values in the table. Given an addition table or multiplication table, find a characteristic of a row or column of that table.

Domain	NBT: Number and Operations in Base Ten
Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.)
Standard	3.NBT.10: Use place value understanding to round whole numbers to the nearest 10 or 100. [3-NBT1]
Evidence Statements	The student will use place value understanding to round whole numbers to the nearest 10 or 100.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a multiple-digit whole number, round to the nearest 10 or 100. When instructed that an unknown number will round to a given number when rounding to the nearest 10 or 100, identify a possible value of the unknown number.

Domain	NBT: Number and Operations in Base Ten
Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.)
Standard	3.NBT.11: Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. [3-NBT2]
Evidence Statements	The student will use strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction to fluently add and subtract within 1000.
Assessment Limits / Content Constraints	Tasks have no context. Tasks are not timed.
DOK(s)	1
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Not Allowable
Sample Stem Information (as applicable)	Compute sums less than 1000. Compute differences with minuends less than 1000.

Domain	NBT: Number and Operations in Base Ten
Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic. (A range of algorithms may be used.)
Standard	3.NBT.12: Multiply one-digit whole numbers by multiples of 10 in the range 10 - 90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations. [3-NBT3]
Evidence Statements	The student will use strategies based on place value and properties of operations to multiply one-digit whole numbers by multiples of 10 in the range 10–90.
Assessment Limits / Content Constraints	Tasks have no context.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Not Allowable
Sample Stem Information (as applicable)	Evaluate a multiplication expression of a one-digit whole number (1–9) by a multiple of ten (10–90).

Domain	NF: Number and Operations - Fractions
Cluster	Develop understanding of fractions as numbers.
Standard	3.NF.13: 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 and size 1/*b*. [3-NF1]
Evidence Statements	The student will understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts. The student will understand a fraction *a*/*b* as the quantity formed by *a* parts and size 1/*b*.
Assessment Limits / Content Constraints	Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a figure divided into equal shares, represent the shaded portion of the figure with a fraction. Given a description of equal parts of a whole, represent the parts of interest with a fraction. Given an addition expression with unit fractions with the same denominator, model the expression with a single fraction.

Domain	NF: Number and Operations - Fractions
Cluster	Develop understanding of fractions as numbers.
Standard	3.NF.14a: Understand a fraction as a number on the number line; represent fractions on a number line diagram. [3-NF2] a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line. [3-NF2a]
Evidence Statements	The student will 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. The student will recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.
Assessment Limits / Content Constraints	Tasks have “thin context” or no context. Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a fraction, select the number line that models the fraction. Given a fraction and a number line with labeled points, identify the labeled point that represents the fraction. Given a point on a number line, identify the fraction modeled by the point.

Domain	NF: Number and Operations - Fractions
Cluster	Develop understanding of fractions as numbers.
Standard	3.NF.14b: Understand a fraction as a number on the number line; represent fractions on a number line diagram. [3-NF2] b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line. [3-NF2b]
Evidence Statements	The student will represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. The student will recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.
Assessment Limits / Content Constraints	Fractions may be greater than 1. Fractions equivalent to whole numbers are limited to 0 through 5. Tasks have “thin context” or no context. Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a fraction, select the number line that models the fraction. Given a fraction and a number line with labeled points, identify the labeled point that represents the fraction. Given a point on a number line, identify the fraction modeled by the point.

Domain	NF: Number and Operations - Fractions
Cluster	Develop understanding of fractions as numbers.
Standard	3.NF.15a: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. [3-NF3] a. Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line. [3-NF3a]
Evidence Statements	The student will understand two fractions as equivalent (equal) if they are the same size or the same point on a number line.
Assessment Limits / Content Constraints	Fractions equivalent to whole numbers are limited to 0 through 5. Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a fraction with denominator 2, 3, 4, 6, or 8, identify an equivalent fraction with denominator 2, 3, 4, 6, or 8.

Domain	NF: Number and Operations - Fractions
Cluster	Develop understanding of fractions as numbers.
Standard	3.NF.15b: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. [3-NF3] b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3. Explain why the fractions are equivalent, e.g., by using a visual fraction model. [3-NF3b]
Evidence Statements	The student will recognize and generate simple equivalent fractions and explain why the fractions are equivalent.
Assessment Limits / Content Constraints	Tasks do not involve the number line. Fractions equivalent to whole numbers are limited to 0 through 5. Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a fraction modeled by the shaded portion of a figure, identify the figure that has an equivalent fraction shaded. Given a fraction with denominator 2, 3, 4, 6, or 8, identify an equivalent fraction with denominator 2, 3, 4, 6, or 8.

Domain	NF: Number and Operations - Fractions
Cluster	Develop understanding of fractions as numbers.
Standard	3.NF.15c: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. [3-NF3] c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. [3-NF3c] Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.
Evidence Statements	The student will express whole numbers as fractions and recognize fractions that are equivalent to whole numbers.
Assessment Limits / Content Constraints	Tasks do not involve the number line. Fractions equivalent to whole numbers are limited to 0 through 5. Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a fraction that can be modeled with a whole number, identify the whole number. Given a whole number, identify an equivalent fraction.

Domain	NF: Number and Operations - Fractions
Cluster	Develop understanding of fractions as numbers.
Standard	3.NF.15d: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. [3-NF3] d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. [3-NF3d]
Evidence Statements	The student will compare two fractions with the same numerator or the same denominator by reasoning about their size. The student will recognize that comparisons are valid only when the two fractions refer to the same whole. The student will record the results of comparisons with the symbols >, =, or < and justify the conclusions.
Assessment Limits / Content Constraints	Tasks do not involve the number line. Fractions equivalent to whole numbers are limited to 0 through 5. Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Compare two fractions with the same numerator or the same denominator.

Domain	MD: Measurement and Data
Cluster	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
Standard	3.MD.16: Tell and write time to the nearest minute, and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. [3-MD1]
Evidence Statements	The student will tell and write time to the nearest minute and measure time intervals in minutes. The student will solve word problems involving addition and subtraction of time intervals in minutes.
Assessment Limits / Content Constraints	Time intervals are limited to 60 minutes.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given an analog clock display, identify the time. Given the time, identify an analog clock that shows the time. Given two times, determine the elapsed time between the two times. Given two analog clocks, determine the elapsed time between the two times shown.

Domain	MD: Measurement and Data
Cluster	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
Standard	3.MD.17: Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm^3 and finding the geometric volume of a container.) Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Excludes multiplicative comparison problems (problems involving notions of "times as much").) (See Appendix A, Table 2.) [3-MD2]
Evidence Statements	The student will use standard units of grams (g), kilograms (kg), and liters (l) to measure and estimate liquid volumes and masses of objects. The student will add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given the image of a measuring device, determine the volume or mass shown in the image. Given two images of a measuring device, determine the total volume or total mass shown in the images or the differences between the volumes or masses shown in the images. Given two volumes or masses, determine the sum or difference of the volumes or masses. Given the volume or mass of an object, perform multiplication to determine the volume or mass of more than one object. Given the total volume or mass of multiple identical objects, perform division to determine the volume or mass of a single object.

Domain	MD: Measurement and Data
Cluster	Represent and interpret data.
Standard	3.MD.18: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. [3-MD3] Example: Draw a bar graph in which each square in the bar graph might represent 5 pets.
Evidence Statements	The student will draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. The student will use information presented in scaled bar graphs to solve one- and two-step "how many more" and "how many less" problems.
Assessment Limits / Content Constraints	Tasks involve no more than 10 items in 2 – 5 categories.
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a data set, select the scaled picture graph or scaled bar graph that matches the data set. Given a scaled bar graph, answer one- and two-step "how many more" and "how many less" problems.

Domain	MD: Measurement and Data
Cluster	Represent and interpret data.
Standard	3.MD.19: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot where the horizontal scale is marked off in appropriate units – whole numbers, halves, or quarters. [3-MD4]
Evidence Statements	The student will use rulers marked with halves and fourths of an inch to generate measurement data by measuring lengths. The student will show data by making a line plot where the horizontal scale is marked off in appropriate units.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a set of drawings above the image of a ruler, determine which line plot represents the lengths of the drawings.

Domain	MD: Measurement and Data
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard	3.MD.20a: Recognize area as an attribute of plane figures, and understand concepts of area measurement. [3-MD5] a. A square with side length 1 unit called “a unit square,” is said to have “one square unit” of area and can be used to measure area. [3-MD5a]
Evidence Statements	The student will understand that a square with side length 1 unit, called a “unit square,” is said to have “one square unit” of area and can be used to measure area.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a rectangle drawn on a coordinate grid, determine the area of the rectangle. Given a rectangle tiled with unit squares, determine the area of the rectangle.

Domain	MD: Measurement and Data
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard	3.MD.20b: Recognize area as an attribute of plane figures, and understand concepts of area measurement. [3-MD5] 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-MD5b]
Evidence Statements	The student will understand that a plane figure that can be covered without gaps or overlaps by *n* unit squares is said to have an area of *n* square units.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a rectangle drawn on a coordinate grid, determine the area of the rectangle. Given a rectangle tiled with unit squares, determine the area of the rectangle.

Domain	MD: Measurement and Data
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard	3.MD.21: Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). [3-MD6]
Evidence Statements	The student will measure areas by counting unit squares (square centimeters, square meters, square inches, square feet, and improvised/non-standard units).
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a rectangle tiled with square units, determine the area of the rectangle in square units.

Domain	MD: Measurement and Data
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard	3.MD.22a: Relate area to the operations of multiplication and addition. [3-MD7] 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-MD7a]
Evidence Statements	The student will 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.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a rectangle drawn on a coordinate grid, determine the multiplication expression that determines the area of the rectangle. Given a rectangle tiled with unit squares, determine the multiplication expression that determines the area of the rectangle.

Domain	MD: Measurement and Data
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard	3.MD.22b: Relate area to the operations of multiplication and addition. [3-MD7] 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-MD7b]
Evidence Statements	The student will multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems and will represent whole-number products as rectangular areas in mathematical reasoning.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given the side lengths of a rectangle, use a multiplication expression to determine the area of the rectangle.

Domain	MD: Measurement and Data
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard	3.MD.22c: Relate area to the operations of multiplication and addition. [3-MD7] c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b* and *a* × *c*. Use area models to represent the distributive property in mathematical reasoning. [3-MD7c]
Evidence Statements	The student will use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths *a* and *b* + *c* is the sum of *a* × *b* and *a* × *c*. The student will use area models to represent the distributive property in mathematical reasoning.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a rectangle with side length *a* and side length *b* + *c*, determine an expression that demonstrates the distributive property and shows the area of the rectangle.

Domain	MD: Measurement and Data
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard	3.MD.22d: Relate area to the operations of multiplication and addition. [3-MD7] d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into nonoverlapping rectangles and adding the areas of the nonoverlapping parts, applying this technique to solve real-world problems. [3-MD7d]
Evidence Statements	The student will recognize area as additive. The student will find areas of rectilinear figures by decomposing them into nonoverlapping rectangles and adding the areas of the nonoverlapping parts and apply this technique to solve real-world problems.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a rectilinear figure, in real-world or mathematical problems, determine the area by decomposing it into nonoverlapping parts and then adding the areas of those parts.

Domain	MD: Measurement and Data
Cluster	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
Standard	3.MD.23: 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. [3-MD8]
Evidence Statements	The student will 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 the same area and different perimeters.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a figure, determine the perimeter of the figure. Given a figure with a missing side length and a given perimeter, determine the missing side length. Identify rectangles with the same perimeter and different areas or the same area and different perimeters.

Domain	G: Geometry
Cluster	Reason with shapes and their attributes.
Standard	3.G.24: Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. [3-G1]
Evidence Statements	The student will understand that shapes in different categories (e.g., rhombuses, rectangles) may share attributes (e.g., having four sides) and that the shared attributes can define a larger category (e.g., quadrilaterals). The student will recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a category or shared attribute, identify the figure or figures that belong to that category or have that shared attribute. Given a category or shared attribute, identify the figure or figures that do not belong to that category or do not have that shared attribute. Given a set of figures, identify the category or shared attribute that all the figures belong to or have.

Domain	G: Geometry
Cluster	Reason with shapes and their attributes.
Standard	3.G.25: Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. [3-G2] Example: Partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.
Evidence Statements	The student will partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole.
Assessment Limits / Content Constraints	
DOK(s)	1, 2, or 3
Calculator	NO – a calculator will not be available for items
Item Type(s)	MC, MS, SA, TE
Context	Allowable
Sample Stem Information (as applicable)	Given a partitioned figure, identify the unit fraction that each partition represents. Given a unit fraction, identify the partitioned figure that represents the unit fraction.