Grade 5
Evidence Mathematics Statements

Maryland State Department of Education
Overview

The Maryland Comprehensive Assessment Program (MCAP) includes a coherent set of summative mathematics assessments aligned to the Maryland College and Career Ready Mathematics Standards. Students are required to take the MCAP Mathematics assessment at the end of grades 3-8 and at the end of Algebra I. Students may also take a MCAP Mathematics Assessment at the end of Geometry and Algebra II.

The MCAP Mathematics assessment development process is based on Evidence-Centered Design (ECD). The Evidence-Centered Design process begins by establishing the answer to “What skills and understandings should be assessed?” The MCCRMS describe the skills and understandings that the MCAP Mathematics assessments assess. Assessments are then designed to gather evidence that allows inferences to be made. Assessments can be designed to allow inferences of various grain sizes. The MCAP Mathematics assessments are summative assessments and are therefore designed to provide evidence that allows only general inferences about a student’s mathematical skills and understandings. The MCAP Mathematics Claims Structure describes the grain size of the evidence that the MCAP Mathematics assessments will yield. Assessment items are designed to elicit evidence of a student’s level of proficiency for each claim.

### MCAP Mathematics Claims Structure

**Master Claim**
The student is college and career ready or is “On-Track” to being college and career ready in mathematics.

**Sub-Claims**

- **Content**
  - The student solves problems related to all content of the grade/course related to the Standards for Mathematical Practice

- **Reasoning**
  - The student expresses grade/course level appropriate mathematical reasoning

- **Modeling**
  - The student solves real-world problems with a degree of difficulty appropriate to the course
## Overview of MCAP Mathematics Assessment Task Types

<table>
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<tr>
<th>Task Type</th>
<th>Description</th>
<th>Sub Claim</th>
<th>Scoring Method</th>
<th>Number of Operational Items per Form</th>
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</table>
| Type I    | Type I items will access conceptual understanding; procedural skills; reasoning and the ability to use mathematics to solve real-world problems. | • Content  
• Reasoning  
• Modeling | Machine scored | 31 |
| Type II   | Type II items assess a student’s ability to reason mathematically. Tasks may require students to provide arguments or justifications, critique the reasoning of others and to use precision when explaining their thinking related to mathematics. | Reasoning | Human-scored but may also include a machine scored component | 2 |
| Type III  | Type III items assess a student’s ability to apply their understanding of mathematics when solving real-world contextual problems. | Modeling | Human-scored but may also include a machine scored component | 2 |
| **Total** |             |           |                | 35 |
MCAP Mathematics Evidence Statements

MCAP Mathematics Evidence Statements help teachers, curriculum developers, and administrators understand how the Maryland College and Career Ready Mathematics Standards will be assessed. Assessment items are designed to elicit the evidence described in the Evidence Statements.

Organization of Evidence Statements

The MCAP Mathematics Evidence Statements for the Content Sub-Claim are organized using the same structure as the Maryland College and Career Ready Mathematics Standards. The Domains, Clusters, and then Standards organize the Grade 5 Evidence statements.

### Grade 5

#### Content

**Operations and Algebraic Thinking (OA)**

A. Write and interpret numerical expressions.

<table>
<thead>
<tr>
<th>MCCRS Code</th>
<th>Standard</th>
<th>Evidence Statement / Clarification</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.OA.A.1</td>
<td>Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.</td>
<td>Evidence Statement: The language of the standard provides the focus for this evidence statement. Clarification: • Expressions will not require the use of braces.</td>
</tr>
<tr>
<td>5.OA.A.2</td>
<td>Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation &quot;add 8 and 7, then multiply by 2&quot; as 2 × (8 + 7). Recognize that 3 × (18032 + 921) is three times as large as 18032 + 921, without having to calculate the indicated sum or product.</td>
<td>Evidence Statement: The language of the standard provides the focus for this evidence statement. Clarifications: • Expressions will not require the use of braces.</td>
</tr>
</tbody>
</table>
## Grade 5 Mathematics Evidence Statements

### Coding for Content Standards

Several different numbering codes are being used for the standards within the MCAP Evidence Statements. The numbering system is explained in the following tables.

<table>
<thead>
<tr>
<th>Claim</th>
<th>Explanation of Types of Evidence Statements</th>
<th>Example of the Standard</th>
</tr>
</thead>
</table>
| **For Content Standards** | When Assessing the Entire Standard  
  • Standard code is the same as the MCCR standard.  
  • The exact language and intent of the entire standard is assessed, which includes examples and “e.g.” parts of the standard. | 3.OA.A.1-Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.* |
| | When Assessing Portions of a Standard with Multiple Operations  
  • The standard code is the same as the MCCR standard with an addition of a Dash 1 or dash 2, etc. (-1, -2)  
  • The portion of the standard that is assessed will appear in bold font. | 3.OA.A.3-1 Use *multiplication and division* within 100 (both factors less than or equal to 10) to solve word problems in situations involving equal groups, arrays, or area, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.  
  3.OA.A.3-2 Use *multiplication and division* within 100 (both factors less than or equal to 10) to solve word problems in situations involving equal groups, arrays, or area, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. |
| | When Assessing Portions of a Standard with Two or More Concepts  
  • The standard code is the same as the MCCR standard with an addition of a Dash 1 or dash 2, etc. (-1, -2)  
  • The portion of the standard that is being assessed will appear in bold font | 4.OA.A.1-Interpret a *multiplication equation as a comparison*, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplication comparisons as multiplication equations  
  4.OA.A.1-2 will focus on the last sentence: Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. **Represent verbal statements of multiplication comparisons as multiplication equations** |
Coding for Reasoning

The MCAP Mathematics Evidence Statements for the Reasoning Sub-Claim have a different structure than the Content Evidence Statements. The codes for the Reasoning Evidence Statements begin with the number of the grade level followed by the letter “R” to indicate that the statement is a Reasoning Evidence Statement. The last number stands for the sequence of the evidence statement.

The Reasoning Evidence Statements apply to both machine-scored and constructed response items. The Reasoning Assessment items may align to any of the content standards from a given course. In grades 3-5, an online calculator is available for students’ use to assist with any computations for these types of questions on the assessment.

Reasoning - Calculators are available for all reasoning items

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| 5.R.1      | Base reasoning/explanations using a given pictorial representations and explains how the pictorial model represents a mathematical concept, or how it can be used to justify or refute a statement (with or without flaws) or how it can be used to generalize. | • Tasks provide visual (drawn) representations for students explain how a given visual representation represents a mathematical concept. OR
• Tasks provide a visual representation for students to explain how it can justify or refute a statement or reasoning. OR
• Tasks provide a given visual representation to make a conjecture or generalization.
• Tasks should focus on content in standards that specify reasoning using visual mathematical representations (number lines, diagrams, and tables, etc.

Type I Tasks: Must have a simple context to support reasoning for a 1-point task.

- May ask students to identify or select given reasoning that explains how the visual models represent a given mathematical concept
- May ask students to use the visual model and select a statement or work that will justify or refute a given conjecture
- May ask students to use the given visual model and select the correct generalization that the model proves is true

Type II Tasks: Must have context rich enough to support reasoning for a 3-point task.

- Constructed response tasks allow students provide work, and/or a written explanation and/or the drawing tool to describe their own reasoning.
- Tasks may prompt students to explain why the pictorial representations does or does not represent the mathematical concept or procedure or to justify or refute an argument.
**Grade 5 Mathematics Evidence Statements**

**Coding for Modeling**

The codes for the Modeling Evidence Statements begin with the grade level followed by the letter “M” to indicate that the statement is a Modeling Evidence Statement, it is then followed by the numeral 1, a dash, and then another numeral 1-5, which identifies a specific modeling number statement. The Modeling Evidence Statements may apply to both machine-scored and constructed response items.

The Modeling Assessment items may align to any of the content standards from a given course. In grades 3-5, an online calculator is available for students’ use to assist with any computations.

**Modeling** - One-point items could be assessed using 5.M.1-1, 5.M.1-2, or 5.M.1-3. Three-point items could be assessed with 5.M.1-4 and/or 5.M.1-5 or a combination of two or more one-point evidence statements depending on the context of the problem situation. Calculators are available for all modeling items.

<table>
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<tr>
<th>MCCRS Code</th>
<th>Modeling Evidence Statement</th>
<th>Clarifications</th>
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<tbody>
<tr>
<td>5.M 1-1</td>
<td>Determine the problem that needs to be solved in a real-world, situation.</td>
<td>• Tasks do not require a solution.</td>
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<td></td>
<td></td>
<td>• Some tasks may include charts or graphs that could be analyzed for information about the problem.</td>
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<td></td>
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<td>• Some tasks could require students to describe the problem that needs to be solved, in their own words. (What is the problem that needs to be solved?)</td>
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<td></td>
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<td>• Some tasks could provide a real-world situation without a question to solve and students would be prompted to create a question that could be asked based on the problem situation.</td>
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<tr>
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<td>• Some tasks could require students to restate the problem in their own words.</td>
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<tr>
<td>5.M 1-2</td>
<td>Determine the information that is needed to solve a problem in a real-world situation. (What information is needed to solve the situation, no operations or a solution path is needed)</td>
<td>• Tasks do not require a solution, expressions, or equations.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Tasks may include charts or graphs that can be analyzed for information.</td>
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<tr>
<td></td>
<td></td>
<td>• Some tasks may prompt students to identify the information, from a given problem, that is needed to solve the problem.</td>
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<tr>
<td></td>
<td></td>
<td>• Some tasks may not provide all of the information needed to solve the problem. Students will make assumptions based on the information that is given in the problem.</td>
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<tr>
<td>5.M 1-3</td>
<td>Identify the mathematics that is needed to create a solution path for a real-world situation (No solution path, just identify which operations will be needed to solve the problem)</td>
<td>• Tasks do not require a solution path with answers. Tasks could prompt the students to identify the sequence of operations needed to create a solution path. (For example, “First add then subtract”</td>
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<tr>
<td></td>
<td></td>
<td>• Tasks could prompt students to identify or write an expression with the correct sequence of operations, write an equation with a letter for the answer, or write expressions.</td>
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<td></td>
<td></td>
<td>• Responses should be mathematically correct and precise.</td>
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<tr>
<td>5.M 1-4</td>
<td>Create a solution path that represents the mathematics needed to solve a real-world situation.</td>
<td>• Tasks must provide a problem scenario that allows for a solution path that shows two-steps.</td>
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<tr>
<td></td>
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<td>• Tasks should prompt students to represent a solution path using correct and precise mathematical representations. (words, equations, drawings, etc.)</td>
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<tr>
<td></td>
<td></td>
<td>• Tasks would require a complete and accurate solutions path that includes the answer.</td>
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<tr>
<td>5.M 1-5</td>
<td>Evaluate a partial or complete solution to a real-world situation. (Check work)</td>
<td>• Tasks require students to analyze a given solution path (partial or complete) determine if it is a mathematically correct solution path for the given real world situation. If the solution path is correct, then students should explain why it is correct.</td>
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<tr>
<td></td>
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<td>• If solutions paths are incorrect, tasks should ask students to improve or refine a problem solution.</td>
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Standards for Mathematical Practice

The Standards for Mathematical Practice describe the varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These practices rest on important "processes and proficiencies" with longstanding importance in mathematics education.

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

Commonly Used Terms:

- **Context** - The situation or setting for a word problem. The situations influence the solution path.
- **Thin Context** - A sentence or phrase that provides meaning for the quantity/quantities in a problem. For example, “The fractions represent lengths of a string.”
- **No Context** - The item has no setting or situation. There are only numbers and symbols in the item.
- **Visual Models** - Drawn or pictorial examples that are representations of the mathematics.
Grade 5 - Content
Operations and Algebraic Thinking (OA)
A. Write and interpret numerical expressions.

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<th>MCCRS Code</th>
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<tr>
<td>5.OA.A.1</td>
<td>Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.</td>
<td>Evidence Statement: The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples. Clarifications: • Expressions will not require the use of braces. (Will include parenthesis and brackets only). • Tasks provide situations that model order of operations and make connections to the properties of the associative and distributive for addition and multiplication. • Tasks could involve solving problems and equations using parenthesis • Tasks could involve solving problems and equations that employ order of operations • Tasks could require students to place parenthesis to represent a given scenario or match an expression to a scenario.</td>
</tr>
<tr>
<td>5.OA.A.2</td>
<td>Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them. (For example, express the calculation “add 8 and 7, then multiply by 2” as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.)</td>
<td>Evidence Statement: The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples. Clarifications: • Expressions will not require the use of braces (will include parenthesis and brackets only).</td>
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</table>
## B. Analyze patterns and relationships

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| 5.OA.B.3   | Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns and graph the ordered pairs on a coordinate plane. *(For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence.)* **Explain informally why this is so.** | **Evidence Statement:** This standard has multiple parts. The first two sentences ask students to generate two numerical patterns using two GIVEN rules and to identify apparent relationships between the corresponding terms. **Clarifications:**  
- Tasks should only include what is stated in the first two sentences and the last sentence in the standard (bold font)  
- The rest of this standard will be assessed along with 5.G.1 and 5.G.2 |
# Number and Operations in Base Ten (NBT)

## A. Understand the place value system

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</table>
| 5.NBT.A.1  | Recognize that in a multi-digit number, a digit in ones place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. | **Evidence Statement:** The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples.  
**Clarifications:**  
- Tasks have "thin context" or no context  
- Tasks involve the decimal point in a substantial way (e.g., by involving a comparison of a tenths digit to a thousandths digit or a tenths digit to a tens digit).  
- Place value limit of decimals to the thousandths |
| 5.NBT.A.2  | Explain patterns in the number of zeros of the product when multiplying a number by powers of 10 and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole number exponents to denote powers of 10. | **Evidence Statement:** The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples.  
**Clarifications:**  
- Tasks should focus on the explanation or application of patterns rather than moving the decimal or adding zeros. |
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</table>
| 5.NBT.A.3a | Read, write, and compare decimals to thousandths. (Builds on grade 4 work to hundredths). 3a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g. $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times \left(\frac{1}{10}\right) + 9 \times \left(\frac{1}{100}\right) + 2 \times \left(\frac{1}{1000}\right)$ | **Evidence Statement:** The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples. **Clarifications:**  
- Tasks have “thin context” or no context.  
- Tasks assess conceptual understanding, e.g., by including a mixture (both within and between items) of expanded form, number names, and base ten numerals. |
| 5.NBT.A.3b | Read, write, and compare decimals to thousandths. (Builds on grade 4 work to hundredths). 3b. Read, write, and compare decimals to thousandths. (Builds from grade 4 work to hundredths). Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. | **Evidence Statement:** The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples. **Clarifications:**  
- Tasks have “thin context” or no context.  
- Tasks assess conceptual understanding, e.g., by including a mixture (both within and between items) of expanded form, number names, and base ten numerals.  
- Comparisons include thousandths to thousandths or thousandths to hundredths, hundredth to hundredths, not tens to tens or hundredths to ten. |
| 5.NBT.A.4 | Use place value understanding to round decimals to any place. | **Evidence Statement:** The language of the standard provides the focus for this evidence statement. **Clarifications:**  
- Tasks have “thin context” or no context. |
### B. Perform operations with multi-digit whole numbers and with decimals to hundredths

<table>
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</table>
| 5.NBT.B.5  | Fluently multiply multi-digit whole numbers using the standard algorithm. | **Evidence Statement**: The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples. **Clarifications**:  
- Tasks assess accuracy. The given factors are such as to require an efficient/standard algorithm (e.g., 26 x 4871).  
- Factors in the task do not suggest any obvious ad hoc or mental strategy (as would be present for example in a case such as 7250 x 40).  
- Tasks do not have context.  
- For purposes of assessment, the possibilities are 1-digit x 2-digit, 1-digit x 3-digit, 2-digit x 2-digit, 2-digit x 3-digit, or 2-digit x 4-digit  
- Tasks are not timed. |
| 5.NBT.B.6  | Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. | **Evidence Statement**: This standard is not only about calculating the correct answer. Some tasks should focus on the strategies used to find whole number quotients. **Clarifications**:  
- Some tasks should include the last sentence in the standard. |
<table>
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</table>
| 5.NBT.B.7-1| **Add**, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. | **Evidence Statement:** This standard includes all four operations with decimals. For the purpose of item development, the evidence statement focuses on adding decimals. **Clarifications for both operations:**  
  • Prompts may include visual models, or prompts may present the addends or subtrahend and minuend as numbers. The answer sought is a number, not a picture.  
  **Adding decimals:**  
  • Each addend is greater than or equal to 0.01 and less than, or equal to 99.99 |
| 5.NBT.B.7-2| **Add**, **subtract**, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. | **Evidence Statement:** The standard includes all four operations with decimals. For the purpose of item development, the evidence statement focuses on subtracting decimals. **Clarifications:**  
  • See 5.NBT.B.7-1 for clarifications  
  **Subtracting decimals:**  
  • The subtrahend and minuend are each greater than or equal to 0.01 and less than or equal to 99.99. Positive differences only. (Every included subtraction problem is an unknown-addend problem included in 5.NBT.B.7a.) |
## MCAP Grade 5 Evidence Statements

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<tr>
<td>5.NBT.B.7-3</td>
<td>Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used</td>
<td><strong>Evidence Statement</strong>: This standard includes all four operations with decimals. For the purpose of item development, evidence statement focuses on multiplying decimals. <strong>Clarifications</strong>: - Prompts may include visual models, but prompts must also present the factors or the dividend and divisor as numbers, and the answer sought is a number, not a picture. - Each factor is greater than or equal to 0.01 and less than or equal to 99.99. - The product must not have any non-zero digits beyond the thousandths place. (For example, 1.67 x 0.34 = 0.5678 is excluded because the product has an 8 beyond the thousandths place; cf. 5.NBT.3, and see p. 17 of the Number and Operations in Base Ten Progression document.) - Problems are 2-digit x 2-digit or 1-digit by 3- or 4-digit. (For example, 7.8 x 5.3 or 0.3 x 18.24)</td>
</tr>
<tr>
<td>5.NBT.B.7-4</td>
<td>Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used</td>
<td><strong>Evidence Statement</strong>: This standard includes all four operations with decimals. For the purpose of item development, evidence statement focuses on dividing decimals. <strong>Clarifications</strong>: - Prompts may include visual models, but prompts must also present the factors or the dividend and divisor as numbers, and the answer sought is a number, not a picture. - Divisors and dividends are in the forms one- or two-digit whole numbers, including zero in the tens place, any decimal that includes whole numbers and decimals to hundredths, or decimals to hundredths. - Quotients are either whole numbers or else decimals terminating at the tenths or hundredths place. (Every included division problem is an unknown-factor problem included in 5.NBT.B.7c.)</td>
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</tbody>
</table>
A. Use equivalent fractions as a strategy to add and subtract fractions

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<tr>
<td>5.NF.A.1-1</td>
<td>Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. &lt;br&gt;[(\text{For example, } \frac{2}{3} + \frac{5}{4} = \frac{8}{12} + \frac{15}{12} = \frac{23}{12})]</td>
<td>Evidence Statement: The standard includes two operations, addition and subtraction and two types of numbers, fractions and mixed numbers with unlike dominators. For the purpose of item development, this evidence statement focuses on adding fractions with unlike denominators. 5.NF.A.1-1 will focus on adding fractions with unlike denominators. &lt;br&gt;Clarifications: &lt;ul&gt;&lt;li&gt;Tasks have no context.&lt;/li&gt;&lt;li&gt;Tasks ask for the answer or ask for an intermediate step that shows evidence of using equivalent fractions as a strategy.&lt;/li&gt;&lt;li&gt;Note: Tasks do not include mixed numbers.(see 5.NF.A.1-3 and 5.NF.A. 1-4)&lt;/li&gt;&lt;li&gt;Tasks may involve fractions greater than one (including fractions equal to whole numbers).&lt;/li&gt;&lt;li&gt;Prompts do not provide visual fraction models; students may a draw fraction models as a strategy.&lt;/li&gt;&lt;/ul&gt;</td>
</tr>
<tr>
<td>5.NF.A.1-2</td>
<td>Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.</td>
<td>Evidence Statement: 5.NF.A.1-2 will focus on subtracting fractions with unlike denominators. &lt;br&gt;Clarifications: &lt;ul&gt;&lt;li&gt;See Above - 5.A.1-1 for clarifications&lt;/li&gt;&lt;/ul&gt;</td>
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| **5.NF.A.1** | *Add and subtract mixed numbers with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.* (For example: \( \frac{3}{2} + \frac{2}{3} = (3 + 2) + \left( \frac{1}{2} + \frac{2}{3} \right) = 5 + \left( \frac{3}{6} + \frac{4}{6} \right) = 5 + \frac{7}{6} = 5 + 1 + \frac{1}{6} = 6 \frac{1}{6} \)) | **Evidence Statement**: The standard is separated to focus on the adding of mixed numbers with unlike denominators portion of the standard. 5. NF.A.1-3 focuses on adding mixed numbers with unlike denominators. 5. NF.A. 1-4 focuses on subtracting mixed numbers with unlike denominators. **Clarifications**:  
- Tasks have thin context or no context.  
- Tasks ask for the answer or ask for an intermediate step that shows evidence of using equivalent fractions as a strategy.  
- Prompts do not provide visual fraction models; students may draw fraction models as a strategy. |
| **5.NF.A.1-4** | *Add and subtract mixed numbers with unlike denominators by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators* | **Evidence Statement and Clarifications**  
- See Above Evidence Statement 4.NF.A.1-3 |
| **5.NF.A.2** | *Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.* (For example, recognize an incorrect result \( \frac{1}{2} + \frac{1}{2} = \frac{3}{7} \) by observing that \( \frac{3}{7} < \frac{1}{2} \)) | **Evidence Statement**: The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples. **Clarifications**:  
- Tasks may use any of the situation types of problems as a shown in the table, Addition and Subtraction Situations at the back of this document.  
- Tasks could provide visual fraction models; or students may draw fraction models as a strategy.  
- For assessment purposes, linear fraction models such as bar models/tape diagrams and number lines or area models will used in tasks.  
- Tasks may involve fractions greater than one, including mixed numbers. |
### B. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

<table>
<thead>
<tr>
<th>MCCRS Code</th>
<th>Standard</th>
<th>Evidence Statement /Clarification</th>
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</thead>
</table>
| 5.NF.B.3   | Interpret a fraction as division of the numerator by the denominator \( \frac{a}{b} = a \div b \). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. *(For example, interpret 3/4 as the result of dividing 3 by 4, noting that 3/4 multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size 3/4. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?)* | **Evidence Statement:** The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples.  
**Clarifications:**  
- Tasks should have context that includes the understanding of a fraction as division of the numerator by the denominator  
- Fraction modules or equations can be used to represent the problem (linear fraction models such as bar models/tape diagrams and number lines or area models will be used in tasks.)  
- Note example given in the standard |
## MCAP Grade 5 Evidence Statements

<table>
<thead>
<tr>
<th>MCCRS Code</th>
<th>Standard</th>
<th>Evidence Statement /Clarification</th>
</tr>
</thead>
</table>
| 5.NF.B.4a | Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.  
5. NF.B.4a Interpret the product \((a/b) \times q\) as a parts of a partition of \(q\) into \(b\) equal parts; equivalently, as the result of a sequence of operations \(a \times q \div b\). [For example, use a visual fraction model to show \(\frac{2}{3} \times 4 = \frac{8}{2}\), and create a story context for this equation. Do the same with \(\frac{2}{3} \times \frac{4}{5} = \frac{8}{15}\). (In general, \((a/b) \times (c/d) = \frac{ac}{bd}\)] |
| Evidence Statement: The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples.  
Clarifications:  
- Tasks have context in the prompt or solution.  
- Tasks may use models to represent a situation in which students need to multiply a whole number by a fraction or a fraction by a fraction.  
- For assessment purposes-Linear fraction models such as bar models/tape diagrams and number lines, or area models may be used in tasks. Circle models will not be accepted |
| 5.NF.B.4.b | Find the area of a rectangle with fractional side lengths by titling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas. |
| Evidence Statement: This standard is instructional and must be taught as it develops important foundational understanding for multiplication with fractions. The standard may be assessed as the content focus for reasoning and modeling tasks. |
### MCAP Grade 5 Evidence Statements

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>5.NF.B.5.a and 5.NF.B.5b</td>
<td>Interpret multiplication as scaling (sizing) by: Comparing the size of a product to the size of one factor based on the size of the other factor, without performing the indicated multiplication. Explaining why multiplying a given number by a fraction greater than a 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $\frac{a}{b} = \frac{(n \times a)}{(n \times b)}$ to the effect of multiplying $\frac{a}{b}$ by 1.</td>
<td>Evidence Statement: These two standards are instructional and must be taught as they develop important foundational understanding for multiplication with fractions. These standards may be assessed as the content focus for reasoning and modeling tasks.</td>
</tr>
<tr>
<td>5.NF.B.6</td>
<td>Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem by a non-zero whole number and compute such quotients.</td>
<td>Evidence Statements: The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples. Clarifications:  - Tasks include word problems multiplying a fraction times a fraction, a fraction times a mixed number, and a mixed number times a mixed number  - When tasks involve multiplying two mixed numbers, the denominator of the product is less than or equal to 24.  - Tasks include area and comparison /times as much, with product unknown.  - Content tasks should provide a visual fraction model. If a model is used, numbers should be reasonable, so they do not impede finding the solution.  - Reasoning tasks should not include a model but should be open enough so that students can draw visual fraction models that align to the task using the draw tool. Numbers should be reasonable so as not to impede finding the solution.</td>
</tr>
</tbody>
</table>
### MCAP Grade 5 Evidence Statements

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>5.NF.B.6</td>
<td>Solve real-world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem by a non-zero whole number and compute such quotients.</td>
<td></td>
</tr>
</tbody>
</table>

**Evidence Statements:** The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples.

**Clarifications:**
- Tasks include word problems multiplying a fraction times a fraction, a fraction times a mixed number, and a mixed number times a mixed number.
- When tasks involve multiplying two mixed numbers, the denominator of the product is less than or equal to 24.
- Tasks include area and comparison times as much, with product unknown.
- Content tasks should provide a visual fraction model. If a model is used, numbers should be reasonable, so they do not impede finding the solution.
- Reasoning tasks should not include a model but should be open enough so that students can draw visual fraction models that align to the task using the draw tool. Numbers should be reasonable so as not to impede finding the solution.
## MCAP Grade 5 Evidence Statements

<table>
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<tr>
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</tr>
</thead>
</table>
| 5.NF.B.7a  | **5.NF.B.7a**: Interpret division of a unit fraction by a non-zero whole number and compute such quotients. For example, create a story context for \( \frac{1}{3} \div 4 \) and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that \( \frac{1}{3} \div 4 = \frac{1}{12} \) because \( \frac{1}{12} \times 4 = \frac{1}{3} \) | **Evidence Statements**: This evidence statement focuses on the first part of the standard. Since this is the first exposure of dividing fractions, students should apply and extend concepts of whole number division to dividing a unit fraction by a non-zero whole number. **Clarifications:**  
• Tasks should have a variety of including a thin or no context.  
• Tasks should include computation of the quotient.  
• Tasks could include the use of appropriate fraction models (linear fraction models such as bar models/tape diagrams and number lines or area models may be used in tasks.)  
• An explanation of work is not required. Tasks could include matching a representation to a scenario.  
• Explanation of work is not included.  |
| 5.NF.B.7b  | **5.NF.B.7b**: Interpret division of a whole number by a unit fraction and compute such quotients. (For example, create a story context for \( 4 \div \frac{1}{5} \) and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that \( 4 \div \frac{1}{5} = 20 \) because \( 20 \times \frac{1}{5} = 4 \).) | **Clarifications:**  
• See Clarification for 5.NF.B.7a  |
| 5.NF.B.7c  | **5.NF.B.7c**: Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. (For example, how much chocolate will each person get if 3 people share \( \frac{1}{2} \) lb. of chocolate equally? How many \( \frac{1}{3} \) cup servings are in 2 cups of raisins?) | **Clarifications:**  
• Tasks involve equal group (partition) situations with part size unknown and the number of parts unknown. (Reference the table of Multiplication and Division Situations in the back of this document.  
• Prompts do not provide visual fraction models; but students may draw visual fraction models as a strategy.  |
### Measurement and Data (MD)

#### A. Convert like measurement units within a given measurement system

<table>
<thead>
<tr>
<th>MCCRS Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>5.MD.A.1</td>
<td>Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m) and use these conversions in solving multi-step problems.</td>
<td><strong>Evidence Statement:</strong> The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples.</td>
</tr>
</tbody>
</table>

#### B. Represent and interpret data.

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>5.MD.B.2</td>
<td>Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8), Use operations for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally (4.MD.B.4)</td>
<td><strong>Evidence Statement:</strong> The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Clarifications:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Tasks include context</td>
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<tr>
<td></td>
<td></td>
<td>- Use the measurement units found in the MCAP Reference Sheet Table</td>
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<tr>
<td></td>
<td></td>
<td>- Operations need to align to the grade 5 expectations for computations of fractions with unlike denominators.</td>
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<tr>
<td></td>
<td></td>
<td>- Data should be represented with “X’s”</td>
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</tbody>
</table>
## C. Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

<table>
<thead>
<tr>
<th>MCCRS Code</th>
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</table>
| 5.MD.C.3a 5.MD.C.3b | Recognize volume as an attribute of solid figures and understand concepts of volume measurement  
a. A cube with side length of one unit, called a “unit cube” is said to have “one cubic unit” of volume, and can be used to measure volume.  
b. A solid figure which can be packed without gaps or overlaps using \( n \) unit cubes is said to have a volume of \( n \) cubic units | Evidence Statement: These two standards are instructional and must be taught as they develop important foundational understanding of volume. These standards may be assessed with 5.MD.C5a or as the context for reasoning and modeling tasks |
| 5.MD.C.4 | Measure volumes by counting cubes, using cubic cm, cubic in., cubic ft., and improvised units. | Evidence Statement: This standard is instructional and must be taught as it develops important foundational understanding volume. This standard may be assessed with 5.MD.C5a, 5.MD.C5b, and/or 5.MD.C.5c or within reasoning and modeling tasks |
| 5.MD.C.5a | Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume  
5a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent three-fold old whole-number products as volumes, e.g., to represent the associative property of multiplication | Evidence Statement: The language of the standard should guide the creation of assessment tasks, including the ideas in the given examples.  
Clarifications:  
- May include concepts from 5.MD.C.3a, 5.MD.C.3b, and/or 5.MD.C.4  
- Tasks must include a right rectangular prism with whole number side lengths (no fractions). The right rectangular prism is only packed with unit cubes (cm or half-inch) that do not overlap or leave spaces.  
No other filling (water, sand, etc.) should be used in tasks the fill the right rectangular prism. |
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<tr>
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<th>Evidence Statement /Clarification</th>
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</table>
| 5.MD.C.5b  | Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume | Evidence Statement: The language of the standard provides the focus for this evidence statement. This standard deepens students’ understanding of finding the volume of a rectangular prism. Clariifications:  
- Tasks may or may not have context.  
- Tasks may require students to measure to find edge lengths to the nearest centimeter, millimeter, or inch.  
- The right rectangular prisms are NOT filled. This standard calls for students to apply their knowledge of packing the right rectangular prisms with unit cubes to determine the volume. |
| 5.MD.C.5c  | Relate volume to the operations of multiplication and addition, and solve real-world and mathematical problems involving volume  
5c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems | Evidence Statement: The language of the standard provides the focus for this evidence statement. Clariifications:  
- Tasks may or may not have context.  
- Tasks may require students to measure to find edge lengths to the nearest cm, mm or in.  
- Tasks require students to apply their knowledge of finding the volume of a right rectangular prism with two non-overlapping prisms. (This standard is an extension of finding the area of rectilinear figures in grade 3). In grade 5, this involves finding the volume of three-dimensional figures.  
- The right rectangular prisms are NOT filled. This standard calls for students to apply their knowledge of packing the right rectangular prisms with unit cubes to finding the formula volume and adding the two volumes to find the total volume of the two figures. |
**Geometry (G)**

**A. Graph points on the coordinate plane to solve real-world and mathematical problems.**

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<tr>
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</table>
| 5.G.A.1    | Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). | **Evidence Statement:** This evidence statement focuses more on the intent of 5.G.A.2 with the concepts described in 5.G.A.1 and the second part of 5.OA.B.3.  
**Clarifications:**  
- Tasks assess student understanding of the coordinate plane as a representation scheme, with essential features as articulated in standard 5.G.A.1.  
- For 5.G.A.1 only, tasks may involve only the plotting of points  
- Coordinates must be whole numbers only. |
| 5.G.A.2    | Represent real-world mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.                                                                 | **Evidence Statement:** This evidence statement uses the knowledge and concepts from 5.G.A.1 to represent real-world mathematical problems.  
**Clarifications:**  
- See information above. |
# MCAP Grade 5 Evidence Statements

## B. Classify two-dimensional figures in a hierarchy based on properties

<table>
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<tr>
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</thead>
</table>
| 5.G.B.3     | Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category. For example, all rectangles have four right angles and squares are rectangles, so all squares have four right angles. | Evidence Statement: The language of this standard also overlaps with the intent of 5.G.B.4. Clarifications:  
- Tasks focus reasoning about the attributes of shapes. These properties include, sides (parallel, perpendicular, congruent), angles (type, measurement, congruent), and symmetry (point and line).  
- Note: MCCRS uses this definition of a trapezoid: A trapezoid is defined as “A quadrilateral with at least one pair of parallel sides.” Students will not be asked to define a trapezoid. The definition should be understood so that students may use it to classify shapes into subcategories to meet the standard. |
| 5.G.B.4     | Classify two-dimensional figures in a hierarchy based on properties | Evidence Statement: This standard overlaps with 5.G.B.3. It focuses not only on the properties of polygons, but also to reason about the attributes of shapes. Clarifications:  
- Items could include a partially completed diagram showing the hierarchy of shapes to complete  
- Items could include questions that require students to reason about the shapes. For example, Why is a square always a rectangle? What are the ways to classify triangles?  
- Note MCCRS uses this definition of a trapezoid: A trapezoid is defined as “A quadrilateral with at least one pair of parallel sides.” Students will not be asked to define a trapezoid. The definition should be understood so that students may use it to classify shapes into subcategories to meet the standard. |
Reasoning Evidence Statements

5.R.1 - Base reasoning or explanations on a given pictorial representation and explain how the pictorial model represents a mathematical concept, or how it can be used to justify or refute a statement (with or without flaws) or how it can be used to generalize.

5.R.2 - Identify flawed thinking or reasoning and explain how to correct the thinking or work.

5.R.3 - Prove or disprove a statement, conjecture, or generalization using correct and precise mathematical examples (visual representations, words, symbols, equations or expressions)

5.R.4 - Reason mathematically to create or analyze a correct and precise solution to a real world problem and be able to explain why the answer is mathematically correct.

- Reasoning evidence statements may be assessed as a Type I machine scored item or as a Type II constructed response item.
- Type I items are either a 1 or 2-step problem
- Type II items are at least 3-step problems
- Calculators are available for student use during the assessment for all reasoning items

The following pages provide specific clarifications about each reasoning evidence statement as well as a sample item. Please keep in mind that sample items are used to help clarify the evidence statement. They are not a template for assessment items.
### Evidence Statement

**3,4,5.R.1**

Base reasoning or explanations on a given pictorial representation and explain how the pictorial model represents a mathematical concept, or how it can be used to justify or refute a statement (with or without flaws) or how it can be used to generalize.

Type I – 1-point

- **Machine scored items**
  - Have appropriate context for 1-point tasks.

  - *Grade 3: 1-step problems*
  - *Grades 4 and 5: 1 or 2-step problems*

### Clarifications

- Pictorial representations for this evidence statement are a representation of a specific mathematics concept. Visuals that provide information such as tables, charts, graphs, calibrated containers, etc. are not appropriate for this evidence statement.

1. Tasks provide a pictorial representation for students to identify the mathematical concept the representation exemplifies.

(Continues on the next page)

### Sample Items

**Example 1- Students select the mathematics represented by the pictorial representation.**

A student uses the number line to find the value of 269-234.

Which expression represents how the student used the number line to find the value of 269-234?

- A. 10+10+10+10+10
- B. 10+10+10+10+1
- C. 4+10+10+10+1
- D. 1+10+10+10+4
<table>
<thead>
<tr>
<th>Evidence Statement</th>
<th>Clarifications</th>
<th>Sample Items</th>
</tr>
</thead>
</table>
| 3,4,5.R.1          | Base reasoning or explanations on a given pictorial representation and explain how the pictorial model represents a mathematical concept, or how it can be used to justify or refute a statement (with or without flaws) or how it can be used to generalize. | Example 2- Students select the pictorial representation that best explains a given mathematical concept or procedure. 
Cole drew the shaded rectangle on a piece of grid paper. 

![Cole's Rectangle](image)

Nora also drew a rectangle on grid paper. Nora’s rectangle has the same perimeter as Cole’s rectangle but has a different area than Cole’s rectangle. 
Which rectangle could be Nora’s? |
<p>|                   | 2. Tasks provide a mathematical concept and require students to select the correct corresponding pictorial representation. | C. Nora’s Rectangle |
|                   |                                                           | D. Nora’s Rectangle |</p>
<table>
<thead>
<tr>
<th>Evidence Statement</th>
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</tr>
</thead>
<tbody>
<tr>
<td>3,4,5.R.1</td>
<td>3. Tasks may state a conjecture or generalization and students select the pictorial representation that proves or disproves the conjecture or generalization.</td>
<td>Example 3- Students select the pictorial representation that proves or disproves a given conjecture or generalization.</td>
</tr>
</tbody>
</table>

A student claims that some quadrilaterals are not rhombuses. Which three figures prove that the student’s claim is true? Select the three correct answers.

- A. 
- B. 
- C. 
- D. 
- E. 

Type I – 1-point machine scored items
## Evidence Statement

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>3,4,5.R.1</td>
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<td></td>
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</tbody>
</table>
| **Base reasoning or explanations on a given pictorial representation and explain how the pictorial model represents a mathematical concept, or how it can be used to justify or refute a statement (with or without flaws) or how it can be used to generalize.** | • Tasks must have context rich enough to provide work for a two or multi-step problem.  
• Pictorial representations for this evidence statement are a representation of a specific mathematics concept.  
• Visuals that provide information such as tables, charts, graphs, calibrated containers, etc. are not appropriate for this evidence statement.  
• Constructed Response tasks allow students to provide work and/or a written explanation and/or to use the drawing tool to describe their own reasoning.  
| **1. Tasks provide a pictorial representation for students to explain how the pictorial model represents the mathematics.** | **Example 1:** Tasks provide a pictorial representation for students to explain how the pictorial model represents the mathematics.  
| ![Image](image.png) | Explain how the model could be used to find the result of $54 \times 78$. Then find the result of $54 \times 78$.  
Enter your answer and your explanation in the space provided. You may also use the drawing tool to help explain or support your answer.  
| ![Image](image.png) | **Example 2:** Use the drawing tool to describe your reasoning.  

**Type II – 3-point human scored (Constructed Response) items**  
- **Grade 3:** 2-step problems  
- **Grades 4 and 5:** multi-step (at least 3 steps) problems |
### Evidence Statement

**3,4,5.R.1**

Base reasoning or explanations on a given pictorial representation and explain how the pictorial model represents a mathematical concept, or how it can be used to justify or refute a statement (with or without flaws) or how it can be used to generalize.

**Type II – 3-point human scored (Constructed Response) items**

- Grade 3: 2-step problems
- Grades 4 and 5: multi-step (at least 3 steps) problems

<table>
<thead>
<tr>
<th>Evidence Statement</th>
<th>Clarifications</th>
<th>Sample Items</th>
</tr>
</thead>
</table>
| **3,4,5.R.1**      | • Tasks must have context rich enough to provide work for a two or multi-step problem.  
                    • Pictorial representations for this evidence statement are a representation of a specific mathematics concept.  
                    • Visuals that provide information such as tables, charts, graphs, calibrated containers, etc. are not appropriate for this evidence statement.  
                    • Constructed Response tasks allow students to provide work and/or a written explanation and/or to use the drawing tool to describe their own reasoning.  
                    • 2. Tasks provide a mathematical concept that allow students to provide correct corresponding pictorial representation.  
                    • 3. Tasks may state a conjecture or generalization and students explain why the pictorial representation supports or does not support the conjecture or generalization. |
|                    | Example 2: Tasks provide a mathematical concept that allow students to provide correct corresponding pictorial representation.  
                    A cook has 3 cups of cupcake batter. Each cupcake is made with ¼ cup of batter.  
                    • Draw a model that represents the total number of cupcakes the cook can make with 3 cups of batter.  
                    • Create an equation to find the total number of cupcakes the cook can make with 3 cups of batter.  
                    Enter your answer and your work or explanation in the space provided. You may also use the drawing tool to help explain or support your answer.  
                    Example 3: Tasks may state a conjecture or generalization and students explain why the pictorial representation supports or does not support the conjecture or generalization.  
                    A friend uses this model to show one whole.  
                    The friend drew a model to represent the product $\frac{1}{3} \times 9$.  
                    The friend thinks that this model can represent the multiplication expression. Explain how the model disproves the friend’s thinking. Enter your answer and your work or explanation in the space provided. You may also use the drawing tool to help explain or support your answer. |
## Evidence Statement

<table>
<thead>
<tr>
<th>Evidence Statement</th>
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<th>Sample Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,4,5.R.2</td>
<td>Type I Items.</td>
<td>Example 1 - Students only identify the error.</td>
</tr>
<tr>
<td></td>
<td>• Tasks provide only incorrect work/thinking.</td>
<td>An artist drew a rectangle.</td>
</tr>
<tr>
<td></td>
<td>• Tasks allow students to identify the flaw OR explain how to correct the flaw.</td>
<td>The artist said the area of the rectangle shown is found by adding $3 + 7 + 3 + 7 = 20$. The artist made a mistake. Which statement explains the artist’s mistake?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A. The artist used the incorrect side lengths.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>B. The artist added the side lengths incorrectly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C. The artist calculated the final answer incorrectly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D. The artist calculated the perimeter of the rectangle.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Example 2 - Students are prompted to correct the error. (Context of the item may or may not tell the error.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A student said the value of 11 tens, 8 ones and 2 hundreds is 1182. The student made a mistake. What is the correct value?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enter your answer in the space provided.</td>
</tr>
</tbody>
</table>

- Have simple context applicable for 1-point tasks.
  - Grade 3: no more than 1 step
  - Grades 4 and 5: 1 or 2-step problems
### Evidence Statement

**3,4,5.R.2**

Identify flawed thinking/reasoning and explain how to correct the thinking or work.

**Type II- 3-point human scored (Constructed Response) items**

- Have rich context applicable for 3-point tasks.
  - Grade 3: no more than 2 steps
  - Grades 4 and 5: multi-step (at least 3 steps) problems

### Clarifications

- Constructed Response tasks allow students to provide work and/or a written explanation and/or to use the drawing tool to describe their own reasoning.
- Tasks prompt students to identify the flaw AND explain how to correct the flaw.
- Students may use multiple representations to support or further explain their own reasoning.

### Sample Items

**Example 1:**

Keisha said the value of 11 tens, 8 ones and 2 hundreds is 1182.

What error did the student make in her reasoning?

Explain how you would correct the error that the student made.

Enter your answer and your work or explanation in the space provided. You may also use the drawing tool to help explain or support your answer.

**Example 2:**

An explanation for finding the value of 4 x 2 x 3 is given:

- Multiply 4 x 2.
- Multiply 4 x 3.
- Add the two products.

A mistake is made in the explanation. Describe the mistake and explain a strategy that could be used to find the product for 4 x 2 x 3.

Enter your answer and your work or explanation in the space provided. You may also use the drawing tool to help explain or support your answer.
## Evidence Statement

**3,4,5.R.3**

*Prove or disprove a statement, conjecture, or generalization, using correct and precise mathematical examples (visual representations, words, symbols, equations, or expressions.)*

**Clarifications**

- Tasks have thin context or simple context to support reasoning for 1-point.
- Students do not identify if the conjecture is correct or incorrect. They either support the conjecture or show that it is not true using mathematical examples to back up their explanation.
- Tasks could state a conjecture based on grade appropriate mathematical concept (number sense, fraction concepts, properties of operations, relationship between operations, place values, etc.) that is either true or false.
- Examples may be visual representations, expressions or equations.

**Sample Items**

**Example:**

A student says that two fractions can be compared using the benchmark fraction \( \frac{1}{3} \). Which comparison proves the student’s thinking is correct?

Select two examples that support the student’s thinking.

- A. \( \frac{7}{8} > \frac{3}{12} \)
- B. \( \frac{1}{4} < \frac{4}{8} \)
- C. \( \frac{2}{6} < \frac{5}{6} \)
- D. \( \frac{6}{10} < \frac{6}{8} \)
- E. \( \frac{6}{12} > \frac{2}{8} \)

<table>
<thead>
<tr>
<th>Evidence Statement</th>
<th>Clarifications</th>
<th>Sample Items</th>
</tr>
</thead>
</table>
| **3,4,5.R.3**      | **Prove or disprove a statement, conjecture, or generalization, using correct and precise mathematical examples (visual representations, words, symbols, equations, or expressions.).** | **Clarifications:**
  - Tasks have thin context or simple context to support reasoning for 1-point.
  - Students do not identify if the conjecture is correct or incorrect. They either support the conjecture or show that it is not true using mathematical examples to back up their explanation.
  - Tasks could state a conjecture based on grade appropriate mathematical concept (number sense, fraction concepts, properties of operations, relationship between operations, place values, etc.) that is either true or false.
  - Examples may be visual representations, expressions or equations. | **Sample Items:**
  **Example:**
  A student says that two fractions can be compared using the benchmark fraction \( \frac{1}{3} \). Which comparison proves the student’s thinking is correct?
  Select two examples that support the student’s thinking.
  - A. \( \frac{7}{8} > \frac{3}{12} \)
  - B. \( \frac{1}{4} < \frac{4}{8} \)
  - C. \( \frac{2}{6} < \frac{5}{6} \)
  - D. \( \frac{6}{10} < \frac{6}{8} \)
  - E. \( \frac{6}{12} > \frac{2}{8} \) |
# MCAP Grade 5 Evidence Statements

<table>
<thead>
<tr>
<th>Evidence Statement</th>
<th>Clarifications</th>
<th>Sample Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,4,5.R.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Prove or disprove a statement, conjecture, or generalization, using correct and precise mathematical examples (visual representations, words, symbols, equations, or expressions.) | - Tasks have context rich enough to support a 3-point task. A 3-point item does not always need to have two or three different operations.  
- Students do not identify if the conjecture is correct or incorrect. They either support the conjecture or show that it is not true using mathematical examples to back up their explanation.  
- Tasks could state a conjecture based on grade appropriate mathematical concept (number sense, fraction concepts, properties of operations, relationship between operations, place values, etc.) that is either true or false.  
- Constructed response items should allow student to provide their own examples to support or show that something is not true using mathematical examples to back up their explanation.  
- Examples may be visual representations, equations and expressions. | Example 1:  
Your teacher gives you this problem to solve.  
What happens to the sum in an addition problem if each addend is multiplied by two?  
What is the answer to the problem the teacher gave? Explain how you found the answer and provide two examples that support your answer. Enter your answer and your work or explanation in the space provided. You may also use the drawing tool to help explain or support your answer.  

Example 2:  
In a third grade classroom, the teacher asked two students to name a fraction. Student A says 5/8 and Student B says 3/4.  
The teacher asks, if both fractions have the same size whole, how are 5/8 and 3/4 alike and how are they different? Explain how the two fractions are alike and different and include two examples to explain your thinking. Enter your answer and your work or explanation in the space provided. You may also use the drawing tool to help explain or support your answer. |
| |                |              |
| **Type II – 3-point human scored (Constructed Response) items** | Grade 3: 2-step problems  
Grade 4 and 5: multi-step (at least 3 steps) problems | |

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Maryland State Department of Education  
Page **37** of **51**
### Evidence Statement

3,4,5.R.4
Reason mathematically to create or analyze a correct and precise solution to a real-world problem and be able to explain why the answer is mathematically correct.

**Type I - 1-point machine scored items**
- Tasks have simple context to support a 1-point task.
  - Grade 3: 1-step problems
  - Grades 4 and 5: 1 or 2-step problems

### Clarifications

The purpose of this evidence statement is to assess how students think, understand and make sense of problems and how best to solve them.

- Tasks could prompt students to select a strategy or procedure that is best used to solve a given problem.
- Tasks could prompt students to select an explanation why a procedure or strategy is correct or appropriate for solving a given problem.
- Task context or answer choices could be based on big mathematics concepts, such as understanding of place value concepts, number concepts, properties, or relationships among whole numbers, fractions and decimals, etc.

### Sample Items

**Example 1:**
A pair of fraction models is shown.

![Fraction Models]

Which statement explains the correct reasoning for the sum of the shaded parts?

A. Each model shows $\frac{5}{8}$ shaded, so the sum is $\frac{26}{8}$.
B. Each model shows $\frac{6}{8}$ shaded, so the sum is $2\frac{6}{8}$.
C. Each model is divided into 8 parts. There are 12 total parts shaded, so the sum is $12\frac{2}{8}$.
D. Each model is divided into 8 parts. There are 12 total parts shaded, so the sum is $1\frac{2}{8}$.

**Example 2:**
Which strategy can be used to multiply $8 \times 7$?

A. Multiply $8 \times 2$ and then add 7.
B. Multiply $10 \times 7$ and then subtract 2.
C. Multiply $4 \times 2$ three times and add $8 + 8 + 8$.
D. Multiply $2 \times 7$ four times and add $14 + 14 + 14 + 14$. 

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November, 2020
Maryland State Department of Education
### Evidence Statement Clarifications Sample Items

#### 3,4,5.R.4

**Reason mathematically to create or analyze a correct and precise solution to a real-world problem and be able to explain why the answer is mathematically correct.**

<table>
<thead>
<tr>
<th>Evidence Statement</th>
<th>Clarifications</th>
<th>Sample Items</th>
</tr>
</thead>
</table>
| **3,4,5.R.4**      | The goal is to assess student’s mathematical reasoning and thinking (how they are making sense of a problem).  
  - Tasks should be rich enough to allow students to express their reasoning to support a 3-point or 4-point task.  
  - Task context could be based on big mathematics concepts, such as understanding of place value concepts, number concepts, properties, or relationships among whole numbers, fractions and decimals, etc.  
  - Constructed response tasks could prompt students to provide or explain a valid chain of reasoning that results in a given solution to a problem.  
  - Tasks could prompt students to explain why a solution or procedure is mathematically correct or why the answer makes sense. | **Example 1:**  
A contractor measured the length and width of two rectangular pieces of land.  
- The two pieces of land are adjacent and share the same width of 17 yards.  
- The first piece of land has a length of $32 \frac{1}{3}$ yards.  
- The second piece of land has a length of $25 \frac{1}{4}$ yards.  
Find the total area of both pieces of land, in square yards.  
Analyze your work. Explain how your work correctly represents the problem.  
  
  Enter your answer, your work or your explanation in the space provided. You may also use the drawing tool to help explain or support your answer. |

<table>
<thead>
<tr>
<th>Type II - 3-point human scored (Constructed Response) items</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 3: 2-step problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 4 and 5: multi-step (at least 3 steps) problems</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example 2:**

A group of four shapes is shown.

![Shapes]

Which shape does not belong?  
- Pick two shapes from the group and explain why each shape does not belong in the group.  
- Think about another shape that you could add to the group. Explain why that shape does not belong.

Enter your answer, your work or your explanation in the space provided. You may also use the drawing tool to help explain or support your answer.
MCAP Grade 5 Evidence Statements

- **Modeling Evidence Statements**

- 5.M.1-1 Determine the problem that needs to be solved in a real world situation (Type 1, One-point item only)

- 5.M.1-2 Determine the information that is needed to solve a problem in a given real-world situation. (Type 1, One-point item only)

- 5.M.1-3 Identify the mathematics that is needed to create a solution path for a real-world situation. (Type 1, One-point item only)

- 5.M.1-4 Create a solution path that represents the mathematics needed to solve a real-world situation. (Type III, 3 or 4 point items)

- 5.M.1-5 Evaluate a partial or complete solution to a real-world situation (Type III, 3 or 4 point items)

- Type I items are either a 1 or 2-step problem
- Type III items are at least 3-step problems
- Calculators are available for student use during the assessment for all reasoning items

- The following pages provide specific clarifications about each modeling evidence statement as well as a sample item.
- Please keep in mind that sample items are used to help clarify the evidence statement. They are not a template for assessment items.
### Evidence Statement Clarifications Sample Item

<table>
<thead>
<tr>
<th>Evidence Statement</th>
<th>Clarifications</th>
<th>Sample Item</th>
</tr>
</thead>
</table>
| **M.1-1**<br>(1-point items only) | **Type I Tasks Only**<br>- Tasks do not require a solution.<br>- Some tasks may include charts or graphs that could be analyzed for information about the problem.<br>- Tasks could require students to identify the problem that needs to be solved.<br>- The context of the problem may be a numberless word problem. This allows students to focus on the context of the problem, not just the numbers. | **Example 1:**<br>Two science classes are conducting an experiment together in the science lab. Each class has 23 students. The tables in the science lab can each seat up to 4 students.<br>What question could be answered using **all** the information in the problem?<br>  
A. How many students enjoy the science class?<br>B. How many science books are needed for one class?<br>C. How many students can be seated at all of the tables?<br>D. How many tables are needed for all the students from both classes? |
| **Determine the problem that needs to be solved in a real-world situation.**<br>**Grade 3: one step problems only**<br>**Grades 4 and 5: one or two-step problems** | | **Example 2:** **Numberless Word Problem**<br>Some science classes are conducting an experiment together in the science lab. Each class has the same number of students. Each table can seat the same number of students.<br>What question could be answered using **all** the information in the problem?<br>  
A. How many tables are needed for one class?<br>B. How many students are there in all of the classes?<br>C. How many science books are needed for one class?<br>D. How many tables are needed for all the students from both classes? |
### Evidence Statement

**M.1-2**  
(1-point items only)  
Determine the information that is needed to solve a problem in a given real-world situation.

**Clarifications**

- Tasks do not require a solution, expressions, or equations.
- Tasks may include charts or graphs that can be analyzed for information.
- Some tasks may prompt students to identify the information, from a given problem, that is needed to solve the problem.
- Some tasks may not provide all of the information needed to solve the problem. Students will make assumptions based on the information that is given in the problem.

**Sample Item**

**Example:**  
Two science classes are conducting an experiment together in the science lab. Each class has 23 students. The tables in the science lab can each seat up to 4 students. How many tables are needed for all the students from both classes?  
Which three pieces of information are needed to solve the problem?  
Select the **three** correct answers.

A. Each class has 23 students.  
B. Each table seats up to 4 students.  
C. Two science classes are in the lab.  
D. The experiment is in the science lab.  
E. Classes are conducting an experiment.  
F. The students work on the experiment for 30 minutes.
### Evidence Statement: M.1-3 (1-point items only)

**Identify the mathematics that is needed to create a solution path for a real-world situation.**

- **Grade 3:** one step problems only
- **Grades 4 and 5:** one or two-step problems

<table>
<thead>
<tr>
<th>Clarifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Tasks do not require a solution path with answers.</td>
</tr>
<tr>
<td>• Tasks could prompt the students to identify the sequence of operations needed to create a solution path. (For example, “First add then subtract”). The numbers used in the problem are not required.</td>
</tr>
<tr>
<td>• Tasks could prompt students to identify an expression with the correct sequence of operations, write an equation with a letter for the answer, or to write expressions.</td>
</tr>
<tr>
<td>• Responses should be mathematically correct and precise.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sample Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example:</strong></td>
</tr>
<tr>
<td>Two science classes are conducting an experiment together in the science lab. Each class has 23 students. The tables in the science lab can each seat up to 4 students. How many tables are needed for all the students from both classes?</td>
</tr>
<tr>
<td>Which operations could be used to solve the problem?</td>
</tr>
<tr>
<td>A. only division</td>
</tr>
<tr>
<td>B. only multiplication</td>
</tr>
<tr>
<td>C. first division and then addition</td>
</tr>
<tr>
<td>D. first addition and then division</td>
</tr>
</tbody>
</table>
### Evidence Statement

**M.1-4**  
(3 or 4-point items only)

Create a solution path that represents the mathematics needed to solve a real-world situation.

*Grade 3 and 4: 3-point Constructed Response items*

*Grade 5: 3 or 4-point Constructed Response items*

<table>
<thead>
<tr>
<th>Evidence Statement</th>
<th>Clarifications</th>
<th>Sample Item</th>
</tr>
</thead>
</table>
| **M.1-4**  
(3 or 4-point items only) |  
- Tasks must provide a problem scenario that allows students to create a solution path that represents the solution to a two-step problem in Grade 3 and multi-step problem in Grades 4 and 5.  
- Tasks would require one or more complete and accurate solution paths that include the answer. | **Example:**  
Two science classes are conducting an experiment together in the science lab. Each class has 23 students. The tables in the science lab can each seat up to 4 students. How many tables are needed for all the students from both classes?  
Write an equation or equations to show how to find the least number of tables needed for all the students from both classes in the science lab.  
Enter your answer and your work or explanation in the space provided. You may also use the drawing tool to help explain or support your answer. |
<table>
<thead>
<tr>
<th>Evidence Statement</th>
<th>Clarifications</th>
<th>Sample Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M.1-5</strong>&lt;br&gt;(3 or 4-point items only)**&lt;br&gt;Evaluate a partial or complete solution to a real-world situation. (Check work)</td>
<td>• Tasks require students to analyze a given solution path (partial or complete) to determine if it represents mathematically correct thinking for the given real-world situation. Students should analyze and explain how the solution path represents the problem.</td>
<td><strong>Example:</strong> Two science classes are conducting an experiment together in the science lab. Each class has 23 students. The tables in the science lab can each seat up to 4 students. How many tables are needed for all the students from both classes? One student's work and explanation for the problem is given: &lt;br&gt;[23 \times 2 = 46] &lt;br&gt;[46 \div 4 = t] &lt;br&gt;[t = 11 \text{ with remainder of 2 (total number of tables)}] &lt;br&gt;12 tables are needed. Analyze the student's work. Is the answer reasonable? Explain how the student’s work correctly or incorrectly represents the problem. Enter your answer and your work or explanation in the space provided. You may also use the drawing tool to help explain or support your answer.</td>
</tr>
</tbody>
</table>

Grade 3 and 4: 3-point Constructed Response items

Grade 5: 3 or 4-point Constructed Response items
Addition and Subtraction Situations

<table>
<thead>
<tr>
<th></th>
<th>Result Unknown</th>
<th>Change Unknown</th>
<th>Start Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Add to</strong></td>
<td>A bunnies sat on the grass. B more bunnies hopped there. How many bunnies are on the grass now? A + B = ?</td>
<td>A bunnies were sitting on the grass. Some more bunnies hopped there. Then there were C bunnies. How many bunnies hopped over to the first A bunnies? A + ? = C</td>
<td>Some bunnies were sitting on the grass. B more bunnies hopped there. Then there were C bunnies. How many bunnies were on the grass before? ? + B = C</td>
</tr>
<tr>
<td><strong>Take From</strong></td>
<td>C apples were on the table. I ate B apples. How many apples are on the table now? C - B = ?</td>
<td>C apples were on the table. I ate some apples. Then there were A apples. How many apples did I eat? C - ? = A</td>
<td>Some apples were on the table. I ate B apples. Then there were A apples. How many apples were on the table before? ? - B = A</td>
</tr>
<tr>
<td>**Put Together/</td>
<td>A red apples and B green apples are on the table. How many apples are on the table? A + B = ?</td>
<td>Grandma has C flowers. How many can she put in her red vase and how many in her blue vase? C = ? + ?</td>
<td>C apples are on the table. A are red and the rest are green. How many apples are green? A + ? = C C - A = ?</td>
</tr>
<tr>
<td>Take Apart**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Difference is Unknown</strong></td>
<td>How many more? Version Lucy has A apples. Julie has C apples. How many more apples does Julie have than Lucy? A + ? = C C - A = ?</td>
<td>More Version suggests operation Julie has B more apples than Lucy. Lucy has A apples. How many apples does Julie have? A + B = ?</td>
<td>Fewer version suggests operation Lucy has B fewer apples than Julie. Julie has C apples. How many apples does Lucy have? C - B = ? ? + B = C</td>
</tr>
<tr>
<td><strong>More Version suggests wrong operation</strong></td>
<td>Julie has B more apples than Julie. Lucy has A apples. How many apples does Julie have? A + B = ?</td>
<td>Fewer Version suggests wrong operation Lucy has B fewer apples than Julie. Julie has C apples. How many apples does Lucy have? C - B = ? ? + B = C</td>
<td></td>
</tr>
<tr>
<td><strong>Fewer Version suggests wrong operation</strong></td>
<td>Julie has B more apples than Julie. Lucy has C apples. How many apples does Lucy have? C - B = ?</td>
<td>More Version suggests wrong operation Julie has B more apples than Lucy. Julie has C apples. How many apples does Lucy have? C - B = ? ? + B = C</td>
<td></td>
</tr>
</tbody>
</table>
## Multiplication and Division Situations

<table>
<thead>
<tr>
<th>Problem Situation</th>
<th>Unknown Product</th>
<th>Unknown Factor (group size)</th>
<th>Unknown Factor (number of groups)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equal Groups of Objects</strong></td>
<td><strong>Unknown Product</strong>&lt;br&gt;There are ( A ) bags with ( B ) plums in each bag. How many plums are there in all?</td>
<td><strong>Group Size Unknown</strong>&lt;br&gt;If ( C ) plums are shared equally into ( A ). There are ( C ) plums with ( A ) plums in each bag. How many plums are in each bag (( b ))?</td>
<td><strong>Number of Groups Unknown</strong>&lt;br&gt;If ( C ) plums are shared equally into ( A ). There are ( C ) plums with the same amount of plums in each bag (( A )). How many bags are filled with ( A ) number in each bag?</td>
</tr>
<tr>
<td>Arrays</td>
<td>There are ( A ) rows of apples with ( B ) in each row. How many apples are there?</td>
<td>If ( C ) apples are arranged into ( A ) equal rows, how many apples will be in each row?</td>
<td>If ( C ) apples are arranged into equal rows of ( B ) apples, how many rows will there be?</td>
</tr>
<tr>
<td>Arrays with Rows and Columns Language</td>
<td>The apples in the grocery window are in ( A ) rows and ( B ) columns. How many apples are there?</td>
<td>If ( C ) apples are arranged into an array with ( A ) rows, how many columns of apples are there?</td>
<td>If ( C ) apples are arranged into an array with ( B ) columns, how many rows are there?</td>
</tr>
<tr>
<td><strong>Compare A &gt; 1</strong></td>
<td><strong>Larger Unknown</strong>&lt;br&gt;A blue hat costs ( B ). A red hat costs ( A ) times as much as the blue hat. How much does the red hat cost?</td>
<td><strong>Smaller Unknown</strong>&lt;br&gt;A red hat costs ( C ) and that is ( A ) times as much as a blue hat costs. How much does a blue hat cost?</td>
<td><strong>Multiplier Unknown</strong>&lt;br&gt;A red hat costs ( C ) and a blue hat costs ( B ). How many times as much does the red hat cost as the blue hat?</td>
</tr>
<tr>
<td><strong>Compare A &lt; 1</strong></td>
<td><strong>Smaller Unknown</strong>&lt;br&gt;A blue hat costs ( B ). A red hat costs ( A ) as much as the blue hat. How much does the red hat cost?</td>
<td><strong>Larger Unknown</strong>&lt;br&gt;A red hat costs ( C ) and that is ( A ) of the cost of a blue hat. How much does a blue hat cost?</td>
<td><strong>Multiplier Unknown</strong>&lt;br&gt;A red hat costs ( C ) and a blue hat costs ( B ). What fraction of the cost of the blue hat is the cost of the red hat?</td>
</tr>
</tbody>
</table>

**Compare ** Multiplicative Compare problems appear first in Grade 4, with whole-number values for \( A \), \( B \), and \( C \), and with the "times as much" language.

In Grade 5, unit fractions language such a "one third as much" may be used. Multiplying and unit fraction language change the subject of the comparing sentence, e.g., "A red hat costs \( A \) times as much as the blue hat" results in the same comparison as "A blue hat costs \( A \) times as much as the red hat," but has a different subject.
Calculator Policy

Computer-Based Assessments

A grade/course appropriate calculator will be provided through the computer-based delivery system for the MCAP Mathematics Assessments for grades 3-8 and Algebra I, Geometry and Algebra II on tasks that allow the use of a calculator.

<table>
<thead>
<tr>
<th>Grade/Course</th>
<th>Description of the Provided Calculator</th>
</tr>
</thead>
</table>
| • 3-5        | • four-function calculator with square root and percentage functions modeling and reasoning items only  
               | • Desmos version of four-function calculator also available |
| • 6-7        | • four-function calculator with square root and percentage functions  
               | • Desmos version of four-function calculator also available |
| • 8          | • scientific calculator  
               | • Desmos version of scientific calculator also available |
| • Algebra I  | • graphing calculator similar to the TI-84  
               | • Desmos version of graphing calculator also available |
| • Geometry   |                                        |
| • Algebra II |                                        |

The LSS must ensure that student accommodations are met. Students whose accommodations specify the use of a calculator for non-calculator tasks on a mathematics assessment, must be provided with an appropriate hand-held calculator, based on the language in the student’s IEP or 504-plan. No online calculator will be available for non-calculator tasks.

For 2019-2020 administrations of the MCAP Mathematics assessments, all students are permitted to use an allowable hand-held calculator with a cleared memory for calculator active units.
**Calculator Active Units**

<table>
<thead>
<tr>
<th>Grade Band/Courses</th>
<th>Non-Calculator Units</th>
<th>Calculator Active Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades 3-5</td>
<td>2 and 4</td>
<td>1 and 3</td>
</tr>
<tr>
<td>Grades 6-8,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algebra I, Geometry and Algebra II</td>
<td>1</td>
<td>2,3, and 4</td>
</tr>
</tbody>
</table>

**Paper-Based Assessments**
The LSS must provide a student taking a paper-based mathematics assessment with a LSS owned allowable calculator with a cleared memory during the administration of the calculator active units of a MCAP Mathematics Assessment.

<table>
<thead>
<tr>
<th>Grade/ Course</th>
<th>Allowable Calculator for Calculator Active Units</th>
<th>Restrictions</th>
</tr>
</thead>
</table>
| • 3 – 5       | Four-function calculator with square root and percentage functions for units 2 and 4 only | • No tablet, laptop, or phone-based calculators are allowed  
• Calculators with the following features are not allowed  
  o Computer Algebra Systems (CAS)  
  o “QWERTY” keyboard  
Students may not share calculators |
| • 6 – 7       | Four-function calculator with square root and percentage functions | |
| • 8           | Scientific calculator | |
| • Algebra I   | Graphing calculator similar to the TI-84 with a cleared memory | |
| • Geometry    |                               | |
| • Algebra II  |                               | |

The LSS must ensure that student accommodations are met. A student whose accommodation specifies the use of a calculator on the non-calculator units of a mathematics assessment, must be provided with the IEP or 504 Plan specified calculator during all units of the mathematics assessments.