Alabama Comprehensive Assessment Program (ACAP)

Summative

Item Specifications

Mathematics

Grade 3

Alabama Item Specifications
Grade 3 Mathematics
Alabama Comprehensive Assessment Program (ACAP)
Summative

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

- Evidence statements
- Content limits/constraints
- Recommended Webb's Depth of Knowledge (DOK) or cognitive levels
- Calculator usage
- Item types for measuring a given standard
- Information regarding whether or not context is allowable
- Sample item stem information

The appendix to this document includes eight sample test items, along with information about the item, including item type, page reference, alignment, depth of knowledge, and answer key. These sample items are provided to be an additional resource for educators to help guide instruction and assessment-building in the classroom. Teachers can use the sample items as models when leading classroom discussion as well as creating items for classroom tests or quizzes. In each sample item, the level of rigor needed in the item in order to align with the content standard is evident.

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.

Alabama Content Areas: Alabama content areas are large groups of related clusters and content standards. Because mathematics is a connected subject, standards from different Alabama content areas may sometimes be closely related.

Clusters: Clusters are groups of related content standards. Because mathematics is a connected subject, standards from different clusters may sometimes be closely related.

Standards: Standards define 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 Alabama content area 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 required for 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 Summative* 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 Summative*.

Multiple-Select (MS) Items: MS items are similar in structure to MC items. However, unlike an MC item, an MS item has more than four options and more than one correct answer. In other words, multiple responses are required for a given item. For mathematics, there are two types of MS configurations. One has five answer options, two of which are correct, and the other has six answer options, two or three of which 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 Summative*.

Short-Answer (SA) Items: SA items are constructed-response items that require a keyed response from the student. The number of characters is limited to a relatively small number in order to facilitate autoscoring. The types of characters allowed can also be limited to text only, numbers only, or a mix. In the mathematics *ACAP Summative*, 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 Summative*.

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 Summative*. Mathematics TE items include, but are not limited to, the following:

- **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 an image to be highlighted or replaced with another image when selected by the student.
- **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 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.

Standards for Mathematical Practice

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 Summative*. 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.

Mathematics 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

Item Specifications for Mathematics

Item specifications are one of the key requirements for a high-quality, legally defensible, standards-based assessment. Item specifications help define important characteristics of the items (i.e., test questions) developed for each standard. These item specifications provide guidelines to help clarify the focus of what is to be assessed, what items may include, and what items may not include (i.e., assessment limits). Item specifications are used by item writers, item editors, and item reviewers as a common reference throughout the item-development process, from initial writing to final approval. These item specifications are based on the 2019 Alabama Course of Study Standards for Mathematics.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Represent and solve problems involving multiplication and division.
Standard (2019 AL COS)	3.OA.1: Illustrate the product of two whole numbers as equal groups by identifying the number of groups and the number in each group and represent as a written expression.
Evidence Statements	The student will illustrate the product of two whole numbers as equal groups by identifying the number of groups and the number in each group and represent as a written expression.
Assessment Limits / Content Constraints	Tasks involve illustrating 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 illustrate 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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Represent and solve problems involving multiplication and division.
Standard (2019 AL COS)	3.OA.2: Illustrate and interpret the quotient of two whole numbers as the number of objects in each group or the number of groups when the whole is partitioned into equal shares.
Evidence Statements	The student will illustrate and interpret the quotient of two whole numbers as the number of objects in each group or the number of groups when the whole is partitioned into equal shares.
Assessment Limits / Content Constraints	Tasks involve illustrating and 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 illustrate and 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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Represent and solve problems involving multiplication and division.
Standard (2019 AL COS)	3.OA.3: Solve word situations using multiplication and division within 100 involving equal groups, arrays, and measurement quantities; represent the situation using models, drawings, and equations with a symbol for the unknown number.
Evidence Statements	The student will solve word situations using multiplication and division within 100 involving equal groups, arrays, and measurement quantities The student will represent the situation using models, drawings, and equations with a symbol for the unknown number.
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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Represent and solve problems involving multiplication and division.
Standard (2019 AL COS)	3.OA.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
Evidence Statements	The student will 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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Understand properties of multiplication and the relationship between multiplication and division.
Standard (2019 AL COS)	3.OA.5: Develop and apply properties of operations as strategies to multiply and divide.
Evidence Statements	The student will develop and apply properties of operations as strategies to multiply and divide.
Assessment Limits / Content Constraints	*Note: Students need not use formal terms for these properties.*
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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Understand properties of multiplication and the relationship between multiplication and division.
Standard (2019 AL COS)	3.OA.6: Use the relationship between multiplication and division to represent division as an equation with an unknown factor.
Evidence Statements	The student will use the relationship between multiplication and division to represent division as an equation with an unknown factor.
Assessment Limits / Content Constraints	*Note: Students need not use formal terms for these properties.*
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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Multiply and divide within 100.
Standard (2019 AL COS)	3.OA.7a: Use strategies based on properties and patterns of multiplication to demonstrate fluency with multiplication and division within 100. a. Fluently determine all products obtained by multiplying two one-digit numbers.
Evidence Statements	The student will fluently determine all products obtained by multiplying two one-digit numbers.
Assessment Limits / Content Constraints	Tasks do not have a context. Only the answer is required.
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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Multiply and divide within 100.
Standard (2019 AL COS)	3.OA.7b: Use strategies based on properties and patterns of multiplication to demonstrate fluency with multiplication and division within 100. b. State automatically all products of two one-digit numbers by the end of third grade.
Evidence Statements	The student will automatically state all products of two one-digit numbers by the end of third grade.
Assessment Limits / Content Constraints	Tasks do not have a context. Only the answer is required.
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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Solve problems involving the four operations and identify and explain patterns in arithmetic.
Standard (2019 AL COS)	3.OA.8: Determine and justify solutions for two-step word problems using the four operations and write an equation with a letter standing for the unknown quantity. Determine reasonableness of answers using number sense, context, mental computation, and estimation strategies including rounding.
Evidence Statements	The student will determine and justify solutions for two-step word problems using the four operations and write an equation with a letter standing for the unknown quantity. The student will determine reasonableness of answers using number sense, context, mental computation, and estimation strategies including rounding.
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.

Content Area	OA: Operations and Algebraic Thinking
Cluster	Solve problems involving the four operations and identify and explain patterns in arithmetic.
Standard (2019 AL COS)	3.OA.9: Recognize and explain arithmetic patterns using properties of operations.
Evidence Statements	The student will recognize and explain arithmetic patterns using properties of operations.
Assessment Limits / Content Constraints	*Note: Students need not use formal terms for these properties.*
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.

Content Area	NBT: Operations with Numbers: Base Ten
Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic.
Standard (2019 AL COS)	3.NBT.10: Identify the nearest 10 or 100 when rounding whole numbers, using place value understanding.
Evidence Statements	The student will identify the nearest 10 or 100 when rounding whole numbers, using place value understanding.
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.

Content Area	NBT: Operations with Numbers: Base Ten
Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic.
Standard (2019 AL COS)	3.NBT.11: Use various strategies to add and subtract fluently within 1000.
Evidence Statements	The student will use various strategies to add and subtract fluently within 1000.
Assessment Limits / Content Constraints	Tasks have no context.
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.

Content Area	NBT: Operations with Numbers: Base Ten
Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic.
Standard (2019 AL COS)	3.NBT.12: Use concrete materials and pictorial models based on place value and properties of operations to find the product of a one-digit whole number by a multiple of ten (from 10 to 90).
Evidence Statements	The student will use concrete materials and pictorial models based on place value and properties of operations to find the product of a one-digit whole number by a multiple of ten (from 10 to 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).

Content Area	NF: Operations with Numbers: Fractions
Cluster	Develop understanding of fractions as numbers. *Denominators are limited to 2, 3, 4, 6, and 8.*
Standard (2019 AL COS)	3.NF.13: Demonstrate that a unit fraction represents one part of an area model or length model of a whole that has been equally partitioned; explain that a numerator greater than one indicates the number of unit pieces represented by the fraction.
Evidence Statements	The student will demonstrate that a unit fraction represents one part of an area model or length model of a whole that has been equally partitioned. The student will explain that a numerator greater than one indicates the number of unit pieces represented by the fraction.
Assessment Limits / Content Constraints	Denominators are limited to 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 partitioned area or length model, identify the unit fraction that each partition represents. Given a unit fraction, identify the partitioned area or length model that represents the unit fraction. Given an addition expression of unit fractions with the same denominator, model the expression with a single fraction.

Content Area	NF: Operations with Numbers: Fractions
Cluster	Develop understanding of fractions as numbers. *Denominators are limited to 2, 3, 4, 6, and 8.*
Standard (2019 AL COS)	3.NF.14a: Interpret a fraction as a number on the number line; locate or represent fractions on a number line diagram. a. Represent a unit fraction (1/*b*) on a number line by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts as specified by the denominator.
Evidence Statements	The student will represent a unit fraction (1/*b*) on a number line by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts as specified by the denominator.
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.

Content Area	NF: Operations with Numbers: Fractions
Cluster	Develop understanding of fractions as numbers. *Denominators are limited to 2, 3, 4, 6, and 8.*
Standard (2019 AL COS)	3.NF.14b: Interpret a fraction as a number on the number line; locate or represent fractions on a number line diagram. b. Represent a fraction (*a*/*b*) on a number line by marking off *a* lengths of size (1/*b*) from zero.
Evidence Statements	The student will represent a fraction (*a*/*b*) on a number line by marking off *a* lengths of size (1/*b*) from zero.
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.

Content Area	NF: Operations with Numbers: Fractions
Cluster	Develop understanding of fractions as numbers. *Denominators are limited to 2, 3, 4, 6, and 8.*
Standard (2019 AL COS)	3.NF.15a: Explain equivalence and compare fractions by reasoning about their size using visual fraction models and number lines. a. Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers.
Evidence Statements	The student will express whole numbers as fractions and recognize fractions that are equivalent to whole numbers.
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 that can be modeled with a whole number, identify the whole number. Given a whole number, identify an equivalent fraction.

Content Area	NF: Operations with Numbers: Fractions
Cluster	Develop understanding of fractions as numbers. *Denominators are limited to 2, 3, 4, 6, and 8.*
Standard (2019 AL COS)	3.NF.15b: Explain equivalence and compare fractions by reasoning about their size using visual fraction models and number lines. b. Compare two fractions with the same numerator or with the same denominator by reasoning about their size (recognizing that fractions must refer to the same whole for the comparison to be valid). Record comparisons using < , >, or = and justify conclusions.
Evidence Statements	The student will compare two fractions with the same numerator or with the same denominator by reasoning about their size (recognizing that fractions must refer to the same whole for the comparison to be valid). The student will record comparisons using < , >, or = and justify conclusions.
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)	Compare two fractions with the same numerator or the same denominator.

Content Area	DA: Data Analysis
Cluster	Represent and interpret data.
Standard (2019 AL COS)	3.DA.16a: For a given or collected set of data, create a scaled (one-to-many) picture graph and scaled bar graph to represent a data set with several categories. a. Determine a simple probability from a context that includes a picture.
Evidence Statements	The student will determine a simple probability from a context that includes a picture graph or bar graph.
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)	

Content Area	DA: Data Analysis
Cluster	Represent and interpret data.
Standard (2019 AL COS)	3.DA.16b: For a given or collected set of data, create a scaled (one-to-many) picture graph and scaled bar graph to represent a data set with several categories. b. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled graphs.
Evidence Statements	The students will solve one- and two-step "how many more" and "how many less" problems using information presented in scaled graphs.
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.

Content Area	DA: Data Analysis
Cluster	Represent and interpret data.
Standard (2019 AL COS)	3.DA.17: Measure lengths using rulers marked with halves and fourths of an inch to generate data and create a line plot marked off in appropriate units to display the data.
Evidence Statements	The student will measure lengths using rulers marked with halves and fourths of an inch to generate data and create a line plot marked off in appropriate units to display the data.
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.

Content Area	M: Measurement
Cluster	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
Standard (2019 AL COS)	3.M.18a: Tell and write time to the nearest minute; measure time intervals in minutes (within 90 minutes.) a. Solve real-world problems involving addition and subtraction of time intervals in minutes by representing the problem on a number line diagram.
Evidence Statements	The student will tell and write time to the nearest minute; measure time intervals in minutes. The student will solve real-world problems involving addition and subtraction of time intervals in minutes by representing the problem on a number line diagram.
Assessment Limits / Content Constraints	Time intervals are limited to 90 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.

Content Area	M: Measurement
Cluster	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
Standard (2019 AL COS)	3.M.19a: Estimate and measure liquid volumes and masses of objects using liters (l), grams (g), and kilograms (kg). a. Use the four operations to solve one-step word problems involving masses or volumes given in the same metric units.
Evidence Statements	The student will estimate and measure liquid volumes and masses of objects using liters (l), grams (g), and kilograms (kg). The student will use the four operations to solve one-step word problems involving masses or volumes given in the same metric 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.

Content Area	M: Measurement
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard (2019 AL COS)	3.M.20: Find the area of a rectangle with whole number side lengths by tiling without gaps or overlays and counting unit squares.
Evidence Statements	The student will find the area of a rectangle with whole number side lengths by tiling without gaps or overlays and counting unit squares.
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.

Content Area	M: Measurement
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard (2019 AL COS)	3.M.21: Count unit squares (square cm, square m, square in, square ft, and improvised or non-standard units) to determine area.
Evidence Statements	The student will count unit squares (square cm, square m, square in, square ft, and improvised or non-standard units) to determine 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 tiled with square units, determine the area of the rectangle in square units.

Content Area	M: Measurement
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard (2019 AL COS)	3.M.22: Relate area to the operations of multiplication using real-world problems, concrete materials, mathematical reasoning, and the distributive property.
Evidence Statements	The student will relate area to the operations of multiplication using real-world problems, concrete materials, mathematical reasoning, and the distributive property.
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 shows the area of the rectangle. Given a rectangle tiled with unit squares, determine the multiplication expression that shows the area of the rectangle. Given the side lengths of a rectangle, use a multiplication expression to determine the area of the rectangle. 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.

Content Area	M: Measurement
Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
Standard (2019 AL COS)	3.M.23: Decompose rectilinear figures into smaller rectangles to find the area, using concrete materials.
Evidence Statements	The student will decompose rectilinear figures into smaller rectangles to find the area, using concrete materials.
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 non-overlapping parts and then adding the areas of those parts.

Content Area	M: Measurement
Cluster	Geometric measurement: Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
Standard (2019 AL COS)	3.M.24: Construct rectangles with the same perimeter and different areas or the same area and different perimeters.
Evidence Statements	The student will construct 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)	Identify rectangles with the same perimeter and different areas or the same area and different perimeters.

Content Area	M: Measurement
Cluster	Geometric measurement: Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
Standard (2019 AL COS)	3.M.25: Solve real-world problems involving perimeters of polygons, including finding the perimeter given the side lengths and finding an unknown side length of rectangles.
Evidence Statements	The student will solve real-world problems involving perimeters of polygons, including finding the perimeter given the side lengths and finding an unknown side length of rectangles.
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.

Content Area	G: Geometry
Cluster	Reason with shapes and their attributes.
Standard (2019 AL COS)	3.G.26a: Recognize and describe polygons (up to 8 sides), triangles, and quadrilaterals (rhombuses, rectangles, and squares) based on the number of sides and the presence or absence of square corners. a. Draw examples of quadrilaterals that are and are not rhombuses, rectangles, and squares.
Evidence Statements	The student will recognize and describe polygons (up to 8 sides), triangles, and quadrilaterals (rhombuses, rectangles, and squares) based on the number of sides and the presence or absence of square corners. The student will draw examples of quadrilaterals that are and are not rhombuses, rectangles, and squares.
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.

Appendix A: Sample Items

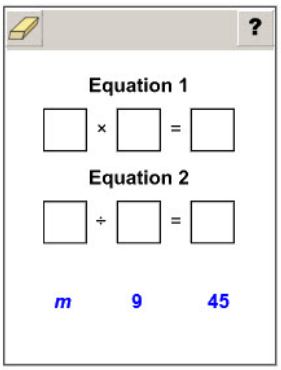
Sample Items

Appendix A: Sample Items

Sample Item 1

Mr. Jefferson has $45 to give to his 9 grandchildren. He wants to give the same amount of money to each grandchild. Mr. Jefferson uses *m* to represent the amount of money he should give to each grandchild.

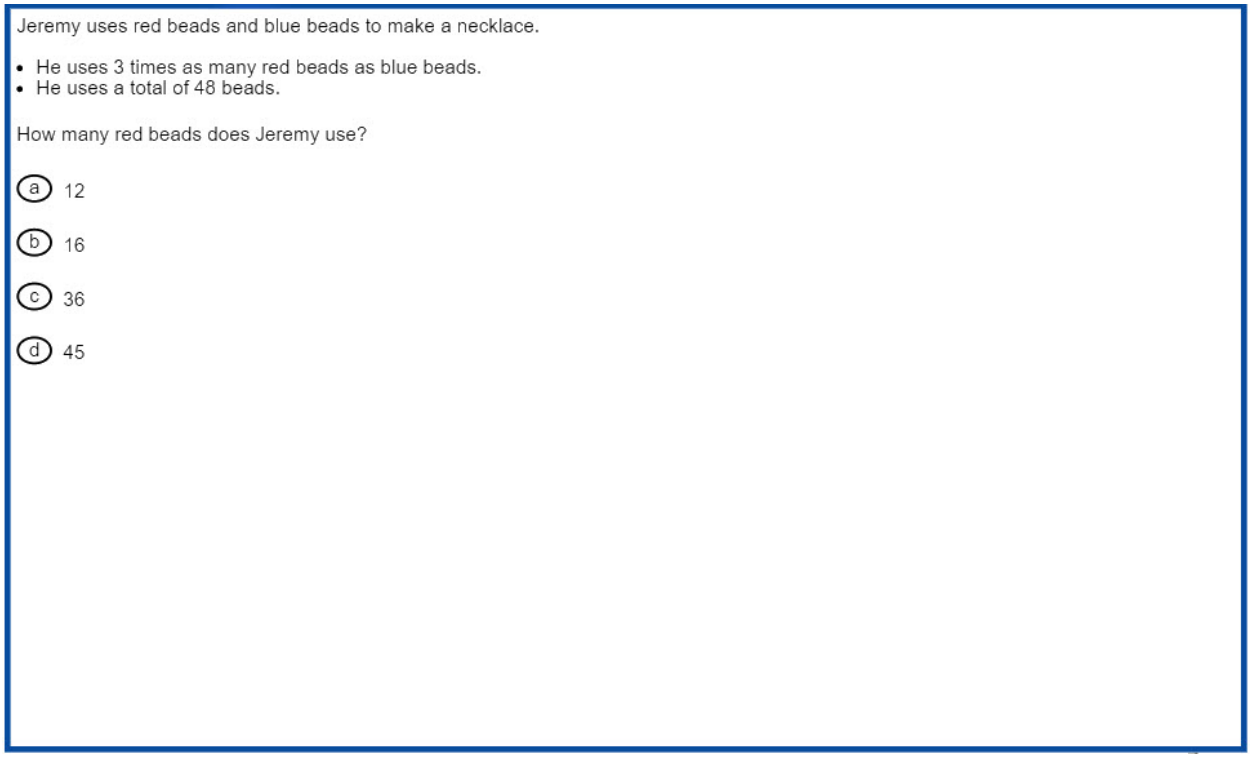
Drag the numbers and the variable into the boxes to create two different equations Mr. Jefferson could solve to find *m*.



Item Information		Answer Key(s) Description
Item Type	Technology Enhanced	Equation 1 9 × *m* = 45 (or *m* × 9 = 45) Equation 2 45 ÷ *m* = 9 (or 45 ÷ 9 = *m*)
Page Reference	14	
Alignment	3.OA.6	
Depth of Knowledge	2	
Answer Key	(see description)	

Appendix A: Sample Items

Sample Item 2



Item Information		Option Annotations
Item Type	Multiple Choice	A. The student determines the number of blue beads. B. The student divides the total number of beads by 3. C. Correct D. The student subtracts 3 from the total number of beads.
Page Reference	17	
Alignment	3.OA.8	
Depth of Knowledge	3	
Answer Key	C	

Appendix A: Sample Items

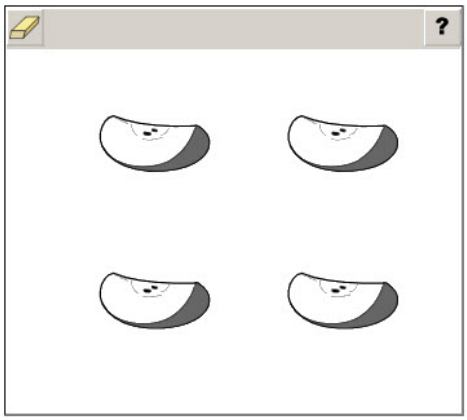
Sample Item 3

Item Information		Option Annotations
Item Type	Multiple Choice	A. The student incorrectly regroups a ten into the ones place by omitting the one that is already there in 341. B. Correct C. The student incorrectly regroups a ten into the ones place by leaving the 4 tens in place instead of changing it to 3 tens in 341. D. The student uses the standard algorithm for subtraction except subtracts the smaller digit from the larger digit in each place value.
Page Reference	20	
Alignment	3.NBT.11	
Depth of Knowledge	1	
Answer Key	B	

Appendix A: Sample Items

Sample Item 4

An apple is cut into 4 equal pieces. Glenn eats exactly $\frac{3}{4}$ of the apple. Select the apple pieces Glenn could have eaten.



Item Information		Answer Key(s) Description
Item Type	Technology Enhanced	Exactly 3 apple pieces must be selected. (Can be any 3 apple pieces.)
Page Reference	22	
Alignment	3.NF.13	
Depth of Knowledge	1	
Answer Key	(see description)	

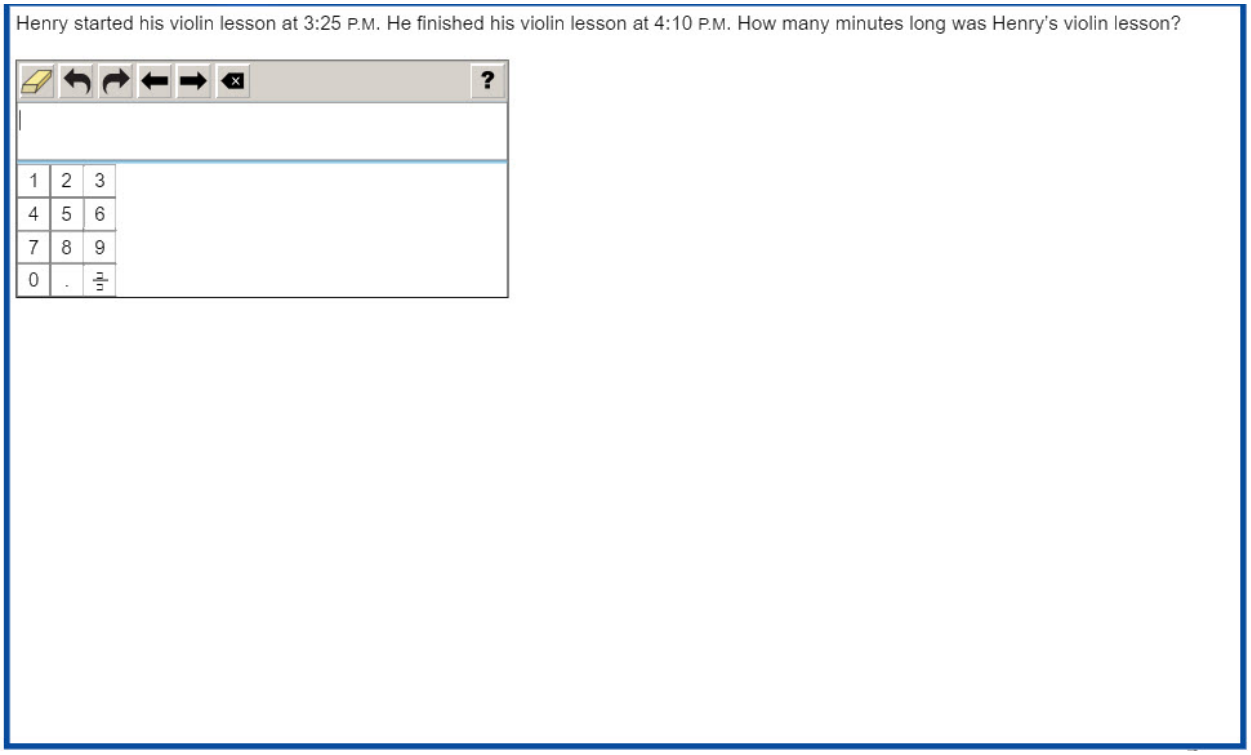
Appendix A: Sample Items

Sample Item 5

Item Information		Option Annotations
Item Type	Multiple Choice	A. The student reverses the numerator and denominator. B. The student uses 10 instead of 1 in the denominator. C. The student uses 5 for both the numerator and denominator, which makes it equivalent to 1. D. Correct
Page Reference	25	
Alignment	3.NF.15a	
Depth of Knowledge	1	
Answer Key	D	

Appendix A: Sample Items

Sample Item 6

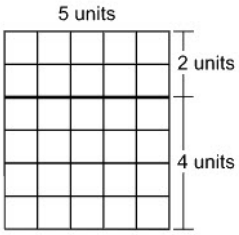


Item Information		Answer Key(s) Description
Item Type	Short Answer	45 (or equivalent)
Page Reference	30	
Alignment	3.M.18a	
Depth of Knowledge	2	
Answer Key	(see description)	

Appendix A: Sample Items

Sample Item 7

A rectangle tiled in unit squares is shown.



Select the **two** expressions that can be used to find the area of the rectangle in square units.

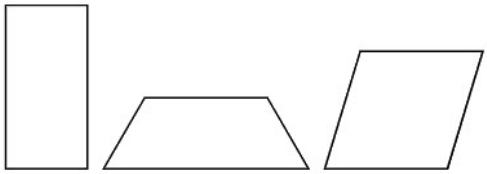
(a) 6 × 5
(b) 7 × 4
(c) 5 + 5 + 6 + 6
(d) (4 × 2) + (4 × 5)
(e) (5 × 2) + (5 × 4)
(f) 2 + 2 + 4 + 4 + 5 + 5

Item Information		Option Annotations
Item Type	Multiple Select	A. Correct B. The student adds the number of columns to the top two rows and then multiplies by the remaining rows. C. The student calculates the perimeter of the rectangle instead of the area. D. The student uses the distributive property on the incorrect dimension. E. Correct F. The student calculates the perimeter of the decomposed rectangles instead of the area.
Page Reference	34	
Alignment	3.M.22	
Depth of Knowledge	3	
Answer Key	A, E	

Appendix A: Sample Items

Sample Item 8

Three shapes are shown.



Which statement is true for **all** the shapes?

(a) All the shapes are squares.

(b) All the shapes are quadrilaterals.

(c) All the shapes have two pairs of equal sides.

(d) All the shapes have two pairs of parallel sides.

Item Information	
Item Type	Multiple Choice
Page Reference	38
Alignment	3.G.26a
Depth of Knowledge	2
Answer Key	B

Option Annotations

A. The student misunderstands the meaning of square.
B. Correct
C. The student misunderstands the meaning of equal sides.
D. The student misunderstands the meaning of parallel sides.