CMAS Grade 5 Mathematics Evidence Statements

(Based on PARCC)

Colorado will continue to use the Evidence Statements that were developed in collaboration with the Partnership for Assessment of Readiness for College and Careers (PARCC) consortium. Evidence statements describe the knowledge and skills that an assessment item/task elicits from students.

The evidence statement keys for grades 3 through 8 begin with the grade number. Together, the five different types of evidence statements described below provide the foundation for ensuring that the full range and depth of the standards are assessed.

An Evidence Statement might:

1. **Use exact standard language** – For example:

   - 8.EE.1 - Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example,* $3^2 \times 3^{-5} = 3^{-3} = 1/3^3 = 1/27$. This example uses the exact language as standard 8.EE.1

2. **Be derived by focusing on specific parts of a standard** – For example: 8.F.5-1 and 8.F.5-2 were derived from splitting standard 8.F.5:

   - 8.F.5-1 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear).
   - 8.F.5-2 Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

   Together these two evidence statements are standard 8.F.5:

   Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or 2 decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

3. **Be integrative (Int) –** Integrative evidence statements allow for the testing of more than one of the standards on a single item/task without going beyond the standards to create new requirements. An integrative evidence statement might be integrated across all content within a grade/course, all standards in a high school conceptual category, all standards in a domain, or all standards in a cluster. For example:

   - **Grade/Course – 4.Int.2**[§] (Integrated across Grade 4)
   - **Domain – 4.NBT.Int.1**[§] (Integrated across the Number and Operations in Base Ten Domain)
   - **Cluster** – **3.NF.A.Int.1**[§] (Integrated across the Number and Operations – Fractions Domain, Cluster A)

4. **Focus on mathematical reasoning–** A reasoning evidence statement (keyed with C) will state the type of reasoning that an item/task will require and the content scope from the standard that the item/task will require the student to reason about. For example:

- 3.C.2[§] -- Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division.
    - Content Scope: Knowledge and skills are articulated in 3.OA.6
- 7.C.6.1[§] – Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures.
    - Content Scope: Knowledge and skills are articulated in 7.RP.2

Note: When the focus of the evidence statement is on reasoning, the evidence statement may also require the student to reason about securely held knowledge from a previous grade.

5. **Focus on mathematical modeling –** A modeling evidence statement (keyed with D) will state the type of modeling that an item/task will require and the content scope from the standard that the item/task will require the student to model about. For example:

- 4.D.2[§] – Solve multi-step contextual problems with degree of difficulty appropriate to Grade 4 requiring application of knowledge and skills articulated in 3.OA.A, 3.OA.8,3.NBT, and/or 3.MD.

Note: The example 4.D.2 is of an evidence statement in which an item/task aligned to the evidence statement will require the student to model on grade level, using securely held knowledge from a previous grade.

[§] The numbers at the end of the integrated, modeling and reasoning Evidence Statement keys are added for assessment clarification and tracking purposes. For example, 4.Int.2 is the second integrated Evidence Statement in Grade 4.

Grade 5 Evidence Statements
Listing by Type I, Type II, and Type III

The Evidence Statements for Grade 5 Mathematics are provided starting on the next page. The list has been organized to indicate whether items designed are aligned to an Evidence Statement used for Type I items, Type II items (reasoning), or Type III items (modeling).

Evidence Statements are presented in the order shown below and are color coded:

Peach – Evidence Statement is applicable to the Type I items.

Lavender – Evidence Statement is applicable to the Type II items.

Aqua – Evidence Statement is applicable to the Type III items.

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
B	5.OA.1	Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols.	i) Expressions have depth no greater than two, e.g., 3×[5 + (8 ÷ 2)] is acceptable but 3×[5 + (8 ÷ {4—2})] is not.	MP.7
B	5.OA.2-1	Write simple expressions that record calculations with numbers. *For example, express the calculation "add 8 and 7, then multiply by 2" as 2 x (8 + 7).*	-	MP.7
B	5.OA.2-2	Interpret numerical expressions without evaluating them. *For example, recognize that 3 x (18932 + 921) is three times as large as 18932 + 921 without having to calculate the indicated sum or product.*	-	MP.7
B	5.OA.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. *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.*	-	MP.3, MP.8
A	5.NBT.1	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.	i) Tasks have "thin context" or no context. ii) For multiplication, the possibilities are 1-digit x 2-digit, 1-digit x 3-digit, 2-digit x 3-digit, or 2-digit x 4-digit iii) Tasks involve the decimal point in a substantial way (e.g., by involving, for example, a comparison of a tenths digit to a thousandths digit or a tenths digit to a tens digit).	MP.2, MP.7
A	5.NBT.2-2	Use whole-number exponents to denote powers of 10.	i) For the part of standard 5.NBT.2 dealing with explanation, see 5.C.3.	MP.2, MP.7
A	5.NBT.3a	Read, write and compare decimals to the thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., 347.392 = 3 x 100 + 4 x 10 + 7 x 1 + 3 x (1/10) + 9 x (1/100) + 2 x (1/1000).	i) Tasks assess conceptual understanding, e.g., by including a mixture (both within and between items) of expanded form, number names, and base ten numerals. ii) Tasks have "thin context" or no context.	MP.2, MP.7

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.NBT.3b	Read, write and compare decimals to the thousandths. b. Compare two decimals to thousandths based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons.	i) Tasks have "thin context" or no context. ii) Tasks assess conceptual understanding, e.g., by including a mixture (both within and between items) of expanded form, number names, and base ten numerals.	MP.2, MP.7
A	5.NBT.4	Use place value understanding to round decimals to any place.	i) Tasks have "thin context" or no context.	MP.2, MP.7
A	5.NBT.5	Fluently multiply multi-digit whole numbers using the standard algorithm.	i) Tasks assess accuracy. The given factors are such as to require an efficient/standard algorithm (e.g., 26×4871). ii) 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 7250×40). iii) Tasks do not have a context. iv) For purposes of assessment, the possibilities are 1-digit x 2-digit, 1-digit x 3-digit, 2-digit x 3-digit, or 2-digit x 4-digit v) Tasks are not timed.	MP.3, MP.5, MP.7
A	5.NBT.6	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	i) Tasks do not require students to illustrate or explain. For this part of standard 5.NBT.6, see 5.C.1-1, 5.C.2-1, and 5.C.4-3. . ii) Tasks involve 3- or 4-digit dividends and one- or two-digit divisors.	MP.3, MP.5, MP.7
A	5.NBT.7-1	Add two 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.	i) Tasks do not have a context. ii) Only the sum is required; explanations are not assessed here. For this part of standard 5.NBT.7, see 5.C.1-2, 5.C.2-2, and 5.C.4-4.Prompts may include visual models, but prompts must also present the addends as numbers, and the answer sought is a number, not a picture. iii) Each addend is greater than or equal to 0.01 and less than or equal to 99.99. iv) 20% of cases involve a whole number—either the sum is a whole number, or else one of the addends is a whole number presented without a decimal point. (The addends cannot both be whole numbers.)	MP.3, MP.5, MP.7

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.NBT.7-2	Subtract two 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.	i) Tasks do not have a context. ii) Only the difference is required; explanations are not assessed here. For this part of standard 5.NBT.7, see 5.C.1-2, 5.C.2-2, and 5.C.4-4. iii) Prompts may include visual models, but prompts must also present the subtrahend and minuend as numbers, and the answer sought is a number, not a picture. iv) 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.7-1.) v) 20% of cases involve a whole number—either the difference is a whole number, or the subtrahend is a whole number presented without a decimal point, or the minuend is a whole number presented without a decimal point. (The subtrahend and minuend cannot both be whole numbers.)	MP.3, MP.5, MP.7
A	5.NBT.7-3	Multiply tenths with tenths or tenths with 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.	i) Tasks do not have a context. ii) Only the product is required; explanations are not assessed here. For this part of standard 5.NBT.7, see 5.C.1-2, 5.C.2-2, and 5.C.4-4. iii) Prompts may include visual models, but prompts must also present the factors as numbers, and the answer sought is a number, not a picture. iv) 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) v) Problems are 2-digit x 2-digit or 1-digit x 3- or 4-digit. (For example, 7.8 x 5.3 or 0.3 x 18.24.) vi) 20% of cases involve a whole number—either the product is a whole number, or else one factor is a whole number presented without a decimal point. (The factors cannot both be whole numbers.)	MP.3, MP.5, MP.7

Grade 5 Evidence Statements

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Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.NBT.7-4	Divide in problems involving tenths and/or 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.	i) Tasks do not have a context. ii) Only the quotient is required. For the explain aspect of 5.NBT.7-4, see 5.C.1-2, 5.C.2-2, and 5.C.4-4. iii) Prompts may include visual models, but prompts must also present the dividend and divisor as numbers, and the answer sought is a number, not a picture. iv) Divisors are of the form XY, X0, X, X.Y, 0.XY, 0.X, or 0.0X (cf. 5.NBT.6), where X and Y represent non-zero digits. Dividends are of the form XY, X0, X, XYZ.W, XY0.Z, X00.Y, XY.Z, X0.Y, X.YZ, X.Y, X.0Y, 0.XY, or 0.0X, where X, Y, Z, and W represent non-zero digits. v) 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.7-3.) vi) 20% of cases involve a whole number—either the quotient is a whole number, or the dividend is a whole number presented without a decimal point, or the divisor is a whole number presented without a decimal point. (If the quotient is a whole number, then neither the divisor nor the dividend can be a whole number.)	MP.3, MP.5, MP.7
A	5.NBT.A.Int.1	Demonstrate understanding of the place value system by combining or synthesizing knowledge and skills articulated in 5.NBT.A.	i) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.2, MP.7
A	5.NBT.Int.1	Perform exact or approximate multiplications and/or divisions that are best done mentally by applying concepts of place value, rather than by applying multi-digit algorithms or written strategies.	i) Tasks do not have a context.	MP.2, MP3, MP5, MP7
A	5.NF.1-1	Add two fractions with unlike denominators, or subtract two fractions 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,* 2/3 + 5/4 = 8/12 + 15/12 = 23/12. *(In general, a/b + c/d = (ad+bc)/bd.)*	i) Tasks do not have a context. ii) Tasks ask for the answer or ask for an intermediate step that shows evidence of using equivalent fractions as a strategy. iii) Tasks do not include mixed numbers. iv) Tasks may involve fractions greater than 1 (including fractions equal to whole numbers). v) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.3, MP.6, MP.7

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Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.NF.1-2	Add three fractions with no two denominators equal by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum of fractions with like denominators. *For example, 1/2 + 1/3 + 1/4 = (3/6 + 2/6) + 1/4 = 5/6 + 1/4 = 10/12 + 3/12 = 13/12 or alternatively 1/2 + 1/3 + 1/4 = 6/12 + 4/12 + 3/12 = 13/12.*	i) Tasks do not have a context. ii) Tasks ask for the answer or ask for an intermediate step that shows evidence of using equivalent fractions as a strategy. iii) Tasks do not include mixed numbers. iv) Tasks may involve fractions greater than 1. v) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.3, MP.6, MP.7
A	5.NF.1-3	Compute the result of adding two fractions and subtracting a third, where no two denominators are equal, 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, 1/2 + 1/3 – 1/4 or 7/8 – 1/3 + 1/2.*	i) Tasks do not have a context. ii) Tasks ask for the answer or ask for an intermediate step that shows evidence of using equivalent fractions as a strategy. iii) Subtraction may be either the first or second operation. The fraction being subtracted must be less than both the other two. iv) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.3, MP.6, MP.7
A	5.NF.1-4	Add two mixed numbers with unlike denominators, expressing the result as a mixed number, by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum with like denominators. *For example, 3 1/2 + 2 2/3 = (3 + 2) + (1/2 + 2/3) = 5 + (3/6 + 4/6) = 5 + 7/6 = 5 + 1 + 1/6 = 6 1/6.*	i) Tasks do not have a context. ii) Tasks ask for the answer or ask for an intermediate step that shows evidence of using equivalent fractions as a strategy. iii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.3, MP.6, MP.7
A	5.NF.1-5	Subtract two mixed numbers with unlike denominators, expressing the result as a mixed number, by replacing given fractions with equivalent fractions in such a way as to produce an equivalent difference with like denominators.	i) Tasks do not have a context. ii) Tasks ask for the answer or ask for an intermediate step that shows evidence of using equivalent fractions as a strategy. iii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.3, MP.6, MP.7

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Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.NF.2-1	Solve word problems involving addition and subtraction of fractions referring to the same whole, in cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem.	i) The situation types are those shown in 2020 CAS, Appendix: Table 2, sampled equally across rows and, within rows, sampled equally across columns. ii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.3, MP.6, MP.7
A	5.NF.2-2	Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers to word problems involving addition and subtraction of fractions referring to the same whole in cases of unlike denominators. *For example, recognize an incorrect result 2/5 + 1/2 = 3/7, by observing that 3/7 < 1/2.*	i) The situation types are those shown in 2020 CAS, Appendix: Table 2, sampled equally. ii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.3, MP.6, MP.7
A	5.NF.A.Int.1	Solve word problems involving knowledge and skills articulated in 5.NF.A.	i) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.3, MP.6, MP.7
A	5.NF.3-1	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$).	i) Tasks do not have a context.	MP.5, MP.6, MP.7
A	5.NF.3-2	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?*	i) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy. ii) Note that one of the italicized examples in standard 5.NF.3 is a two-prompt problem.	MP.5, MP.6, MP.7

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Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.NF.4a-1	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. For a whole number q, interpret the product (*a/b*) × *q* as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)*	i) Tasks require finding a fractional part of a whole number quantity. ii) The result is equal to a whole number in 20% of tasks; these are practice-forward for MP.7. iii) Tasks have “thin context” or no context.	MP.5, MP.6, MP.7
A	5.NF.4a-2	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. a. For a fraction q, interpret the product *(a/b)* × *q* as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations *a* × *q* ÷ *b*. *For example, use a visual fraction model to show (2/3) × 4 = 8/3, and create a story context for this equation. Do the same with (2/3) × (4/5) = 8/15. (In general, (a/b) × (c/d) = ac/bd.)*	i) Tasks require finding a product of two fractions (neither of the factors equal to a whole number). ii) The result is equal to a whole number in 20% of tasks; these are practice-forward for MP.7. iii) Tasks have “thin context” or no context.	MP.5, MP.6, MP.7
A	5.NF.4b-1	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. b. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	i) 50% of the tasks present students with the rectangle dimensions and ask students to find the area; 50% of the tasks give the factions and the product and ask students to show a rectangle to model the problem.	MP.5, MP.6, MP.7
A	5.NF.5a	Interpret multiplication as scaling (resizing), by: a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.	i) Insofar as possible, tasks are designed to be completed without performing the indicated multiplication. ii) Products involve at least one factor that is a fraction or mixed number.	MP.5, MP.6, MP.7

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.NF.6-1	Solve real world problems involving multiplication of fractions, e.g., by using visual fraction models or equations to represent the problem.	i) Tasks do not involve mixed numbers. ii) Situations include area and comparison/times as much, with product unknown. (See 2020 CAS, Appendix: Table 2) iii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.5, MP.6, MP.7
A	5.NF.6-2	Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.	i) Tasks present one or both factors in the form of a mixed number. ii) Situations include area and comparison/times as much, with product unknown. iii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.5, MP.6, MP.7
A	5.NF.7a	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. *a.* Interpret division of a unit fraction by a non-zero whole number, and compute such quotients. *For example, create a story context for (1/3) ÷ 4, and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that (1/3) ÷ 4 = 1/12 because (1/12) × 4 = 1/3.*	-	MP.5, MP.6, MP.7
A	5.NF.7b	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. b. Interpret division of a whole number by a unit fraction, and compute such quotients. *For example, create a story context for 4 ÷ (1/5), and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that 4 ÷ (1/5) = 20 because 20 × (1/5) = 4.*	-	MP.5, MP.6, MP.7

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	i) Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.NF.7c	Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. c. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. *For example, how much chocolate will each person get if 3 people share 1/2 lb of chocolate equally? How many 1/3-cup servings are in 2 cups of raisins?*	i) Tasks involve equal group (partition) situations with part size unknown and number of parts unknown. (See 2020 CAS, Appendix: Table 2. ii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.5, MP.6, MP.7
B	5.MD.1-1	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m).	-	MP.6
B	5.MD.1-2	Solve multi-step, real world problems requiring conversion among different-sized standard measurement units within a given measurement system.	i) Multi-step problems must have at least 3 steps.	MP.6
B	5.MD.2-2	Use operations on fractions for this grade (knowledge and skills articulated in 5.NF) to solve problems involving information 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.	i) Tasks requiring students to produce a line plot should only involve fractions 1/2, 1/4, or 1/8.	MP.5
A	5.MD.3	Recognize volume as an attribute of solid figures and understand concepts of volume measurement. a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. 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.	i) Measures may include those in whole cubic cm or cubic in.	MP.2, MP.5, MP.7
A	5.MD.4	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.	i) Tasks assess conceptual understanding of volume (see 5.MD.3) as applied to a specific situation—not applying a volume formula.	MP.2, MP.5, MP.7

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	i) Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.MD.5b	Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume. b. Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real world and mathematical problems.	i) Pool should contain tasks with and without contexts. ii) 50% of tasks involve use of V = l × w × h, 50% of tasks involve use of V = B × h.	MP.2, MP.5, MP.7
A	5.MD.5c	Relate the operations of multiplication and addition and solve real world and mathematical problems involving volume. c. Recognize volume as additive. Find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems.	i) Tasks require students to solve a contextual problem by applying the indicated concepts and skills.	MP.2, MP.5, MP.7
B	5.G.1	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).	i) Tasks assess student understanding of the coordinate plane as a representation scheme, with essential features as articulated in standard 5.G.1. ii) It is appropriate for tasks involving only plotting of points to be aligned to this evidence statement. iii) Coordinates must be whole numbers only.	MP.2, MP.5
B	5.G.2	Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	-	MP.2, MP.5
B	5.G.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.*	i) A trapezoid is defined as “A quadrilateral with at least one pair of parallel sides.”	MP.3, MP.5, MP.7
B	5.G.4	Classify two-dimensional figures in a hierarchy based on properties.	i) A trapezoid is defined as “A quadrilateral with at least one pair of parallel sides.”	MP.3, MP.5, MP.7

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	i) Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
A	5.Int.1	Solve one-step word problems involving multiplying multi-digit whole numbers.	i) The given factors are such as to require an efficient/standard algorithm (e.g., 726×4871). 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 7250×400). ii) For purposes of assessment, the possibilities for multiplication are 1-digit x 2-digit, 1-digit x 3-digit, 2-digit x 3-digit, 2-digit x 4-digit, or 3-digit x 3-digit. iii) Word problems shall include a variety of grade-level appropriate applications and contexts.	MP.3, MP.5, MP.7
A	5.Int.2	Solve word problems involving multiplication of three two-digit numbers.	i) The given factors are such as to require an efficient/standard algorithm (e.g., $76 \times 48 \times 39$). 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 $50 \times 20 \times 15$). ii) Word problems shall include a variety of grade-level appropriate applications and contexts.	MP.3, MP.5, MP.7

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
C	5.C.1-1	Base explanations/reasoning on place value and/or understanding of operations. Content Scope: Knowledge and skills articulated in 5.NBT.6	i) Tasks do not have a context.	MP.3, MP.6
C	5.C.1-2	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in 5.NBT.7	i) Tasks do not have a context. ii) Students need not use technical terms such as *commutative*, *associative*, *distributive*, or *property*. iii) Unneeded parentheses should not be used. For example, use 4 + 3 x 2 rather than 4 + (3 x 2).	MP.3, MP.6
C	5.C.1-3	Base explanations/reasoning on the properties of operations. Content Scope: Knowledge and skills articulated in 5.MD.5a	i) Students need not use technical terms such as *commutative*, *associative*, *distributive*, or *property*.	MP.3, MP.6
C	5.C.2-1	Base explanations/reasoning on the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 5.NBT.6	-	MP.3, MP.6
C	5.C.2-2	Base explanations/reasoning on the relationship between addition and subtraction or the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 5.NBT.7	-	MP.3, MP.6
C	5.C.2-3	Base explanations/reasoning on the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 5.NF.3, 5.NF.4a	-	MP.3, MP.6
C	5.C.2-4	Base explanations/reasoning on the relationship between multiplication and division. Content Scope: Knowledge and skills articulated in 5.NF.7	-	MP.3, MP.6

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
C	5.C.3	Reason about the place value system itself. Content Scope: Knowledge and skills articulated in 5.NBT.A	i) Tasks do not involve reasoning about place value in service of some other goal (e.g., to multiply multi-digit numbers). Rather, tasks involve reasoning directly about the place value system, in ways consistent with the indicated content scope.	MP.3, MP.6
C	5.C.4-1	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 5.NF.2	-	MP.3, MP.6
C	5.C.4-2	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 5.NF.4b	-	MP.3, MP.6
C	5.C.4-3	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 5.NBT.6	-	MP.3, MP.6
C	5.C.4-4	Base arithmetic explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response), connecting the diagrams to a written (symbolic) method. Content Scope: Knowledge and skills articulated in 5.NBT.7	-	MP.3, MP.6
C	5.C.5-1	Base explanations/reasoning on a number line diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 5.NF.2	-	MP.3, MP.6
C	5.C.5-2	Base explanations/reasoning on a number line diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 5.NF.4a	-	MP.3, MP.6

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
C	5.C.5-3	Base explanations/reasoning on a number line diagram (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 5.NF.7a, 5.NF.7b	-	MP.3, MP.6
C	5.C.6	Base explanations/reasoning on concrete referents such as diagrams (whether provided in the prompt or constructed by the student in her response). Content Scope: Knowledge and skills articulated in 5.MD.C	-	MP.3, MP.6
C	5.C.7-1	Distinguish correct explanation/reasoning from that which is flawed, and – if there is a flaw in the argument – present corrected reasoning. (For example, some flawed 'student' reasoning is presented and the task is to correct and improve it.) Content Scope: Knowledge and skills articulated in 5.NF.5b	-	MP.3, MP.6
C	5.C.7-2	Distinguish correct explanation/reasoning from that which is flawed, and – if there is a flaw in the argument – present corrected reasoning. (For example, some flawed 'student' reasoning is presented and the task is to correct and improve it.) Content Scope: Knowledge and skills articulated in 5.NF.2	-	MP.3, MP.6
C	5.C.7-3	Distinguish correct explanation/reasoning from that which is flawed, and – if there is a flaw in the argument – present corrected reasoning. (For example, some flawed 'student' reasoning is presented and the task is to correct and improve it.) Content Scope: Knowledge and skills articulated in 5.NF.1	-	MP.3, MP.6

Grade 5 Evidence Statements

Type I Type II Type III

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
C	5.C.7-4	Distinguish correct explanation/reasoning from that which is flawed, and – if there is a flaw in the argument – present corrected reasoning. (For example, some flawed 'student' reasoning is presented and the task is to correct and improve it.) Content Scope: Knowledge and skills articulated in 4.NBT, 4.NF.A, 4.NF.B	i) Tasks may have scaffolding [1], if necessary, in order to yield a degree of difficulty appropriate to Grade 5.	MP.3, MP.6
C	5.C.8-2	Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions. Content Scope: Knowledge and skills articulated in 5.MD.5c	i) Multi-step problems must have at least 3 steps.	MP.3, MP.6

Grade 5 Evidence Statements

Type I **Type II** **Type III**

Sub-Claim	Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Prepared Graduate Statements
D	5.D.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 5, requiring application of knowledge and skills articulated in Type I, Sub-Claim A Evidence Statements.	i) Tasks may have scaffolding. ii) Multi-step problems must have at least 3 steps. iii) For purposes of assessment, the possibilities for multiplication are 1-digit x 2-digit, 1-digit x 3-digit, 2-digit x 3-digit, 2-digit x 4-digit, or 3-digit x 3-digit.	MP.4
D	5.D.2	Solve multi-step contextual problems with degree of difficulty appropriate to Grade 5, requiring application of knowledge and skills articulated in 4.OA, 4.NBT, 4.NF, 4.MD	i) Tasks may have scaffolding, if necessary, in order to yield a degree of difficulty appropriate to Grade 5. ii) Multi-step problems must have at least 3 steps.	MP.4

[1] Scaffolding in a task provides the student with an entry point into a pathway for solving a problem. In unscaffolded tasks, the student determines his/her own pathway and process. Both scaffolded and unscaffolded tasks will be included in reasoning and modeling items.

[2] "Thin context" is a sentence or phrase that establishes a concrete referent for the quantity/quantities in the problem, in such a way as to provide meaningful avenues for mathematical intuition to operate, yet without requiring any sort of further analysis of the context. For example, a task could provide a reason for being given a set of fractional measurements such as, "The fractions represent lengths of ribbon."