	that use ratio reasoning will also be assessed in Claim 2, Claim 3, and Claim 4, as appropriate.

Task Model 1 **Response Type: Multiple Choice, multiple correct response** **DOK Level 1** **6.RP.1** Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *For example, "The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak." "For every vote candidate A received, candidate C received nearly three votes."* **Evidence Required:** 1. The student uses ratio language to describe a ratio relationship. **Tools:** None	**Prompt Features:** The student is prompted to identify statements that use ratio and rate language to describe a ratio relationship. **Stimulus Guidelines:** Context should be familiar to students 11 to 13 years old. **TM1** **Stimulus:** The student is presented with a ratio relationship between two whole-number quantities. **Example Stem:** A game has green and blue pieces. The ratio of green game pieces to total pieces is 5:12. Select **all** the statements that are correct about the game pieces. A. The ratio of green pieces to blue pieces is 7:5. B. The ratio of total pieces to blue pieces is 12:7. C. There must be 7 more blue pieces than green pieces. D. The ratio of total pieces to green pieces is 12:5. **Answer Choices:** Answer choices will be four statements describing the ratio relationship. At least two statements must be correct. **Rubric:** (1 point) Student selects all the correct statements (e.g., B and D). **Response Type:** Multiple Choice, multiple correct response

Task Model 2
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.RP.2
Understand the concept of a unit rate *a*/*b* associated with a ratio *a*:*b* with *b* ≠0, and use rate language in the context of a ratio relationship. *For example, "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar." "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."*
 	
Evidence Required:
2. The student determines the unit rate associated with a real-world ratio.
 	
Tools: Calculator
	Prompt Features: The student is prompted to identify the unit rate of a real-world ratio.
	
	Stimulus Guidelines:
	• Context should be familiar to students 11 to 13 years old.
	• Item difficulty can be adjusted via these example methods:
	  ○ Both numbers and unit rate are whole numbers.
	  ○ Both numbers are whole numbers and unit rate is a non-complex fraction.
	
	TM2
	Stimulus: The student is presented with a real-world ratio problem.
	
	Example Stem: Carl can type 180 words in 2 minutes.
	
	How many words can Carl type in 1 minute?
	
	Rubric: (1 point) Student enters correct value (e.g., 90). Units should be assumed from the problem.
	
	Response Type: Equation/Numeric

Task Model 3

Response Type: Fill-in Table

DOK Level 1

6.RP.3a
Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

Evidence Required:
3. The student finds missing values in tables of equivalent ratios.

Tools: Calculator

Prompt Features: The student is prompted to find missing values in tables of equivalent ratios.

Stimulus Guidelines:

- If used, context should be familiar to students 11 to 13 years old.
- The values for the table should be rational numbers.
- Tables should be labeled and have two columns and 3–5 rows of data.
- Either one *x*- or *y*-value should be missing from the table.
- All table formats in an item should be the same.
- Unit rate should be a whole number or non-complex fraction.
- Item difficulty can be adjusted via these example methods:
  - All numbers and unit rates are whole numbers. Unit rate is given in the table (i.e., 1; 3).
  - All numbers and unit rates are whole numbers. Unit rate is not given in the table.
  - All numbers are whole numbers and unit rate is a non-complex fraction.

TM3a
Stimulus: The student is presented with a table that has an equivalent ratio and a single missing value.

Example Stem 1: The table shows a relationship between the number of tennis balls that fit into a given number of cans.

Cans	Balls
2	6
	15
7	21
9	27

Fill in the missing value in the table.

Example Stem 2: This table contains equivalent ratios between *x* and *y*.

x	*y*
2	6
5	
7	21
9	27

Fill in the missing value in the table.

Rubric: (1 point) Student enters correct missing value (e.g., 5; 15).

Response Type: Fill-in Table

Task Model 3 **Response Type: Fill-in Table** **DOK Level 2** **6.RP.3a** Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios. **Evidence Required:** 3. The student finds missing values in tables of equivalent ratios. **Tools:** Calculator	**TM3b** **Stimulus:** The student is presented with a table that has an equivalent ratio and two missing values. **Example Stem:** The table shows a relationship between the number of tennis balls that fit into a given number of cans. **Cans** | **Balls** 1 | 4 | 12 13 | 15 | 45 Fill in the missing values to complete the table. **Rubric:** (1 point) Student enters the two correct values into the table (e.g., 3 and 39). **Response Type:** Fill-in Table

Task Model 4

Response Type: Graphing

DOK Level 1

6.RP.3a
Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.

Evidence Required:
4. The student plots coordinate pairs to represent equivalent ratios.

Tools: Calculator

Prompt Features: The student is prompted to plot coordinate pairs on a graph that correspond to ratios in a table.

Stimulus Guidelines:

- Table should have two columns and 3–5 rows of data.
- All table formats in an item should be the same.
- The *x*- and *y*-values for the table should be rational numbers.
- Unit rate should be a whole number or non-complex fraction.
- If used, context should be familiar to students 11 to 13 years old.
- Graph should have a title and have both axes labeled.
- Item difficulty can be adjusted via these example methods:
  - All numbers are whole numbers. The independent values are all consecutive numbers.
  - All numbers are whole numbers. Some independent values are consecutive numbers.
  - All numbers are whole numbers. All independent values are non-consecutive numbers.

TM4
Stimulus: The student is presented with a completed table that has an equivalent ratio.

Example Stem: The table shows a relationship between the number of tennis balls that fit into a given number of cans.

Cans	Balls
2	6
5	15
7	21
8	24

Use the Add Point tool to plot the coordinate pairs on the graph.

Interaction: Students will be given a graph with axes numbered and labeled appropriately. Students will need the Add Point and Delete tools.

Rubric: (1 point) Student correctly plots all coordinate pairs on the graph.

Response Type: Graphing

Task Model 5
 	
Response Type: Fill-in Table
 	
DOK Level 2
 	
6.RP.3a
Make tables of equivalent ratios relating quantities with whole number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.
 	
Evidence Required:
5. The student makes tables of equivalent ratios relating quantities with whole-number measurements.
 	
Tools: Calculator
	Prompt Features: The student is prompted to create a table given a ratio.
	
	Stimulus Guidelines:
	• *x* and *y* for the given ratio are whole numbers.
	• Tables should have 3 rows of values.
	• Item difficulty can be adjusted via these example methods:
	  ○ Ratio given is a whole number or a non-complex fraction where the numerator or denominator is a "1".
	  ○ Ratio given is a non-complex fraction with a numerator and denominator greater than 1.
	
	TM5
	Stimulus: The student is presented with a blank table and a ratio *x:y.*
	
	Example Stem: The ratio of *x* to *y* is $\frac{1}{4}$. All values of *x* and *y* are whole numbers less than 100.
	
	x | ***y***
	| |
	| |
	| |
	
	Fill in the boxes with numbers to form a table with the given ratio.
	
	Rubric: (1 point) Correct answer will have three sets of numbers equivalent to the given ratio.
	
	Response Type: Fill-in Table

Task Model 6
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.RP.3b
Solve unit rate problems including those involving unit pricing and constant speed.
 	
Evidence Required:
6. The student solves real-world problems involving unit rate.
 	
Tools: Calculator
	Prompt Features: The student is prompted to identify the solution to problems involving unit rate.
	
	Stimulus Guidelines:
	• Context should be familiar to students 11 to 13 years old.
	• Unit rate should be a whole number or non-complex fraction.
	• Unit of measurement values should be rational numbers appropriate for the given situation.
	• Item difficulty can be adjusted via these example methods:
	  ○ All numbers used in conversion are whole numbers.
	  ○ Some or all numbers used in conversion are decimals.
	
	TM6
	Stimulus: The student is presented with a real-world problem involving unit rate.
	
	Example Stem: Carl types 180 words in 2 minutes.
	
	Enter the number of words Carl types in 5 minutes at this rate.
	
	Rubric: (1 point) Student enters correct numeric value (e.g., 450).
	
	Response Type: Equation/Numeric

Task Model 7
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.RP.3c
Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.
 	
Evidence Required:
7. The student solves mathematical problems involving finding the whole, given a part and the percent.
 	
Tools: Calculator
	Prompt Features: The student is prompted to solve a mathematical problem involving finding the whole, given a part and the percent.
	
	Stimulus Guidelines:
	• If used, context should be familiar to students 11 to 13 years old.
	• Percent and total quantities should be whole numbers.
	• Item difficulty can be adjusted via these example methods:
	  ○ Benchmark percentages (such as 100% and 50%) are used.
	  ○ Benchmark percentages (such as 75%, 25%, and 10%) are used.
	  ○ Non-benchmark percentages are used.
	
	TM7
	Stimulus: The student is presented with a part and a percent.
	
	Enter the unknown value that makes this statement true:
	
	30% of ☐ is 60.
	
	Rubric: (1 point) Student enters the correct numeric value representing the total amount (e.g., 200).
	
	Response Type: Equation/Numeric

Task Model 8 **Response Type: Equation/Numeric** **DOK Level 2** **6.RP.3c** Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. **Evidence Required:** 8. The student solves real-world and mathematical problems involving finding a percent of a quantity as a rate per 100. **Tools:** Calculator	**Prompt Features:** The student is prompted to solve a real-world or mathematical problem involving finding a percent of a quantity as a rate per 100. **Stimulus Guidelines:** • If used, context should be familiar to students 11 to 13 years old. • Generally percentages and quantities should be whole numbers unless appropriate for the situation. • Item difficulty can be adjusted via these example methods: ○ Benchmark percentages (such as 100% and 50%) are used. ○ Benchmark percentages (such as 75%, 25%, and 10%) are used. ○ Non-benchmark percentages are used. **TM8a** **Stimulus:** The student is presented with a part and a whole. **Example Stem 1:** Janet correctly answers 45 questions on her science test. There are 50 questions on the test. Enter the percent of the questions Janet answers incorrectly. **Example Stem 2:** Enter the unknown value that makes this statement true: 45 is ☐ % of 50. **Rubric:** (1 point) Student enters the correct numeric value representing the percent (e.g., 90; 90) and 0.90 is not an acceptable answer. Percent symbol (%) is not required for a correct response. **Response Type:** Equation/Numeric

Task Model 8 **Response Type: Multiple Choice, multiple correct response** **DOK Level 1** **6.RP.3c** Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent. **Evidence Required:** 8. The student solves real-world and mathematical problems involving finding a percent of a quantity as a rate per 100. **Tools:** Calculator	**Prompt Features:** The student is prompted to identify solution methods for problems involving finding a percent of a quantity as a rate per 100. **Stimulus Guidelines:** • If used, context should be familiar to students 11 to 13 years old. • Generally percentages and quantities should be whole numbers unless appropriate for the situation. **TM8b** **Stimulus:** The student is presented with a real-world or mathematical percent problem. **Example Stem 1:** In a school with 200 students, 45% are males. Select **all** expressions that demonstrate a correct method to calculate the total number of male students**.** A. $\frac{45}{100} \bullet 200$ B. $\frac{0.45}{100} \bullet 200$ C. $0.45 \bullet 200$ D. $\frac{45}{10} \bullet 200$ **Example Stem 2:** Select **all** expressions that demonstrate a correct method to calculate 45% of 200. E. $\frac{45}{100} \bullet 200$ F. $\frac{0.45}{100} \bullet 200$ G. $0.45 \bullet 200$ H. $\frac{45}{10} \bullet 200$ **Answer Choices:** At least two expressions must be correct. **Rubric:** (1 point) Student selects all the correct mathematical expressions (e.g., A and C; A and C). **Response Type:** Multiple Choice, multiple correct response

Task Model 9
 	
Response Type: Multiple Choice, single correct response
 	
DOK Level 2
 	
6.RP.3d
Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
 	
Evidence Required:
9. The student uses ratio reasoning to convert measurement units.
 	
Tools: Calculator
	Prompt Features: The student is prompted to use ratio reasoning to determine the missing measurement.
	
	Stimulus Guidelines:
	• Units of measurement should be rational numbers appropriate for the given situation.
	• Item difficulty can be adjusted via these example methods:
	  ○ All numbers used in conversion are whole numbers.
	  ○ Some numbers used in conversion are decimals.
	  ○ All numbers used in conversion are decimals.
	
	TM9
	Stimulus: The student is presented with a measurement ratio with a missing equivalent ratio value.
	
	Example Stem: Select the value that will complete this expression for converting 10 yards to inches.
	
	$\left(\frac{10 \text{ yards}}{1}\right)(\square)\left(\frac{12 \text{ inches}}{1 \text{ foot}}\right)$
	
	A. $\frac{1 \text{ yard}}{36 \text{ inches}}$
	
	B. $\frac{3 \text{ feet}}{1 \text{ yard}}$
	
	C. $\frac{360 \text{ inches}}{10 \text{ yards}}$
	
	D. $\frac{120 \text{ feet}}{10 \text{ inches}}$
	
	Rubric: (1 point) Student selects the correct mathematical expressions (e.g., B).
	
	Response Type: Multiple Choice, single correct response

Task Model 10
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.RP.3d
Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
 	
Evidence Required:
10. The student uses ratio reasoning to manipulate and transform units appropriately when multiplying or dividing quantities.
 	
Tools: Calculator
	Prompt Features: The student is prompted to use ratio reasoning to convert measurement units.
	
	Stimulus Guidelines:
	• If used, context should be familiar to students 11 to 13 years old.
	• Units of measurement should be rational numbers appropriate for the given situation.
	• Specify measurement relationship when needed (e.g., 1 inch ≈ 2.54 cm).
	• Item difficulty can be adjusted via these example methods
	  ○ All numbers used in conversion are whole numbers and problems only require a single-unit conversion.
	  ○ Some numbers used in conversion are decimals and problems only require a single-unit conversion
	  ○ All numbers used in conversion are whole numbers and problems require multi-unit conversions.
	  ○ Some numbers in conversions are decimals and problems require multi-unit conversions.
	
	TM10
	Stimulus: The student is presented with a measurement and is asked to convert it to an equivalent measurement.
	
	Example Stem 1: Mary runs 800 yards in 4 minutes at a constant rate.
	
	Enter the number of **feet** Mary runs in 20 **seconds**.
	
	Example Stem 2: An object moves at a constant rate of 800 yards in 4 minutes.
	
	Enter the distance, in **feet**, the object moves in 20 **seconds**.
	
	Rubric: (1 point) Student enters the correct numeric value for the converted unit of measurement (e.g., 200; 200). Unit of measurement should be assumed from the stem.
	
	Response Type: Equation/Numeric

Task Model 1 **Response Type: Multiple Choice, single correct response** **DOK Level 1** **6.NS.1** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. **Evidence Required:** 1. The student interprets quotients of fractions using visual fraction models, equations, and the relationship between multiplication and division. **Tools:** None	**Prompt Features:** The student is prompted to relate quotients of fractions to multiplication. **Stimulus Guidelines:** • All fractions should be positive. • Item difficulty can be adjusted via these example methods: ○ Students select the equivalent expression for division of two fractions (no mixed numbers). ○ Students select the equivalent expression for division of two fractions (at least one mixed number). **TM1a** **Stimulus:** Student is presented with an expression showing the division of two fractions. **Example Stem:** Which expression is equivalent to $\frac{1}{4} \div \frac{1}{8}$? A. $\frac{1}{4} \bullet \frac{1}{8}$ B. $\frac{1}{4} \bullet \frac{8}{1}$ C. $\frac{4}{1} \bullet \frac{8}{1}$ D. $\frac{4}{1} \bullet \frac{1}{8}$ **Answer Choices:** Answer choices will be expressions showing multiplication of two fractions. **Rubric:** (1 point) Student selects the correct answer (e.g., B). **Response Type:** Multiple Choice, single correct response

Task Model 1

Response Type: Drag and Drop

DOK Level 2

6.NS.1
Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

Evidence Required:
1. The student interprets quotients of fractions using visual fraction models, equations, and the relationship between multiplication and division.

Tools: None

Prompt Features: The student is prompted to use a visual fraction model to show the relationship of a quotient of fractions to multiplication and division.

Stimulus Guidelines:

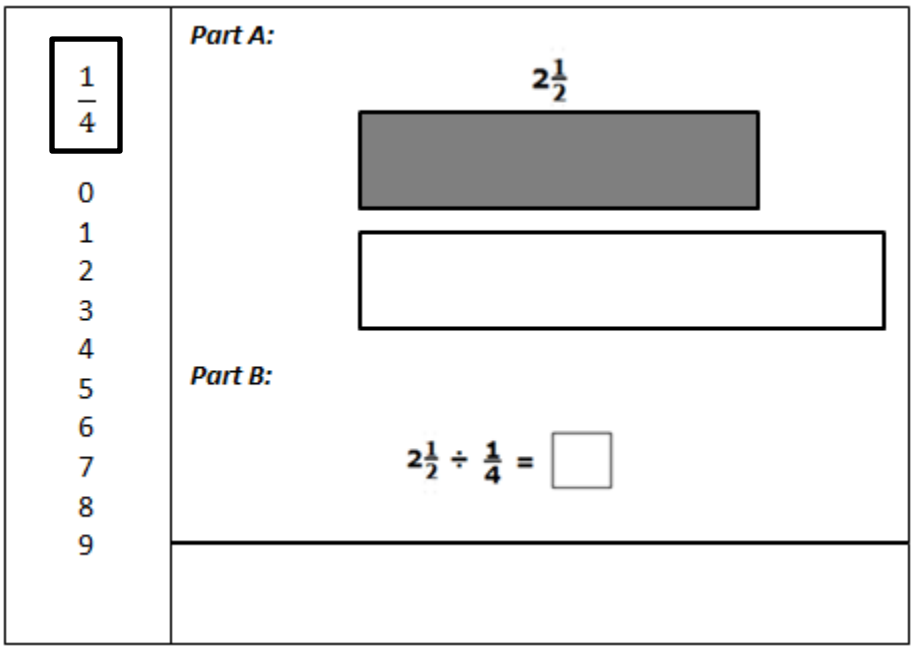
- Fractions should be in the form $\frac{1}{x}$, where x should be 2, 3, 4, 5, 6, or 8.
- Item difficulty can be adjusted via these example methods:
  - Students divide two fractions (no mixed numbers).
  - Students divide two fractions (at least one mixed number).
  - Students divide two fractions (both are mixed numbers).

TM1b
Stimulus: The student is presented with a real-world problem and uses a visual fraction model to interpret quotients of fractions and solve for the quotient.

Example Stem: The length of the shaded rectangle represents $2\frac{1}{2}$ units.

Part A:
Drag enough $\frac{1}{4}$-units into the empty rectangle to model $2\frac{1}{2}$ divided by $\frac{1}{4}$.

Part B:
Drag a number into the box to show the quotient of $2\frac{1}{2} \div \frac{1}{4}$.



Interaction: The student is given a reusable palette on the left side with the fractional unit that the box is being divided by and the digits 0–9. The fraction is to be dragged into the empty box. The bottom

	model should also extend longer, and the student should learn to stop dragging fractional units past the top model's length. Extra snap-to spaces need to be added to the extended portion of the box. **Rubric:** (2 points) The student completes the fraction model and drags the correct quotient to the box (e.g., 10). (1 point) Partial credit may be allowed if the student only completes the fraction model or drags the correct quotient to the box. **Response Type:** Drag and Drop

Task Model 1 **Response Types: Drag and Drop** **DOK Level 2** **6.NS.1** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. **Evidence Required:** 1. The student interprets quotients of fractions using visual fraction models, equations, and the relationship between multiplication and division. **Tools:** None	**Prompt Features:** The student is prompted to interpret the quotients of fractions and the relationship between multiplication and division when a fraction is divided by 1. **Stimulus Guidelines:** • All fractions should be positive. • Item difficulty can be adjusted via these example methods, but are not limited to these methods: ○ Students find a missing number from a division problem. ○ Find a missing divisor, quotient matches dividend. ○ Find a missing divisor, quotient is a multiple of dividend. **TM1c** **Stimulus:** The student is presented with a quotient equation with a missing fraction or number. The missing fraction is always equivalent to 1. **Example Stem 1**: What fraction makes the equation true? $\frac{2}{3} \div \frac{\square}{\square} = \frac{2}{3}$ Drag a number into each box to create a fraction that will make the equation true. **Rubric:** (1 point) The student drags the correct quotient to the boxes. Multiple answers possible in the form of $\frac{x}{x}$ (e.g., $\frac{4}{4}$). **Example Stem 2**: What number makes the equation true? $\frac{2}{3} \div \frac{\square}{7} = \frac{14}{21}$ Drag a number to the box to create a fraction that will make the equation true. **Rubric:** (1 point) The student drags the correct number to the box so that the divisor equals 1 (e.g., 7). **Interaction:** The student is given a palette to the left of the equation with the numbers 1–9 that can be used to make one-digit numbers. Delete tool should be provided. **Response Type:** Drag and Drop

Task Model 1
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.NS.1
Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.
 	
Evidence Required:
1. The student interprets quotients of fractions using visual fraction models, equations, and the relationship between multiplication and division.
 	
Tools: None
	Prompt Features: The student is prompted to interpret the quotients of fractions and the relationship between multiplication and division.
	
	Stimulus Guidelines:
	• All fractions should be positive.
	• Item difficulty can be adjusted via these example methods:
	  ○ Students find a missing number from a division problem.
	  ○ Students find missing dividend in a given equation involving division of two fractions.
	  ○ Students find missing divisor in a given equation involving division of two fractions.
	
	TM1d
	Stimulus: The student is presented with a quotient equation with a missing fraction or number.
	
	Example Stem 1: The equation shown has an unknown number.
	$\frac{\square}{3} \div \frac{5}{6} = \frac{4}{5}$
	
	Enter a number that makes the equation true.
	
	Example Stem 2: The equation shown has an unknown number.
	$\square \div \frac{2}{3} = \frac{3}{4}$
	
	Enter a fraction that makes the equation true.
	
	Example Stem 3: The equation shown has an unknown number.
	$\frac{2}{3} \div \square = \frac{6}{8}$
	
	Enter a fraction that makes the equation true.
	
	Rubric: (1 point) Student enters the correct fraction (e.g., 2; $\frac{1}{2}$; $\frac{8}{9}$).
	
	Response Type: Equation/Numeric

Task Model 2 **Response Type: Equation/Numeric** **DOK Level 1** **6.NS.1** Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. **Evidence Required:** 2. The student solves real-world and mathematical one-step problems involving division of fractions by fractions. **Tools:** None	**Prompt Features:** The student is prompted to solve a one-step mathematical or real-world problem involving division of fractions by fractions. **Stimulus Guidelines:** ○ Context should be familiar to students 11 to 13 years old. ○ Numbers used could be positive fractions and/or mixed numbers. ○ Answers should be appropriate for the context. ○ Item difficulty can be adjusted via these example methods: a. Students solve problem involving division of two fractions (no mixed numbers). b. Students solve problem involving division of two fractions (at least one mixed number). ○ divide two fractions (at least one mixed number). **TM2a** **Stimulus:** The student is presented with division of two fractions. **Example Stem 1:** Enter the quotient of $\frac{2}{3}$ and $\frac{3}{4}$ in fraction form. **Example Stem 2:** Enter the quotient of $2\frac{2}{3}$ and $\frac{3}{4}$ in fraction form. **Rubric:** (1 point) Student enters a whole number, mixed number, or fraction equivalent to the correct quotient (e.g., $\frac{8}{9}$; $3\frac{5}{9}$). **Response Type:** Equation/Numeric **TM2b** **Stimulus:** The student is presented with a real-world one-step problem involving division of fractions by fractions. **Example Stem:** A recipe requires $\frac{3}{4}$ cup of nuts for 1 batch of muffins. Enter the number of batches of muffins that can be made using $7\frac{1}{2}$ cups of nuts. **Rubric:** (1 point) Student enters the correct quotient (e.g., 10). **Response Type:** Equation/Numeric

Task Model 1
 	
Response Type: Equation/Numeric
 	
DOK Level 1
 	
6.NS.2
Fluently divide multi-digit numbers using the standard algorithm.
 	
Evidence Required:
1. The student divides multi-digit numbers.
 	
Tools: None
	Prompt Features: The student is prompted to find the quotient of multi-digit numbers with or without a remainder.
	
	Stimulus Guidelines:
	• The expression should be in the form $x \div y$, where x is a 4–6-digit positive integer and y is a 2–5-digit positive integer. Exception: do not have x as a 4-digit number and y as a 2-digit number without a remainder.
	• Generally answers with remainders should terminate no greater than the hundredths place.
	• Item difficulty can be adjusted via these example methods:
	  ○ Students find quotient with no remainder (4-digit divided by 3-digit).
	  ○ Students find quotient with no remainder (5- or 6-digit divided by 2- or 3-digit).
	  ○ Students find quotient with a remainder (4- or 5-digit divided by 2- or 3-digit).
	  ○ Students find quotient with a remainder or students interpret a division algorithm (4-digit divided by 4-digit; 6-digit divided by 2- or 3-digit).
	  ○ Students find quotient with a remainder (5-digit divided by 4- or 5-digit; 6-digit divided by 4-, 5-, or 6-digit).
	
	TM1
	Stimulus: The student is presented with a division expression.
	
	Example Stem 1: Divide.
	
	16,536 ÷ 24
	
	Enter the exact quotient.
	
	Example Stem 2: Divide.
	
	35,702 ÷ 25
	
	Enter the exact quotient.
	
	Rubric: (1 point) Student enters the correct quotient (e.g., 689; 1428.08).
	
	Response Type: Equation/Numeric

Task Model 2a-d **Response Type: Equation/Numeric** **DOK Level 1** **6.NS.3** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. **Evidence Required:** 2. The student adds, subtracts, multiplies, and divides multi-digit decimals. **Tools:** None	**Prompt Features:** The student is prompted to find the sum, difference, product, or quotient of multi-digit numbers with or without a remainder using the standard algorithm**.** **Stimulus Guidelines:** • Given numbers and answers should be positive. • Item difficulty can be adjusted via these example methods: ○ Students add two multi-digit decimals; at least one decimal in thousandths. ○ Students add two multi-digit decimals, at least one decimal in ten-thousandths OR add three multi-digit decimals, at least one decimal in thousandths or ten-thousandths. ○ Students subtract two multi-digit decimals, at least one decimal in thousandths or ten thousandths. ○ Students multiply two multi-digit decimals, at least one decimal in thousandths. ○ Students find quotient of multi-digit decimals, at least one decimal to thousandths OR product of two multi-digit decimals, at least one decimal in ten-thousandths. **TM2a** **Stimulus:** The student is presented with an addition expression with two or three terms. **Example Stem:** Add. 34.381 + 8.2 Enter the exact sum. **Rubric:** (1 point) Student enters the correct sum (e.g., 42.581). **Response Type:** Equation/Numeric **TM2b** **Stimulus:** The student is presented with a subtraction expression with two terms. **Example Stem:** Subtract. 48.235 – 29.67 Enter the exact difference. **Rubric:** (1 point) Student enters the correct difference (e.g., 18.565). **Response Type:** Equation/Numeric

Task Model 2a-d **Response Type: Equation/Numeric** **DOK Level 1** **6.NS.3** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. **Evidence Required:** 2. The student adds, subtracts, multiplies, and divides multi-digit decimals. **Tools:** None	**TM2c** **Stimulus:** The student is presented with a multiplication expression with two terms. **Example Stem:** Multiply. 8.296 • 0.8 Enter the exact product. **Rubric:** (1 point) Student enters the correct product (e.g., 6.6368). **Response Type:** Equation/Numeric **TM2d** **Stimulus:** The student is presented with a division expression with two terms. • The divisor place value should be to the tenths or hundredths and the dividend place value should be at the thousandths or the ten-thousandths. • Answers should be a positive answer that terminates no greater than the thousandths place. **Example Stem:** Divide. 0.912 ÷ 0.24 Enter the exact quotient. **Rubric:** (1 point) Student enters the correct quotient (e.g., 3.8). **Response Type:** Equation/Numeric

Task Model 2e **Response Type: Equation/Numeric** **DOK Level 2** **6.NS.3** Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. **Evidence Required:** 2. The student adds, subtracts, multiplies, and divides multi-digit decimals. **Tools:** None	**Prompt Features:** The student is prompted to reason and interpret about addition, subtraction, multiplication, or division problems. **Stimulus Guidelines:** Given numbers and answers should be positive and item difficulty can be adjusted changing whether the given equation is addition, subtraction, multiplication, or division. **TM2e** **Stimulus:** The student is presented with an addition/subtraction/multiplication/division equation. **Example Stem:** Use the fact that $12 \bullet 218 = 2616$. Enter the exact product of $1.2 \bullet 2.18$. **Rubric:** (1 point) Student enters the correct product (e.g., 2.616). **Note:** Students should be able to determine the product without calculating it, but instead by using the given computation and reasoning skills. **Response Type:** Equation/Numeric

Task Model 3
 	
Response Type: Equation/Numeric
 	
DOK Level 1
 	
6.NS.4
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4(9 + 2).*
 	
Evidence Required:
3. The student determines the greatest common factor of two whole numbers.
 	
Tools: None
	Prompt Features: The student is prompted to find the greatest common factor of two whole numbers.
	
	Stimulus Guidelines:
	• Greatest common factor should be greater than 1.
	• Whole numbers should be less than or equal to 100.
	• Item difficulty can be adjusted via these example methods:
	  ○ Students find GCF of two whole numbers (both numbers are even; GCF less than 10).
	  ○ Students find GCF of two whole numbers (GCF between 10 and 20).
	  ○ Students find GCF of two whole numbers (one of the numbers is a multiple of 5, the other is a multiple of 10).
	  ○ Students find GCF of two whole numbers (one of the numbers is a prime number greater than 20 and is a factor of the other number).
	
	TM3
	Stimulus: The student is presented with two whole numbers less than 100.
	
	Example Stem: Enter the greatest common factor of 24 and 36.
	
	Rubric: (1 point) Student enters the correct greatest common factor (e.g., 12).
	
	Response Type: Equation/Numeric

Task Model 4
 	
Response Type: Equation/Numeric
 	
DOK Level 1
 	
6.NS.4
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4(9 + 2).*
 	
Evidence Required:
4. The student determines the least common multiple of two whole numbers.
 	
Tools: None
	Prompt Features: The student is prompted to find the least common multiple of two whole numbers.
	
	Stimulus Guidelines:
	• Whole numbers should be less than or equal to 12.
	• Item difficulty can be adjusted via these example methods:
	  ○ Students find LCM of two whole numbers (one of the numbers is 2).
	  ○ Students find LCM of two whole numbers (one of the numbers is 5; both numbers lower than 6; LCM is less than 30).
	  ○ Students find LCM of two whole numbers (one of the numbers is less than 6, the other number is greater than 6; LCM is less than 40).
	  ○ Students find LCM of two whole numbers (LCM is greater than 40).
	
	TM4
	Stimulus: The student is presented with two whole numbers less than 12.
	
	Example Stem: Enter the least common multiple of 6 and 8.
	
	Rubric: (1 point) Student enters the correct least common multiple (e.g., 24).
	
	Response Type: Equation/Numeric

Task Model 5
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.NS.4
Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. *For example, express 36 + 8 as 4(9 + 2).*
 	
Evidence Required:
5. The student uses the distributive property to express a sum of two whole numbers with a common factor as a multiple of a sum of two whole numbers with no common factor.
 	
Tools: None
	Prompt Features: The student is prompted to identify equivalent expressions using the distributive property.
	
	Stimulus Guidelines:
	• The expression should be in the form $x + y = a\ (b + c)$ or $a\ (b + c) = x + y$ where x, y, a, b, and c are whole numbers between 1 and 100.
	• x and y should have a common factor greater than 1.
	• The missing number may be any of the variables x, y, a, b, and c.
	• Item difficulty can be adjusted via these example methods:
	  ○ Use only even numbers less than 20.
	  ○ Use only numbers less than 70.
	  ○ Use at least two numbers greater than 70.
	
	TM5
	Stimulus: The student is presented with an equation showing the distributive property with a missing number.
	
	Example Stem: Consider the equation showing the distributive property.
	
	$24 + 30 = 6(4 + \square)$
	
	Enter the unknown value that would make the equation true.
	
	Rubric: (1 point) Student enters the correct value (e.g., 5).
	
	Response Type: Equation/Numeric

Task Model 1 **Response Type: Equation/Numeric** **DOK Level 1** **6.NS.5** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. **Evidence Required:** 1. The student uses positive and negative numbers to represent quantities in real-world contexts. **Tools:** None	**Prompt Features:** The student is prompted to use rational numbers to describe quantities having opposite directions or values. **Stimulus Guidelines:** • Context should be familiar to students 11 to 13 years old. • The context should involve opposite directions or values such as references to temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge. • Students use a rational number to represent a given real-world scenario. **TM1** **Stimulus:** The student is presented with a context involving a negative number or zero. **Example Stem:** A Fahrenheit thermometer shows that the temperature is 15 degrees below zero. Enter the integer that represents the temperature in degrees Fahrenheit. **Rubric:** (1 point) The student enters the correct number (e.g., –15). **Response Type:** Equation/Numeric

Task Model 2

Response Types: Multiple Choice, multiple correct response; Hot Spot

DOK Level 1

6.NS.6b
Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.

Evidence Required:
2. The student can identify the location of ordered pairs on the coordinate plane based on the signs of the numbers in an ordered pair.

Tools: None

Prompt Features: The student is prompted to determine whether ordered pairs are located in a specified quadrant.

Stimulus Guidelines:
- Ordered pairs in the form $(\pm x, \pm y)$, where x and y are rational numbers.
- x and y cannot be equal to 0.
- At least one of the coordinates must be negative.

TM2a
Stimulus: The student is presented with a quadrant on the coordinate plane and ordered pairs given in answer choices.

Example Stem: Select **all** ordered pairs that are located in the second quadrant of the coordinate grid.

A. (–3, 4)
B. (3, –8)
C. (–5, 4)
D. (–5, –8)

Answer Choices: Answer choices will be ordered pairs. Distractors will be the points not located in the given quadrant. At least two ordered pairs must be correct.

Rubric: (1 point) The student selects all ordered pairs located in the given quadrant (e.g., A and C).

Response Type: Multiple Choice, multiple correct response

TM2b
Stimulus: The student is presented with a table of ordered pairs and all four quadrants.

Example Stem: Click the correct quadrant to identify where each ordered pair is located.

Ordered Pair	1st Quadrant (I)	2nd Quadrant (II)	3rd Quadrant (III)	4th Quadrant (IV)
(–8, 2)				
(–3, –5)				
(4, 2)				
(5, –12)				

Interaction: Hot spot tool is used to highlight cell indicating what quadrant the ordered pair lies in. Only one cell in a row should be highlighted at one time.

Rubric: (1 point) The student identifies the correct quadrant for each ordered pair (e.g., II, III, I, and IV).

Response Type: Hot Spot

Task Model 3

Response Type: Matching Tables

DOK Level 2

6.NS.6c
Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Evidence Required:
3. The student locates and positions integers and other rational numbers on a number line.

Tools: None

Prompt Features: The student is prompted to identify the relative position of points on a number line.

Stimulus Guidelines:

- The two numbers should have opposite signs.
- Item difficulty can be adjusted via these example methods:
  - Values are integers.
  - Values are decimal numbers up to the hundredths.
  - Values are fractions/mixed numbers.
  - Values are fractions/mixed numbers and decimals.

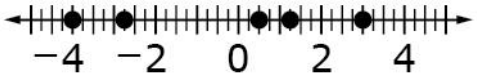
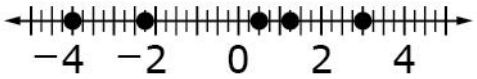
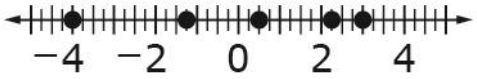
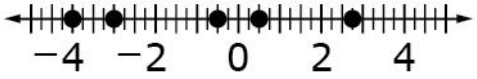
TM3a
Stimulus: The student is presented with statements about two rational numbers and their position on a number line in relation to each other.

Example Stem: Consider the statements in the table shown. Select True or False for each statement.

Statement	True	False
The numbers 7 and −12 are both located to the right of 0 on the number line.		
The number −12 is located to the right of 5 on the number line.		
The number −12 is located to the left of −8 on the number line.		

Rubric: (1 point) The student identifies all three statements correctly as true or false (e.g., F, F, T). Each statement may ask about a different pair of numbers.

Response Type: Matching Tables

Task Model 3 **Response Type: Multiple Choice, single correct response** **DOK Level 1** **6.NS.6c** Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane. **Evidence Required:** 3. The student locates and positions integers and other rational numbers on a number line. **Tools:** None	**Prompt Features:** The student is prompted to identify number line containing correctly plotted rational numbers. **Stimulus Guidelines:** • Number lines should have tick marks and labels appropriate for the given numbers. • Item difficulty can be adjusted via these example methods: ○ Values are integers. ○ Values are decimal numbers up to the hundredths. ○ Values are fractions/mixed numbers. ○ Values are fractions/mixed numbers and decimals. **TM3b** **Stimulus:** The student is presented with a list of rational numbers. **Example Stem:** Which number line shows the correct positions of all the values shown? $\frac{1}{2}$, −4, $-2\frac{3}{4}$, 3, $1\frac{1}{4}$ A.  B.  C.  D.  **Answer Choices:** Answer choices will be number lines with points plotted. Distractors will include incorrect placement of one or more numbers on a number line based on signs and/or positions of rational numbers. **Rubric:** (1 point) Student selects the correct number line (e.g., A). **Response Type:** Multiple Choice, single correct response

Task Model 3

Response Type: Matching Tables

DOK Level 1

6.NS.6c
Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Evidence Required:
3. The student locates and positions integers and other rational numbers on a number line.

Tools: None

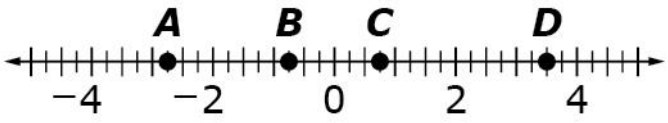
Prompt Features: The student is prompted to identify the rational numbers that occupy locations on a given number line.

Stimulus Guidelines:

- Number lines should have tick marks and labels appropriate for the given numbers.
- Item difficulty can be adjusted via these example methods:
  - Values are integers.
  - Values are decimal numbers up to the hundredths.
  - Values are fractions/mixed numbers.
  - Values are fractions/mixed numbers and decimals.

TM3c
Stimulus: The student is presented with a number line with labeled tick marks that contains 3–5 labeled points.

Example Stem: Consider the points plotted on the number line shown.



Select True or False for each statement about the number line.

Statement	True	False
The value of Point A is less than –3.		
The value of Point B is greater than the value of Point A.		
The value of Point D is $3\frac{1}{2}$.		

Rubric: (1 point) The student identifies all three statements correctly as true or false (e.g., F, T, T). Statements will include the opposite of the given number, failure to correctly plot fractions on a number line, and/or failure to understand tick marks on a number line.

Response Type: Matching Tables

Task Model 3

Response Type: Drag and Drop

DOK Level 1

6.NS.6c
Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

6.NS.7c
Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. *For example, for an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars.*

Evidence Required:
3. The student locates and positions integers and other rational numbers on a number line.

Tools: None

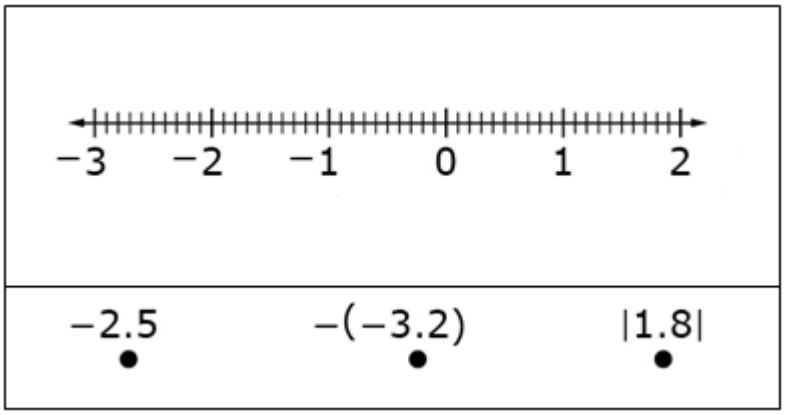
Prompt Features: The student is prompted to position rational numbers on a number line.

Stimulus Guidelines:

- At least one number should be in the form "–(–*x*)."
- Number line should be labeled appropriately.
- Numbers may be integers, fractions, or decimals. Appropriate tic marks should be identified on the number line with sufficient spacing.
- Item difficulty can be adjusted via these example methods:
  - Values are integers.
  - Values are decimal numbers up to the hundredths.
  - Values are fractions/mixed numbers.

TM3d
Stimulus: The student is presented with three rational numbers and an incomplete number line.

Example Stem: Drag each number to its correct location on the number line.



Interaction: The student uses a preplaced drag-and-drop tool. The points are labeled with a rational number value which students can drag to the number line. Use the snap-to feature for each tick mark.

Rubric: (1 point) Student plots all numbers correctly on the number line.

Response Type: Drag and Drop

Task Model 4

Response Type: Multiple Choice, single correct response

DOK Level 1

6.NS.6c
Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Evidence Required:
4. The student positions ordered pairs of integers and other rational numbers on a coordinate plane.

Tools: None

Prompt Features: The student is prompted to identify the coordinate plane showing correctly graphed ordered pairs and vice versa.

Stimulus Guidelines:

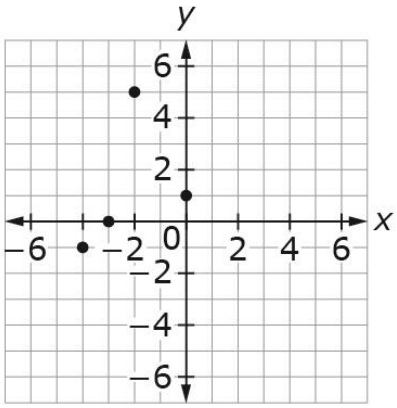
- There should be three to five total ordered pairs.
- At least two ordered pairs should contain negative coordinates.
- Ordered pairs are in the form $(\pm x, \pm y)$, where x and y may be integers and/or other rational numbers.
- For plotting rational numbers, coordinate plane scale should be such that student must use number line sense to place the points.
- Item difficulty can be adjusted via these example methods:
  - Students identify the ordered pairs for a given graph and vice versa (ordered pairs are integers).
  - Students identify the ordered pairs for a given graph and vice versa (ordered pairs include rational numbers).

TM4a
Stimulus: The student is presented with coordinates of ordered pairs and a coordinate plane with the ordered pairs plotted.

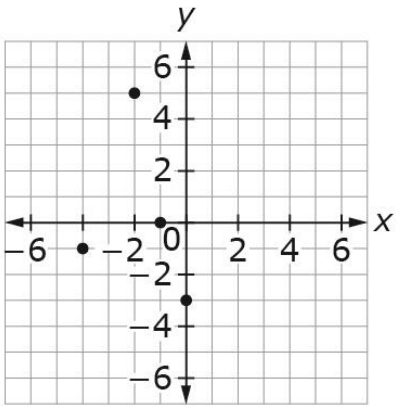
Example Stem 1: Which coordinate plane best represents the graph of these ordered pairs?

(–1, 0), (0, –3), (–4, –1), (–2, 5)

A.



B.



Task Model 4

Response Type: Multiple Choice, single correct response

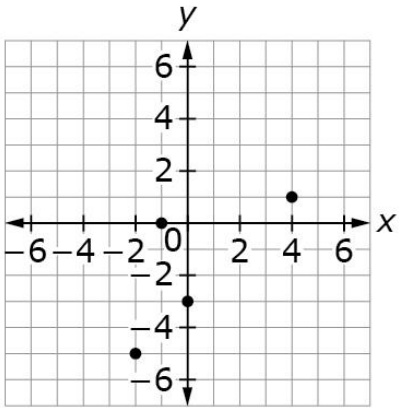
DOK Level 1

6.NS.6c
Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

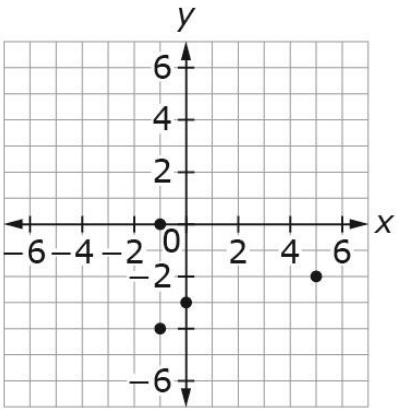
Evidence Required:
4. The student positions ordered pairs of integers and other rational numbers on a coordinate plane.

Tools: None

C.



D.



Rubric: (1 point) The student identifies the correct graph (e.g., B).

Answer Choices: Answer choices will be coordinate planes with three to five ordered pairs plotted. Distractors will include errors in signs of numbers and/or confusing *x*- and *y*-axis or coordinates.

Response Type: Multiple Choice, single correct response

Task Model 4

Response Type: Multiple Choice, single correct response

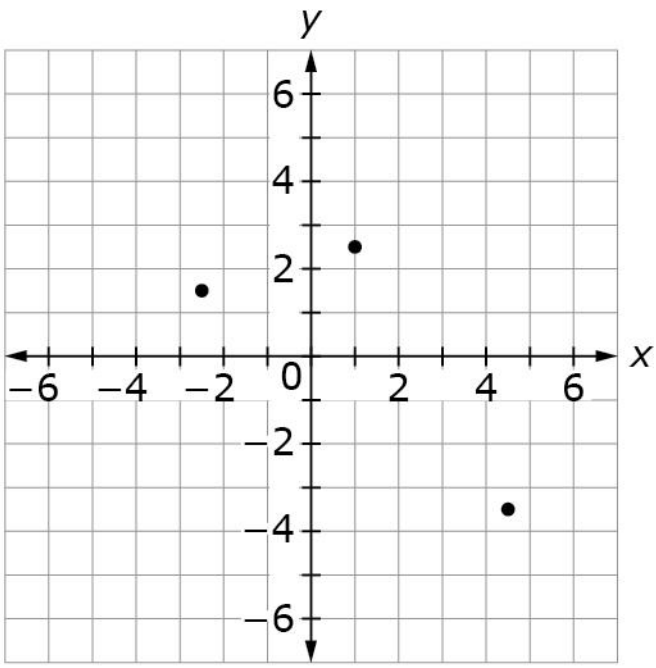
DOK Level 1

6.NS.6c
Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Evidence Required:
4. The student positions ordered pairs of integers and other rational numbers on a coordinate plane.

Tools: None

Example Stem 2: Consider the coordinate plane.



Which list of ordered pairs corresponds to the points on the coordinate plane?

A. $(-4\frac{1}{2}, -3\frac{1}{2})$, $(-1, 2\frac{1}{4})$, $(-2\frac{1}{2}, -1\frac{1}{2})$

B. $(-2\frac{1}{2}, 1\frac{1}{2})$, $(4\frac{1}{2}, -3\frac{1}{2})$, $(1, 2\frac{1}{4})$

C. $(-3\frac{1}{2}, -4\frac{1}{2})$, $(1, -2\frac{1}{4})$, $(2\frac{1}{2}, 1\frac{1}{2})$

D. $(2\frac{1}{2}, -1\frac{1}{2})$, $(4\frac{1}{2}, 3\frac{1}{2})$, $(1, -2\frac{1}{4})$

Rubric: (1 point) Student selects all the correct set of ordered pairs (e.g., B).

Answer Choices: Answer choices will be lists of ordered pairs. Distractors will include errors in signs of numbers and/or confusing *x*- and *y*-axis or coordinates.

Response Type: Multiple Choice, single correct response

Task Model 4

Response Type: Graphing

DOK Level 1

6.NS.6c
Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.

Evidence Required:
4. The student positions ordered pairs of integers and other rational numbers on a coordinate plane.

Tools: None

Prompt Features: The student is prompted to position ordered pairs on a coordinate plane.

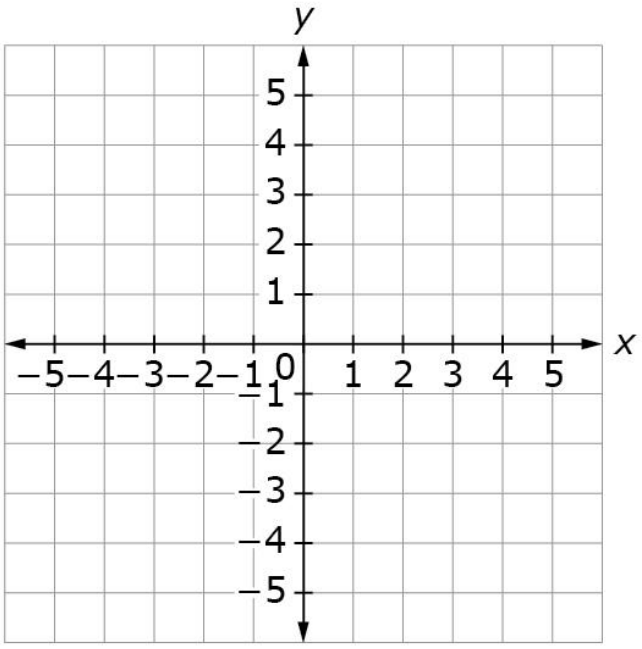
Stimulus Guidelines:

- The coordinate plane should have axes and values labeled.
- The ordered pairs may contain combinations of positive and negative integers and rational numbers that could be graphed in all four quadrants.
- For plotting rational numbers, coordinate plane scale should be such that student must use number line sense to place the points.
- Item difficulty can be adjusted via these example methods:
  - Both coordinates are positive integers.
  - At least one coordinate is negative integer.
  - At least one coordinate is rational number.
  - Both coordinates are rational numbers.

TM4b
Stimulus: The student is presented with three ordered pairs and a graphic of a coordinate plane.

Example Stem: Use the Add Point tool to plot these three ordered pairs on the coordinate grid:

(–2, 3)
(0, 3)
(–4, –2)



Interaction: The student uses the Add Point and Delete tools to graph the ordered pairs. Use the snap-to feature for each intersection of the grid.

Rubric: (1 point) Student plots all three points correctly on the coordinate plane.

Response Type: Graphing

Task Model 5
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.NS.7a
Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.
 	
Evidence Required:
5. The student interprets statements about inequalities as relative position on a number line.
 	
Tools: None
	Prompt Features: The student is prompted to give an inequality statement that describes two numbers.
	
	Stimulus Guidelines:
	• Comparisons should only include > or <.
	• Item difficulty can be adjusted via these example methods:
	  ○ Both integers are positive.
	  ○ At least one number is negative.
	  ○ Both integers are negative.
	  ○ Both numbers are negative decimals.
	  ○ Both numbers are negative fractions/mixed numbers.
	
	TM5
	Stimulus: The student is presented with a brief description of two integers.
	
	Example Stem: On a horizontal number line, –3 is located to the left of 2.
	
	Enter an inequality that represents this statement.
	
	Rubric: (1 point) Student enters correct inequality statement. Students allowed credit for writing either "–3 < 2" or "2 > –3."
	
	Response Type: Equation/Numeric

Task Model 6

Response Type: Drag and Drop

DOK Level 2

6.NS.7b
Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3°C > –7°C to express the fact that –3°C is warmer than –7°C.*

Evidence Required:
6. The student writes and interprets statements about the order of rational numbers in real-world contexts.

Tools: None

Prompt Features: The student is prompted to order rational numbers in a real-world context.

Stimulus Guidelines:

- The context should involve opposite directions or values such as temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge.
- Context should be familiar to students 11 to 13 years old.
- Table should have three to five rows of data.
- Item difficulty can be adjusted via these example methods:
  - Numbers contain positive and negative integers.
  - Numbers contain positive and negative decimals.
  - Numbers contain positive and negative fractions/mixed numbers.
  - All numbers are fractions/mixed numbers and decimals.

TM6a
Stimulus: The student is presented with a real-world context involving rational numbers.

Example Stem: Sea level is defined as being at an elevation of 0 feet. The elevation of land represents its height above or below sea level. The table shows the lowest elevations in some states.

Drag the numbers to each empty box to place the elevations in order from least to greatest.

State	Elevation
Arizona	72 ft
California	–282 ft
Louisiana	–68 ft
Tennessee	178 ft

☐ ☐ ☐ ☐

Least Greatest

72 ft -282 ft -68 ft 178 ft

Interaction: Student is given four empty boxes below the table and a palette at the bottom. The palette should contain the four numbers preplaced from the table (i.e., 72 ft, -282 ft, -68 ft, and 178 ft). Students use the drag-and-drop feature to place numbers in the boxes. Numbers may be used only once.

Rubric: (1 point) The student drags all four rational numbers in order from least to greatest.

Response Type: Drag and Drop

Task Model 6

Response Type: Matching Tables

DOK Level 2

6.NS.7b
Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3°C > –7°C to express the fact that –3°C is warmer than –7°C.*

Evidence Required:
6. The student writes and interprets statements about the order of rational numbers in real-world contexts.

Tools: None

Prompt Features: The student is prompted to determine whether statements relating to the order of rational numbers are true or false in a real-world context.

Stimulus Guidelines:

- The context should involve opposite directions or values such as temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge.
- Context should be familiar to students 11 to 13 years old.
- Tables should have three to five rows of data.
- Item difficulty can be adjusted via these example methods:
  - One number is negative.
  - Both integers are negative.
  - Numbers are negative decimals.
  - Numbers are negative fractions/mixed numbers.

TM6b
Stimulus: The student is presented with a real-world context involving rational numbers.

Example Stem: Sea level is defined as being at an elevation of 0 feet. The elevation of land represents its height above or below sea level. This table shows the lowest elevations in some states.

State	Elevation
Arizona	72 ft
California	–282 ft
Louisiana	–68 ft
Tennessee	178 ft

Determine whether each statement about the elevations is correct. Select True or False for each statement.

Statement	True	False
California has a higher elevation than Louisiana because –282 is greater than –68.		
Tennessee's elevation is farther from 0 than Louisiana's elevation.		
Louisiana has a higher elevation than California because –68 is closer to zero than –282.		

Rubric: (1 point) The student identifies all three statements correctly as true or false (e.g., F, T, T). Statements should deal with the order of the numbers.

Response Type: Matching Tables

Task Model 6
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.NS.7b
Write, interpret, and explain statements of order for rational numbers in real-world contexts. *For example, write –3°C > –7°C to express the fact that –3°C is warmer than –7°C.*
 	
Evidence Required: 6. The student writes and interprets statements about the order of rational numbers in real-world contexts.
 	
Tools: None
	Prompt Features: The student is prompted to give an inequality based on a verbal description of a real-world context involving rational numbers.
	
	Stimulus Guidelines:
	• The context should involve opposite directions or values such as temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge.
	• Context should be familiar to students 11 to 13 years old.
	• Item difficulty can be adjusted via these example methods:
	  ○ One number is negative.
	  ○ Both integers are negative.
	  ○ Numbers are negative decimals.
	  ○ Numbers are negative fractions/mixed numbers.
	
	TM6c
	Stimulus: The student is presented with a real-world context involving rational numbers.
	
	Example Stem: Sea level is defined as being at an elevation of 0 feet.
	• The lowest elevation in Arizona is 72 feet.
	• The lowest elevation in Louisiana is –68 feet.
	
	Enter an inequality that compares these two elevations.
	
	Rubric: (1 point) The student enters a correct inequality statement. Students are allowed credit for putting either "–68 < 72" or "72 > –68."
	
	Response Type: Equation/Numeric

Task Model 7

Response Type: Drag and Drop

DOK Level 2

6.NS.7c
Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

Evidence Required:
7. The student represents the absolute value of a rational number as the distance from zero on a number line.

Tools: None

Prompt Features: The student positions numbers on the number line, including numbers containing absolute values.

Stimulus Guidelines:

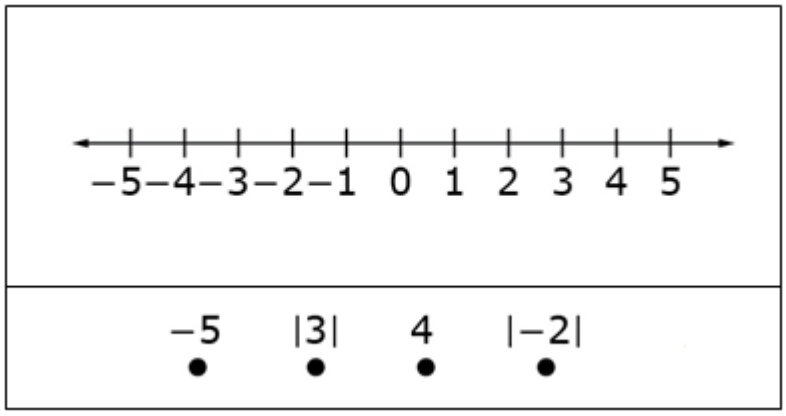
- Rational numbers should be a mixture of positive, negative, and absolute value.
- At least two of the numbers need to contain absolute values.
- Item difficulty can be adjusted via these example methods:
  - Values are integers and include absolute values.
  - Values are decimal numbers up to the hundredths and include absolute values.
  - Values are fractions/mixed numbers and include absolute values.

TM7a
Stimulus: The student is presented with a set of four or five rational numbers and a number line.

Example Stem: Consider this set of numbers.

$-5,\ |3|,\ 4,\ |-2|$

Drag the four values to their correct locations on the number line.



Interaction: The points are pre-labeled with the given rational number values and placed in a palette below the number line in which students can drag the point to the number line. Use the snap-to feature for each tick mark.

Rubric: (1 point) Student plots all four numbers correctly on the number line.

Response Type: Drag and Drop

Task Model 7

Response Type: Matching Tables

DOK Level 2

6.NS.7c
Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation.

Evidence Required:
7. The student represents the absolute value of a rational number as the distance from zero on a number line.

Tools: none

Prompt Features: The student is prompted to determine whether statements relating to absolute value are true or false.

Stimulus Guidelines: Item difficulty can be adjusted via these example methods:

- Numbers used are integers, decimals, and fractions/mixed numbers.
- Using two negative numbers may be more difficult than a positive and a negative.

TM7b
Stimulus: The student is presented with statements about the absolute value of numbers in relation to a number line.

Example Stem: Consider the statements in the table shown. Select True or False for each statement.

Statement	True	False
The distance from −3 to 0 is the same as the distance from 3 to 0 on the number line.		
The distance between −21 and 0 on a number line is |−21| units.		
On a number line, |4| and −4 are the same point.		

Rubric: (1 point) The student identifies all three statements correctly as true or false (e.g., T, T, F). Statements will be about the location of numbers with absolute values. False statements include statements that ignore absolute value signs and suggest an absolute value sign means "the opposite of" the number.

Response Type: Matching Tables

Task Model 8

Response Type: Matching Tables

DOK Level 1

6.NS.7d
Distinguish comparisons of absolute value from statements about order. *For example, recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.*

Evidence Required:
8. The student can make comparisons of absolute value from statements about order.

Tools: None

Prompt Features: The student is prompted to determine whether statements comparing numbers containing absolute value in real-world contexts are true.

Stimulus Guidelines:

- The context should involve opposite directions or values such as temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge.
- Context should be familiar to students 11 to 13 years old.
- Item difficulty can be adjusted by varying the numbers to compare absolute value, fractions, and mixed numbers.

TM8
Stimulus: The student is presented with statements involving absolute value in a real-world context.

Example Stem: Sea level is defined as being at an elevation of 0 feet. Objects can be above or below sea level.

- Submarine J is 35.6 feet below sea level.
- Submarine Q is 21.5 feet below sea level.
- Submarine Z is 43.8 feet below sea level.

Determine whether each statement comparing the submarines is true. Select True or False for each statement.

Statement	True	False
Submarine J is deeper than Submarine Q because $\|-35.6\| > \|-21.5\|$.		
Submarine Q is deeper than Submarine Z because $\|-21.5\| > \|-43.8\|$.		
Submarine J is deeper than Submarine Z because $\|-35.6\| > \|-43.8\|$.		

Rubric: (1 point) The student correctly identifies all three statements as true or false (e.g., T, F, F).

Response Type: Matching Tables

Task Model 9

Response Type: Equation/Numeric

DOK Level 2

6.NS.8
Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

Evidence Required:
9. The student solves real-world and mathematical problems by graphing ordered pairs on a coordinate plane and using coordinates and absolute value to find the distances between points with same first coordinate or same second coordinate.

Tools: None

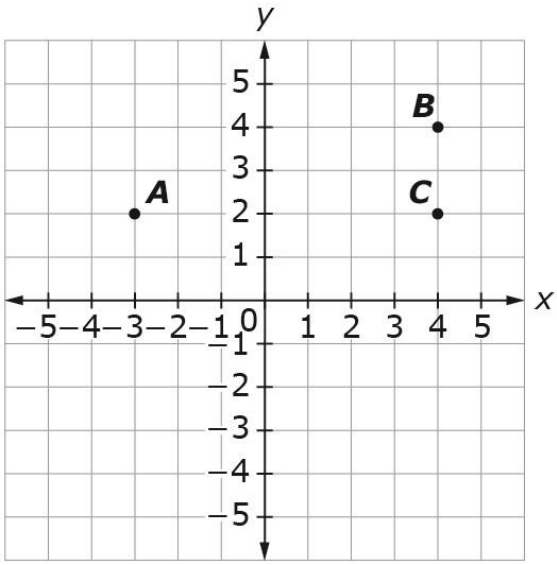
Prompt Features: The student is prompted to solve real-world or mathematical problems by using ordered pairs on a coordinate plane and absolute value to find distances between points with the same first coordinate or same second coordinate.

Stimulus Guidelines:

- Coordinates of the ordered pairs generally should be limited to integers unless appropriate for the situation.
- Multiple ordered pairs should have the same first coordinate or same second coordinate.
- If used, context should be familiar to students 11 to 13 years old.
- Item difficulty can be adjusted via these example methods:
  - Students find the distance between points in first quadrant only.
  - Students find the distance between points in adjacent quadrants.

TM9
Stimulus: The student is presented with a real-world or mathematical context and a graph of ordered pairs.

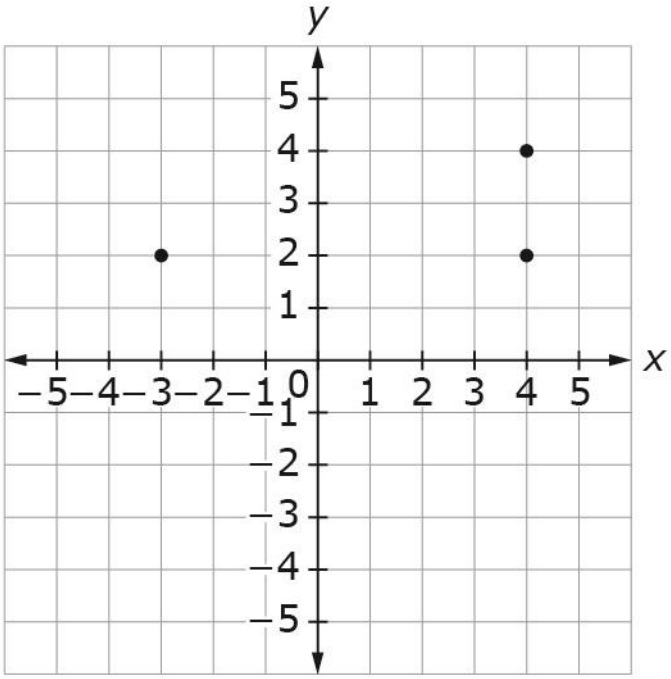
Example Stem 1: This grid shows the location of three points.



Enter the distance, in units, between point A and point C.

Rubric: (1 point) Student enters the correct numeric value for the distance (e.g., 7). Units of measure should be assumed from the stem.

Response Type: Equation/Numeric

Task Model 9 **Response Type: Equation/Numeric** **DOK Level 2** **6.NS.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. **Evidence Required:** 9. The student solves real-world and mathematical problems by graphing ordered pairs on a coordinate plane and using coordinates and absolute value to find the distances between points with same first coordinate or same second coordinate. **Tools:** None	**Example Stem 2:** This grid represents the layout of Tom's neighborhood. Each unit on the grid represents 1 square mile. • Tom's house is located at (4, 2) • A store is located at (–3, 2) • Tom's neighbors are located at (4, 4).  Enter the distance, in miles, from Tom's house to the store. **Rubric:** (1 point) Student enters the correct numeric value for the distance (e.g., 7). Units of measure should be assumed from the stem. **Response Type:** Equation/Numeric

Task Model 1 **Response Type: Equation/Numeric** **DOK Level 1** **6.EE.1** Write and evaluate numerical expressions involving whole-number exponents. **Evidence Required:** 1. The student evaluates numerical expressions involving whole-number exponents. **Tools:** None	**Prompt Features:** The student is prompted to evaluate numerical expressions involving exponents. **Stimulus Guidelines:** • Expressions contain at least four terms and one multiplication/division sign. • Parenthesis may be utilized to change the order of operations. • Expression should not be properly computed by simply going from left to right. • Numbers in expressions should be positive rational numbers. • Exponents should be whole numbers. • Answers should generally be positive numbers (up to hundredths, if a decimal). **TM1** **Stimulus:** The student is presented with a numerical expression with exponents. **Example Stem:** Enter the value of $3^3 \bullet 7^2 - 8 \div 4$. **Rubric:** (1 point) Student enters the correct value for the expression (e.g., 1321). **Response Type:** Equation/Numeric

Task Model 2 **Response Type: Equation/Numeric** **DOK Level 1** **6.EE.1** Write and evaluate numerical expressions involving whole-number exponents. **6.EE.2a** Write expressions that record operations with numbers and with letters standing for numbers. **Evidence Required:** 2. The student writes numerical expressions involving whole-number exponents, algebraic expressions, and expressions from formulas in real-world problems. **Tools:** None	**Prompt Features:** The student is prompted to write an expression to represent a given verbal expression. **Stimulus Guidelines:** • Expressions should be one- or two-step problems. • Exponents should be whole numbers. • Numbers in expressions should be positive rational numbers. • Item difficulty can be adjusted via these example methods: ○ Students write a numeric expression with exponents. ○ Students write an algebraic expression/formula without exponents. ○ Students write an algebraic expression/formula with exponents. **TM2** **Stimulus:** The student is presented with a verbal numerical expression with exponents or verbal algebraic expression with or without exponents. **Example Stem 1:** Enter a numerical expression that represents the sum of eight squared and thirty-two. **Example Stem 2:** Enter an algebraic expression that represents eight times the sum of y squared and twenty-eight. **Rubric:** (1 point) Student enters a correct numerical/algebraic expression for the given verbal expression (e.g., $8^2 + 32$; $8(y^2 + 28)$). **Response Type:** Equation/Numeric

Task Model 3 **Response Type: Multiple Choice, multiple correct response** **DOK Level 1** **6.EE.1** Write and evaluate numerical expressions involving whole-number exponents. **6.EE.2b** Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. **Evidence Required:** 3. The student uses mathematical terms to describe expressions. **Tools:** None	**Prompt Features:** The student is prompted to use mathematical terms to describe an expression. **Stimulus Guidelines:** • Mathematical terms include sum, term, product, factor, quotient, and coefficient. • Exponents used should be whole numbers. • Numbers in expressions should be positive rational numbers. • Item difficulty can be adjusted by presenting expressions that contain parentheses. **TM3a:** **Stimulus:** The student is presented with a numerical or algebraic expression. **Example Stem:** Select **all** the statements that correctly describe the expression $4^2 \bullet (8w - 3)$. A. The expression contains four terms. B. A term in the expression has a coefficient of 8. C. The expression shows the quotient of $8w - 3$ and 4^2. D. The expression shows a product of two factors. **Answer Choices:** Answer choices should be statements that include the following vocabulary: sum, term, product, factor, quotient, and coefficient. Distractors will include confusing the meaning of sum, term, product, factor, quotient, and coefficient. At least two statements must be correct. **Rubric:** (1 point) Student selects all the correct statements (e.g., B and D). **Response Type:** Multiple Choice, multiple correct response **TM3b:** **Stimulus:** The student is presented with a verbal description of an expression. **Example Stem:** Select **all** the expressions that represent the product of two factors. A. $2x \bullet 5y$ B. $4^2 \div 5y$ C. $4^2 \bullet (8w - 3)$ D. $2x + (8w - 3)$ **Answer Choices:** Answer choices will be numerical or algebraic expressions. Distractors will include confusing the meaning of sum, term, product, factor, quotient, and coefficient. At least two expressions must be correct. **Rubric:** (1 point) Student selects all of the correct expressions (e.g., A and C). **Response Type:** Multiple Choice, multiple correct response

Task Model 4
 	
Response Type: Equation/Numeric
 	
DOK Level 1
 	
6.EE.2c
Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
 	
Evidence Required:
4. The student evaluates algebraic expressions and expressions from formulas in real-world problems.
 	
Tools: Calculator
	Prompt Features: The student is prompted to find the value of a given expression.
	
	Stimulus Guidelines:
	• Expression cannot be properly computed by simply going from left to right.
	• Numbers in expressions should be positive rational numbers.
	• If used, exponents should be whole numbers.
	• Answers should be positive numbers that generally terminate no greater than the hundredths place unless appropriate for the situation.
	• Item difficulty can be adjusted via these example methods:
	  ○ Students enter the value of an algebraic expression without fractions/decimals or exponents.
	  ○ Students enter the value of an algebraic expression with exponents and no fractions/decimals.
	  ○ Students enter the value of an algebraic expression that contains fractions/decimals.
	  ○ Students enter the value of an algebraic expression that contains fractions/decimals and exponents.
	
	TM4
	Stimulus: The student is presented with an algebraic expression or an expression from a formula and specific values for variables in the expression or formula.
	
	Example Stem 1: The formula $C = \frac{5}{9}(F - 32)$ is used to convert degrees Fahrenheit (F) to degrees Celsius (C).
	
	Enter the temperature, in degrees Celsius (C), equal to 113 degrees Fahrenheit (F).
	
	Example Stem 2: Enter the value of $2 \bullet y - 8 \div 4$ when $y = 7$.
	
	Example Stem 3: Enter the value of $3^3 \bullet y^2 - 8 \div 4$ when $y = 7$.
	
	Rubric: (1 point) Student enters the correct value for the expression or formula (e.g., 45; 12; 1321). Units should be assumed from the problem.
	
	Response Type: Equation/Numeric

Task Model 5 **Response Type: Equation/Numeric** **DOK Level 2** **6.EE.3** Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.* **Evidence Required:** 5. The student creates equivalent expressions by applying properties of operations. **Tools:** None	**Prompt Features:** The student is prompted to create equivalent expressions based on given parameters. **Stimulus Guidelines:** • For the distributive property, numbers should be positive integers ≤ 100. • Expressions could contain one or two variables. • For expressions in the form $a(bx + cy)$, b and c do not have a common factor. • The correct answer choice will use properties of operations to generate an equivalent expression. **TM5a** **Stimulus:** The student is presented with an algebraic expression or an incomplete algebraic expression. **Example Stem 1:** Consider this expression: $3(2x + 5y)$. Enter an expression that shows the **sum of exactly two terms** that is equivalent to $3(2x + 5y)$. **Example Stem 2:** An equivalent expression to $6x + 15y$ can be written as the product of two factors. One of the factors is 3. Enter the **second factor** that will result in $6x + 15y$ when the two factors are multiplied. **Rubric:** (1 point) Student enters the correct algebraic expression (e.g., $6x + 15y$; $2x + 5y$). **Response Type:** Equation/Numeric

Task Model 5

Response Type: Drag and Drop

DOK Level 2

6.EE.3
Apply the properties of operations to generate equivalent expressions. *For example, apply the distributive property to the expression 3(2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.*

Evidence Required:
5. The student creates equivalent expressions by applying properties of operations.

Tools: None

Prompt Features: The student is prompted to use given parameters to create an expression that is equivalent to a given expression.

Stimulus Guidelines:

- For the distributive property, numbers should be positive integers ≤ 100.
- For expressions in the form $a(bx + cy)$, b and c do not have a common factor.
- Blanks represent terms; at least two blanks should be provided.
- Expressions could contain one or two variables.
- If expressions are in the form $ax + by$, then they must have a common factor greater than one.
- Item difficulty can be adjusted via these example methods:
  - Students enter an equivalent expression that represents a given expression.
  - Students enter missing parts of an equivalent expression that represents a given expression.

TM5b
Stimulus: The student is presented with an expression and the parameters to create an equivalent expression.

Example Stem 1: Consider this equation.

$$3(2x + 5y) = \square + \square$$

Drag a term into each box to create an expression equivalent to $3(2x + 5y)$.

Example Stem 2: Consider this equation.

$$3x + 2x + 15y = \square\,(\square + \square)$$

Drag a term into each box to create an expression equivalent to $3x + 2x + 15y$.

Example Stem 3: Consider this equation.

$$6x + \square = 3(\square + 5)$$

Drag a term into each box to create a true equation.

Interaction: Students will use the drag-and-drop feature to place terms in the boxes. A palette will be given on the left-hand side with 8–12 terms. Snap-to feature should be used and Delete tool needs to be provided.

Rubric: (1 point) Student correctly creates an equivalent expression (e.g., $6x$ and $15y$; 5, x, and $3y$; 15 and $2x$).

Response Type: Drag and Drop

Task Model 6
 	
Response Type: Multiple Choice, multiple correct response
 	
DOK Level 2
 	
6.EE.4
Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them). *For example, the expressions* $y + y + y$ *and* $3y$ *are equivalent because they name the same number regardless of which number* y *stands for.*
 	
Evidence Required:
6. The student identifies when expressions are equivalent by utilizing properties of operations.
 	
Tools: None
	Prompt Features: The student is prompted to identify equivalent expressions.
	
	Stimulus Guidelines:
	• For the distributive property, numbers should be positive integers ≤ 100.
	• If used, exponents should be whole numbers.
	• Item difficulty can be adjusted via these example methods:
	  ○ Having multiple correct answers increases the difficulty.
	  ○ Expressions can involve the distributive property or just combining or expanding terms.
	
	TM6
	Stimulus: The student is presented with an algebraic expression.
	
	Example Stem 1: Select **all** expressions that are equivalent to $4(3x + 6y)$.
	
	A. $12x + 6y$
	B. $12x + 24y$
	C. $2(6x + 12y)$
	D. $4(12x+24y)$
	
	Example Stem 2: Select **all** expressions that are equivalent to $3 + w + w + w$.
	
	A. $3(1 + w)$
	B. $3 + 3w$
	C. $3+w^3$
	D. $3w^3$
	
	Answer Choices: Answer choices will be algebraic expressions. Distractors will include confusing the meaning of sum, term, product, factor, quotient, and coefficient and/or the properties of operations. At least two expressions must be correct.
	
	Rubric: (1 point) Student selects all of the correct expressions (e.g., B and C; A and B).
	
	Response Type: Multiple Choice, multiple correct response

Task Model 1 **Response Type: Multiple Choice, multiple correct response** **DOK Level 1** **6.EE.5** Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. **Evidence Statement:** 1. The student uses substitution in one-variable equations and inequalities. **Tools:** None	**Prompt Features:** The student is prompted to use substitution to identify equations that have a given solution. **Stimulus Guidelines:** The student is presented with a solution and one equation per answer choice. • Equations are one-step equations in the form $x + p = q$ or $px = q$ in which p, q, and x must all represent nonnegative rational numbers. • Item difficulty can be adjusted via these example methods: ○ P and q are whole numbers. ○ At least one number is a decimal to the hundredths. ○ At least one number is a fraction or mixed number. **TM1a** **Example Stem:** Select **all** equations that have $x = 3$ as a solution. A. $x + 7 = 10$ B. $3 + x = 3$ C. $x \bullet 3 = 1$ D. $4 \bullet x = 12$ **Answer Choices:** Answer choices will be equations in the form $x + p = q$ or $px = q$, in which p and q must represent nonnegative rational numbers. Distractors will include confusing addition, subtraction, multiplication, or division, computation errors, and/or incorrect substitution. At least two equations must be correct. **Rubric:** (1 point) Student selects all the correct equations (e.g., A and D). **Response Type:** Multiple Choice, multiple correct response

Task Model 1 **Response Type: Multiple Choice, multiple correct response** **DOK Level 2** **6.EE.5** Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true. **Evidence Statement:** 1. The student uses substitution in one-variable equations and inequalities. **Tools:** None	**Prompt Features:** The student is prompted to use substitution to identify a solution set for an inequality. **Stimulus Guidelines:** • Inequalities should be in the form $x > c$ or $x < c$ where c must represent a rational number. • Item difficulty can be adjusted via these example methods: ○ c is an integer. ○ c is a decimal to the hundredths. ○ c is a fraction or mixed number. **TM1b** **Stimulus:** The student is presented with a solution set and one inequality per answer choice. **Example Stem:** Select **all** inequalities that have the set {−4.86, −2.5, 0, 2.74, 4.1} as possible solutions for x. A. $x > -4.24$ B. $x < -5.5$ C. $x > -5.13$ D. $x < 4.5$ **Answer Choices:** Answer choices will be inequalities in the form $x > c$ or $x < c$. Distractors will include misinterpreting the inequality symbols and/or not all the values in a given set satisfy the inequality. At least two inequalities must be correct. **Rubric:** (1 point) Student selects all the correct inequalities (e.g., C and D). **Response Type:** Multiple Choice, multiple correct response **TM1c** **Stimulus:** The student is presented with a one-variable inequality. **Example Stem:** Select **all** the sets of numbers that are possible values for x in the inequality, $x < 7\frac{1}{2}$. A. $\{0, 2\frac{7}{8}, 7\frac{3}{5}\}$ B. $\{-28, -4\frac{2}{3}, -1\frac{1}{2}\}$ C. $\{8\frac{7}{8}, 10\frac{1}{2}, 15\frac{2}{3}\}$ D. $\{-4\frac{1}{2}, 3\frac{2}{3}, 6\frac{3}{5}\}$ **Answer Choices:** Answer choices will be sets of three to four rational numbers. Distractors will include misinterpreting the inequality symbols and/or not all the values in a given set satisfy the inequality. At least two statements must be correct. **Rubric:** (1 point) Student selects all the correct sets of numbers (e.g., B and D). **Response Type:** Multiple Choice, multiple correct response

Task Model 1

Response Type: Matching Tables

DOK Level 2

6.EE.5
Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

Evidence Statement:
1. The student uses substitution in one-variable equations and inequalities.

Tools: None

Prompt Features: The student is prompted to use substitution to identify multiple solutions to one-variable inequalities.

Stimulus: The student is presented with a one-variable inequality.

- Inequalities should be in the form $x > c$ or $x < c$ in which c must represent a rational number.
- The table may include four to five values.
- Item difficulty can be adjusted by varying the types of numbers used as values in the table (e.g., positive and negative integers, fractions, decimals).

TM1d
Example Stem: Consider the inequality $x > 7$.

Determine whether each value of x makes this inequality true. Select Yes or No for each value.

x	Yes	No
22		
-7		
13		
5		
-39		

Rubric: (1 point) Student correctly determines whether all five values make the inequality true (e.g., Y, N, Y, N, N).

Response Type: Matching Tables

Task Model 2 **Response Type: Multiple Choice, single correct response** **DOK Level 1** **6.EE.8** Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams. **Evidence Statement:** 2. The student writes one-variable equations and inequalities and solves one-variable equations in real-world and mathematical problems. **Tools:** None	**Prompt Features:** The student is prompted to identify one-variable inequalities in real-world and mathematical problems. **Stimulus:** The student is presented with verbal constraints in a real-world or mathematical problem involving one-variable inequalities. • Inequalities should be in the form $x > c$, $x < c$, $c > x$, or $c < x$ in which c must represent a rational number. • Context should be familiar to students 11 to 13 years old. • Item difficulty can be adjusted by varying the types of numbers used as values (e.g., positive and negative integers, fractions, decimals). **TM2a** **Example Stem:** John is planning to put a rectangular pool in his backyard. The length (l) of the pool must be greater than 24 feet and the width (w) must be less than 14 feet. Select the pair of inequalities that models the possible measurements for each dimension. *A.* $l > 14$ and $w < 24$ *B.* $l > 24$ and $w < 14$ *C.* $24 > l$ and $14 > w$ *D.* $24 < l$ and $14 < w$ **Answer Choices:** Each answer choice will be two inequalities in the form $x > c$, $x < c$, $c > x$, or $c < x$. Distractors will include misinterpreting the inequality symbols and/or incorrect placement of variable and numerical terms. **Rubric:** (1 point) Student selects the correct inequality pair (e.g., B). **Response Type:** Multiple Choice, single correct response

Task Model 2 **Response Type: Equation/Numeric** **DOK Level 2** **6.EE.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. **Evidence Statement:** 2. The student writes one-variable equations and inequalities and solves one-variable equations in real-world and mathematical problems. **Tools:** None	**Prompt Features:** The student is prompted to solve one-variable equations in mathematical and real-world contexts. **Stimulus:** The student is presented with a one-variable equation of the form $x + p = q$ or $px = q$ in context. • p and q must represent nonnegative rational numbers • If used, context should be familiar to students 11 to 13 years old. • Item difficulty can be adjusted by varying the types of numbers used as values (e.g., positive and negative integers, fractions, decimals). **TM2b** **Example Stem:** Julia has some peaches**.** She gathers 6 more peaches. She now has 58 peaches. **Part A**: In the first box, enter an **equation** to represent the total number of peaches, p, that Julia has after she gathers 6 more peaches. **Part B:** In the second box, enter the **number** of peaches represented by p in this situation. **Rubric:** (2 points) Student enters the correct equation (e.g., $p + 6 = 58$) and the correct solution (e.g., 52). (1 point) Student enters the correct equation or the correct solution. **Response Type:** Equation/Numeric (2 response boxes)

Task Model 2 **Response Type: Equation/Numeric** **DOK Level 1** **6.EE.7** Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. **Evidence Statement:** 2. The student writes one-variable equations and inequalities and solves one-variable equations in real-world and mathematical problems. **Tools:** None	**Prompt Features:** The student is prompted to write or solve one-variable equations in mathematical and real-world contexts. **Stimulus:** • Equations should be in the form $x + p = q$ or $px = q$, where p and q must represent nonnegative rational numbers. • If used, context should be familiar to students 11 to 13 years old. • Item difficulty can be adjusted by varying the types of numbers used as values (e.g., positive and negative integers, fractions, decimals). **TM2c** **Stimulus:** The student is presented with an equation in a mathematical context. **Example Stem:** The sum of 32 and n is equal to 59.13. Enter the equation described in the sentence. **Rubric:** (1 point) Student enters the correct equation (e.g., $32 + n = 59.13$). **Response Type:** Equation/Numeric **TM2d** **Stimulus:** The student is presented with an equation containing an unknown variable. **Example Stem:** Enter the value of y that makes the given equation true. $y + 3\frac{2}{9} = 5\frac{5}{6}$. **Rubric:** (1 point) Student enters the correct value (e.g., $2\frac{11}{18}$). **Response Type:** Equation/Numeric

Task Model 3

Response Type: Multiple Choice, single correct response

DOK Level 1

6.EE.8
Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Evidence Statement:
3. The student represents solutions of inequalities in real-world and mathematical problems on a number line.

Tools: None

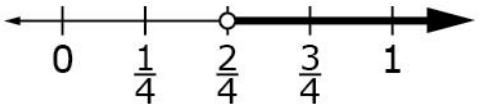
Prompt Features: The student is prompted to identify a number line that represents the solution to a one-variable inequality presented in a mathematical or real-world context.

Stimulus: The student is presented with a one-variable inequality in a mathematical or real-world context.

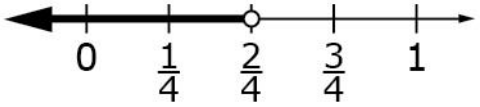
- Inequalities should be in the form x > c or x < c in which c must represent a rational number.
- Number lines should have evenly spaced tick marks.
- If used, context should be familiar to students 11 to 13 years old.
- Item difficulty can be adjusted via these example methods, but are not limited to these methods:
  - *c* is a whole number; number line has integers labeled.
  - *c* is an integer; number line has integers labeled.
  - *c* is a fraction.
  - *c* is a decimal.

TM3a
Example Stem: Select the number line that represents all solutions of $x < -\frac{1}{2}$.

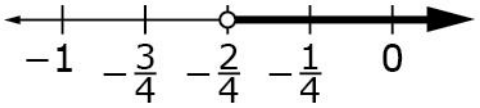
A.



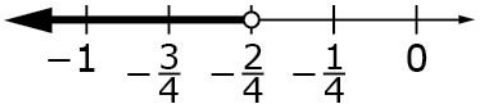
B.



C.



D.



Rubric: (1 point) Student selects the correct number line (e.g., D).

Response Type: Multiple Choice, single correct response

Task Model 3

Response Type: Drag and Drop

DOK Level 2

6.EE.8
Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

Evidence Statement:
3. The student represents solutions of inequalities in real-world and mathematical problems on a number line.

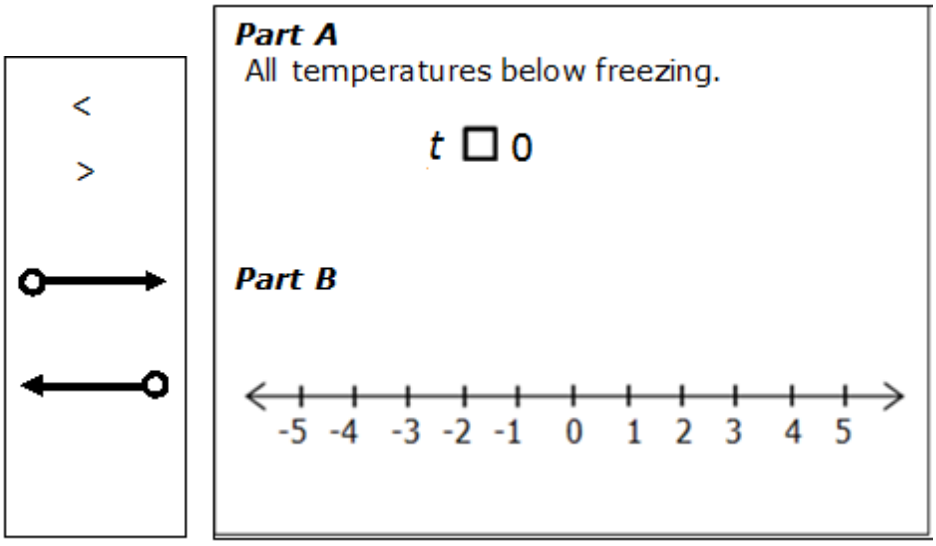
Tools: None

Prompt Features: The student is prompted to create and represent, on a number line, a one-variable inequality that corresponds to a verbal constraint in a mathematical or real-world problem.

Stimulus: The student is presented with a verbal constraint in a mathematical or real-world problem.

- Inequalities should be in the form $x > c$ or $x < c$ in which c must represent a rational number.
- Drag elements should include: an arrow going to the left with an open circle, an arrow going to the right with an open circle, <, and >.
- Number lines should have evenly spaced tick marks. Each tick mark should have snap regions that can fit the circles and arrows.
- Context should be familiar to students 11 to 13 years old.
- Item difficulty can be adjusted via these example methods, but are not limited to these methods:
  - c is a whole number; number line has whole numbers labeled.
  - c is an integer; number line has integers labeled.
  - c is a decimal; number line is appropriately labeled.
  - c is a fraction; number line is appropriately labeled.

TM3b
Example Stem: The freezing point of water is 0 degrees Celsius.

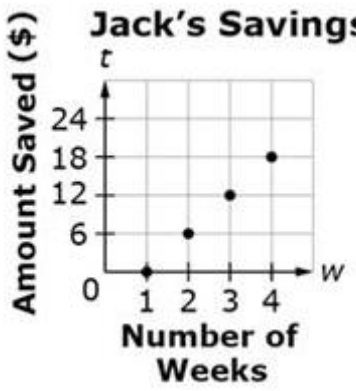


Part A: Drag the correct symbol into the box to create an inequality that describes all temperatures (t) below freezing.

Part B: Drag the correct ray to the number line to represent all temperatures, t, that are below freezing, in degrees Celsius.

	Interaction: Students given Delete tool as well as the following: *Part A* • Students use the drag-and-drop tool to place an inequality symbol in the open box. *Part B* • Students use the drag-and-drop tool to place a ray on the number line. • Snap-to feature used at each tick mark on the number line. **Rubric:** (1 point) Student places the correct inequality symbol in the box and places the correct ray at the proper location on the number line. **Response Type:** Drag and Drop

Task Model 1 **Response Type: Equation/Numeric** **DOK Level 2** **6.EE.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. **Evidence Required:** 1. The student writes an equation to express one quantity versus another quantity using dependent and independent variables. **Tools:** Calculator	**Prompt Features:** The student is prompted to give an equation that uses dependent and independent variables to relate two quantities. **Stimulus Guidelines:** • Equations should be in the form of $y = kx$ or $y = x \pm c$ where k and c are positive rational numbers. • Context should be familiar to students 11 to 13 years old. • Item difficulty can be adjusted via these example methods: ○ Equations are in the form $y = kx$ or $y = x \pm c$ where k and c are positive integers. ○ Equations are in the form $y = kx$ or $y = x \pm c$ where k and c are fractions, mixed numbers, or decimals. **TM1** **Stimulus:** The student is presented with independent and dependent quantities in a real-world context. **Example Stem:** Emily studies 40 minutes after lunch for a science exam. She studies x more minutes that evening. Enter an **equation** that represents the total number of minutes, y, Emily studies for the science exam. **Rubric:** (1 point) Student gives a correct equation (e.g., $40 + x = y$). **Response Type:** Equation/Numeric

Task Model 2 **Response Type: Multiple Choice, single correct response** **DOK Level 2** **6.EE.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. **Evidence Required:** 2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations. **Tools:** Calculator	**Prompt Features:** The student is prompted to identify the correct graph that represents a relationship among dependent and independent variables. **Stimulus Guidelines:** • Graph values should be linear in the form of $y = kx$ or $y = x \pm c$ where k and c are positive rational numbers. • The coordinate plane should be limited to Quadrant I. • Context should be familiar to students 11 to 13 years old. **TM2a** **Stimulus:** The student is presented with independent and dependent quantities in a real-world context. **Example Stem:** Jack saves $6.00 each week. He started saving beginning with Week 1. • Let w represent the number of weeks that Jack saves. • Let t represent the total amount saved, in dollars. Which graph shows the amount of money Jack saves over 4 weeks? A.  B. 

Task Model 2 **Response Type: Multiple Choice, single correct response** **DOK Level 2** **6.EE.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. **Evidence Required:** 2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations. **Tools:** Calculator	C.  D.  **Answer Choices:** Answer choices will be a graph with three to five ordered pairs plotted. Distractors will include switching the two variables and/or incorrectly plotting the points. **Rubric:** (1 point) Student selects the correct graph (e.g., D). **Response Type:** Multiple choice, single correct response

Task Model 2

Response Type: Matching Tables

DOK Level 2

6.EE.9
Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Evidence Required:
2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations.

Tools: Calculator

Prompt Features: The student is prompted to use a table or a graph to identify correct statements about the relationship among dependent and independent variables.

Stimulus Guidelines:

- Table and graph values should be linear in the form of $y = kx$ or $y = x \pm c$ where k and c are positive rational numbers.
- Tables should have three to five rows of data.
- The coordinate plane should be limited to Quadrant I.
- Context should be familiar to students 11 to 13 years old.

TM2b
Stimulus: The student is presented with independent and dependent variables in the form of a table or a graph.

Example Stem 1: Jack saves the same amount of money each week as shown in the table.

- Let w represent the number of weeks that Jack saves
- Let t represent the total amount saved, in dollars.

Number of Weeks *w*	**Total Amount Saved *t***
1	$ 6
2	$12
3	$18
4	$24

Determine whether each statement is true. Select True or False for each statement.

Statement	**True**	**False**
The equation $t = 6 + w$ represents the relationship between the number of weeks and the total amount saved.		
The total amount saved is 6 times the number of weeks.		
The number of weeks that Jack saves depends on the total amount of money Jack saves.		

Rubric: (1 point) Student correctly identifies each statement as being either true or false (e.g., F, T, F).

Response Type: Matching Tables

Task Model 2

Response Type: Matching Tables

DOK Level 2

6.EE.9
Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Evidence Required:
2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations.

Tools: Calculator

Example Stem 2: Jack saves the same amount of money each week as shown in the graph.

- *w* represents the number of weeks that Jack saves.
- *t* represents the total amount saved, in dollars.

Determine whether each statement is true. Select True or False for each statement.

Statement	True	False
Jack saved a total of $12 at the end of week 2.		
The equation $t = 6w$ represents the relationship between the number of weeks and the total amount saved.		
The total amount of money Jack saves depends on the number of weeks that Jack saves.		

Rubric: (1 point) Student correctly identifies each statement as being either true or false (e.g., T, T, T).

Response Type: Matching Tables

Task Model 2

Response Type: Equation/Numeric

DOK Level 2

6.EE.9
Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Evidence Required:
2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations.

Tools: Calculator

Prompt Features: The student is prompted to use a table or a graph to analyze the relationship among dependent and independent variables.

Stimulus Guidelines:

- Table and graph values should be linear in the form of $y = kx$ or $y = x \pm c$ where k and c are positive rational numbers.
- Tables should have three to five rows of data.
- The coordinate plane should be limited to Quadrant I.
- Context should be familiar to students 11 to 13 years old.

TM2c
Stimulus: The student is presented with independent and dependent variables in the form of a table or a graph.

Example Stem 1: Jack saves the same amount of money each week as shown in the table.

- Let w represent the number of weeks that Jack saves
- Let t represent the total amount saved, in dollars.

Number of Weeks ***w***	**Total Amount Saved** ***t***
1	$ 6
2	$12
3	$18
4	$24

Enter the total amount of money, in dollars, that Jack saves after 6 weeks.

Rubric: (1 point) Student enters the correct value (e.g., 36).

Response Type: Equation/Numeric

Task Model 2 **Response Type: Equation/Numeric** **DOK Level 2** **6.EE.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. **Evidence Required:** 2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations. **Tools:** Calculator	**Example Stem 2:** Jack saves the same amount of money each week as shown in the graph. • Let *w* represent the number of weeks that Jack saves. • Let *s* represents the total amount saved, in dollars.  Enter the total amount of money, in dollars, that Jack saves after 6 weeks. **Rubric:** (1 point) Student enters the correct value (e.g.,36). **Response Type:** Equation/Numeric

Task Model 2

Response Type: Fill-in Table

DOK Level 2

6.EE.9
Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Evidence Required:
2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations.

Tools: Calculator

Prompt Features: The student is prompted to complete a table to represent the relationship between dependent and independent variables.

Stimulus Guidelines:
- Table values should be linear in the form of $y = kx$ or $y = x \pm c$ where k and c are positive rational numbers.
- Tables should have three to five rows of data.
- Context should be familiar to students 11 to 13 years old.

TM2d
Stimulus: The student is presented with independent or dependent variables in the forms of a table.

Example Stem: The band members are selling chocolate bars for a fundraiser. The amount of money collected for each box of bars sold is the same.

- Let n represent the number of boxes sold.
- Let d represent the amount of money collected, in dollars.

Number of Boxes Sold *n*	**Amount of Money Collected, in Dollars *d***
	30
2	
3	90
4	120
6	

Fill in the table for all missing values of n and d.

Rubric: (1 point) Student correctly enters all missing values in the table (e.g., 1, 60, and 180).

Response Type: Fill-in Table

Adapted from http://www.illustrativemathematics.org/standards/k8.

Task Model 2

Response Type: Equation/Numeric

DOK Level 2

6.EE.9
Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Evidence Required:
2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations.

Tools: Calculator

Prompt Features: The student is prompted to give an equation from a graph or table that uses dependent and independent variables to relate two quantities.

Stimulus Guidelines:

- Table and graph values should be linear in the form of $y = kx$ or $y = x \pm c$ where k and c are positive rational numbers.
- Tables should have three to five rows of data.
- The coordinate plane should be limited to Quadrant I.
- Context should be familiar to students 11 to 13 years old.
- Item difficulty can be adjusted via these example methods:
  - Students enter an equation for a table/graph of values for a linear relationship in the form $y = kx$ or $y = x \pm c$ where k and c are positive integers.
  - Students enter an equation for a table/graph of values for a linear relationship in the form $y = kx$ or $y = x \pm c$ where k and c are positive fractions, mixed numbers, or decimals.

TM2e
Stimulus: The student is presented with independent and dependent variables in the forms of a table or a graph.

Example Stem 1: Jack saves the same amount of money each week as shown in the table.

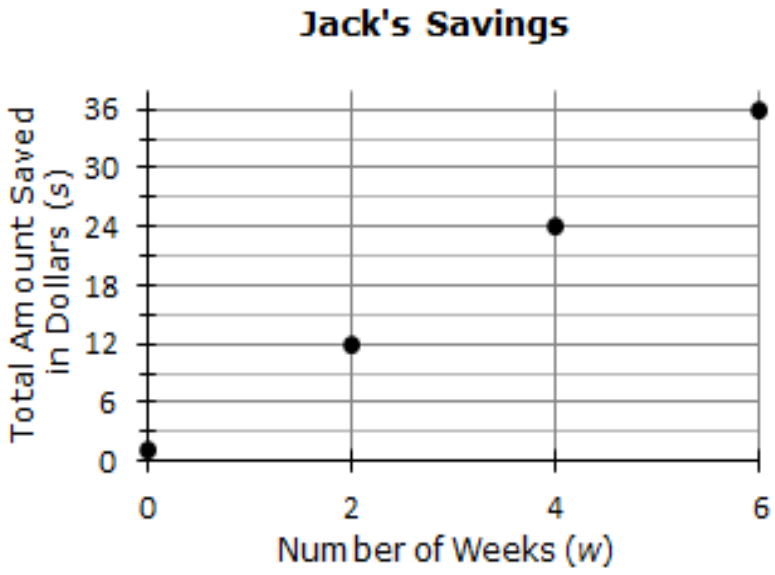
- Let w represent the number of weeks that Jack saves.
- Let t represent the total amount saved, in dollars.

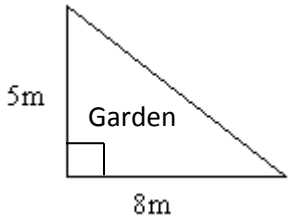
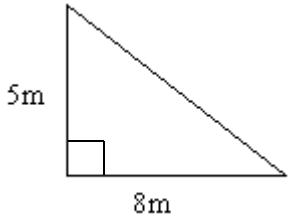
Number of Weeks ***w***	**Total Amount Saved** ***t***
1	$ 6
2	$12
3	$18
4	$24

Enter an equation that represents the relationship between the number of weeks Jack saves and the total amount of money saved.

Rubric: (1 point) Student enters the correct equation (e.g., $t = 6w$).

Response Type: Equation/Numeric

Task Model 2 **Response Type: Equation/Numeric** **DOK Level 2** **6.EE.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. **Evidence Required:** 2. The student identifies the relationship between dependent and independent variables from graphs and tables and relates them to equations. **Tools:** Calculator	**Example Stem 2:** Jack saves the same amount of money each week as shown in the graph. • Let *w* represent the number of weeks that Jack saves. • Let *s* represent the total amount saved, in dollars.  Enter an equation that represents the relationship between the number of weeks Jack saves and the total amount of money saved. **Rubric:** (1 point) Student enters the correct equation (e.g., $s=6w$). **Response Type:** Equation/Numeric

Task Model 1
 	
Response Type: Equation/Numeric
 	
DOK Level 1
 	
6.G.1
Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
 	
Evidence Required:
1. The student determines the area of triangles, special quadrilaterals, and polygons using composition and decomposition in solving real-world and mathematical problems.
 	
Tools: Calculator
	Prompt Features: The student is prompted to determine the areas of triangles in solving mathematical and real-world problems.
	
	Stimulus Guidelines:
	• If used, context should be familiar to students 11 to 13 years old.
	• Rational numbers used should be appropriate for the situation.
	• Item difficulty can be adjusted via these example methods:
	  ○ Measurements of shapes can be whole numbers, fractions, or decimals.
	  ○ Students find the area of right triangles.
	  ○ Students find the area of non-right triangles such as isosceles triangle, equilateral triangle, or scalene triangle.
	
	TM1a
	Stimulus: The student is presented with a mathematical or real-world problem involving triangles.
	
	Example Stem 1: A triangular-shaped garden is shown.
	 
	
	Enter the area of the garden, in square meters.
	
	Example Stem 2: Consider this figure.
	 
	
	Enter the area of the right triangle in square meters.
	
	Rubric: (1 point) Student enters the correct area of the figure (e.g., 20; 20). Correct answer should be a single numerical value and units should be assumed from the stem.
	
	Response Type: Equation/Numeric

Task Model 1

Response Type: Equation/Numeric

DOK Level 2

6.G.1
Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.

Evidence Required:
1. The student determines the area of triangles, special quadrilaterals, and polygons using composition and decomposition in solving real-world and mathematical problems.

Tools: Calculator

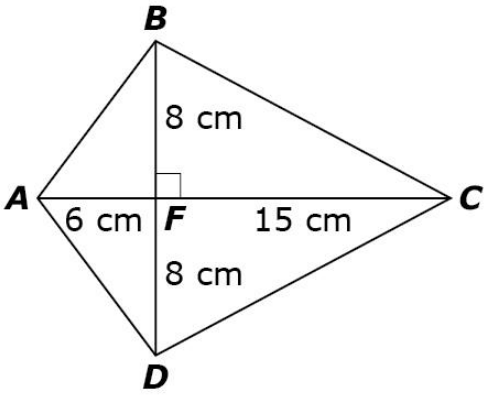
Prompt Features: The student is prompted to determine the areas of triangles, special quadrilaterals, and other polygons in solving mathematical and real-world problems.

Stimulus Guidelines:

- If used, context should be familiar to students 11 to 13 years old.
- Rational numbers used should be appropriate for the situation.
- Item difficulty can be adjusted via these example methods:
  - Students find area of non-right triangles/special quadrilaterals with whole-number measures.
  - Students find area of polygon that can be decomposed into quadrilaterals and triangles with whole number measures.
  - Students find area of triangles/special quadrilaterals with fraction/decimal measures.
  - Students find area of polygon that can be decomposed into quadrilaterals and triangles with fraction/decimal measures.

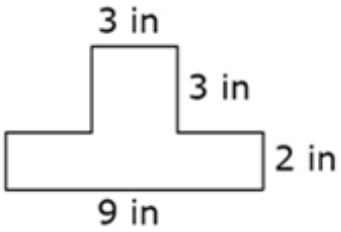
TM1b
Stimulus: The student is presented with a mathematical or real-world problem involving composition or decomposition of a triangle, special quadrilateral, or other polygon.

Example Stem 1: Consider this figure.



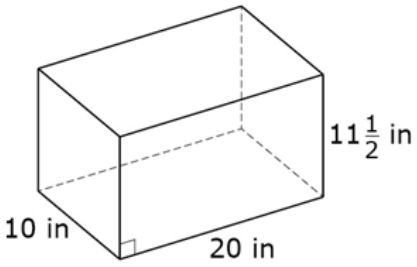
Enter the total area of kite *ABCD* in square centimeters.

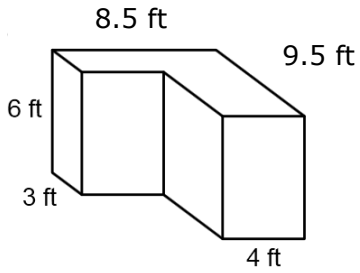
Example Stem 2: A company is using this design for their shirts. The design is made by joining a square and a rectangle. This figure shows the design.

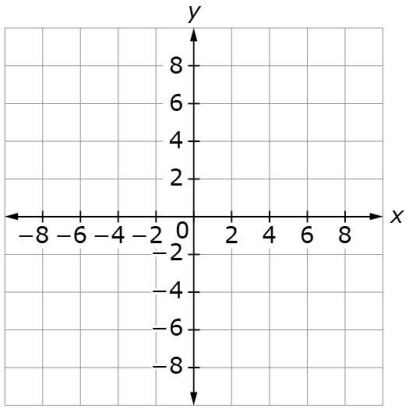


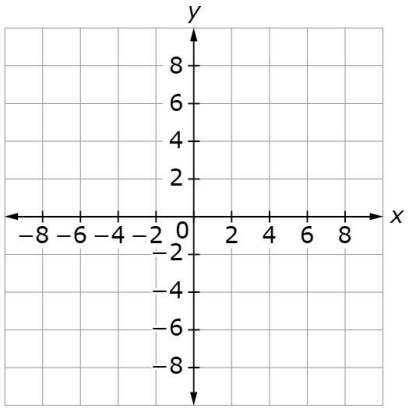
Enter the total area of the design in square inches.

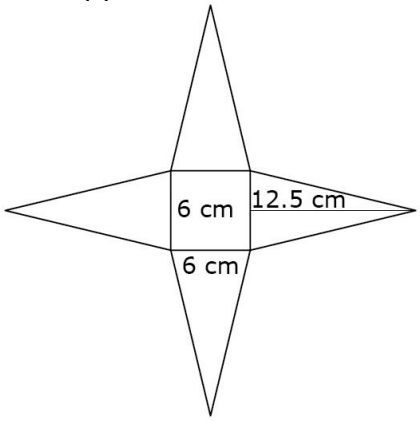
	Rubric: (1 point) Student enters the correct area of the figure (e.g., 168; 27). Correct answer should be a single numerical value and units should be assumed from the stem. **Response Type:** Equation/Numeric

Task Model 2
 	
Response Type: Equation/Numeric
 	
DOK Level 1
 	
6.G.2
Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = *lwh* and *V* = *bh* to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
 	
Evidence Required:
2. The student determines the volume of right rectangular prisms with fractional edge lengths in solving real-world and mathematical problems.
 	
Tools: Calculator
	Prompt Features: The student is prompted to determine the volume of a right rectangular prism by applying the formulas *V* = *lwh* and *V* = *bh*.
	
	Stimulus Guidelines:
	• If used, context should be familiar to students 11 to 13 years old.
	• Item difficulty can be adjusted via these example methods:
	  ○ Students find volume of rectangular prism with one side measure expressed as fraction/mixed number in halves or fourths.
	  ○ Students find volume of rectangular prism with one side measure expressed as fraction/mixed number.
	  ○ Students find volume of rectangular prism with all side measures expressed as fractions/mixed numbers.
	
	TM2a
	Stimulus: The student is presented with a right rectangular prism with fractional edge lengths in the context of a mathematical or real-world problem.
	
	Example Stem: Consider this figure.
	
	 
	
	Enter the volume of the right rectangular prism in cubic inches.
	
	Rubric: (1 point) Student enters the correct volume (e.g., 2300; 2300). Correct answer should be a single numerical value and units should be assumed from the stem.
	
	Response Type: Equation/Numeric

Task Model 2 **Response Type: Equation/Numeric** **DOK Level 2** **6.G.2** Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = *lwh* and *V* = *bh* to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. **Evidence Required:** 2. The student determines the volume of right rectangular prisms with fractional edge lengths in solving real-world and mathematical problems. **Tools:** Calculator	**Prompt Features:** The student is prompted to determine the volume of a compound figure composed of right rectangular prisms by applying the formulas *V* = *lwh* and *V* = *bh*. **Stimulus Guidelines:** • If used, context should be familiar to students 11 to 13 years old. • Item difficulty can be adjusted via these example methods: ○ Use whole-numbers, fractions, or decimals for the side measurements. **TM2b** **Stimulus:** The student is presented with a compound figure composed of right rectangular prisms in the context of a mathematical or real-world problem. **Example Stem:** This solid was created by joining two right rectangular prisms.  Enter the volume of the solid, in cubic feet. **Rubric:** (1 point) Student enters the correct volume (e.g., 309). Correct answer should be a single numerical value and units should be assumed from the stem. **Response Type:** Equation/Numeric

Task Model 3
 	
Response Type: Graphing
 	
DOK Level 1
 	
6.G.3
Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
 	
Evidence Required:
3. The student draws polygons in the coordinate plane, given coordinates for the vertices in the context of solving real-world and mathematical problems.
 	
Tools: Calculator
	Prompt Features: The student is prompted to draw polygons in the coordinate plane given coordinates for the vertices.
	
	Stimulus Guidelines:
	• If used, context should be familiar to students 11 to 13 years old.
	• Polygons should be limited to triangles, squares, rectangles, parallelograms, kites, rhombi, and trapezoids.
	• Coordinates of the ordered pairs should be integers.
	• Item difficulty can be adjusted via these example methods:
	  ○ Students graph polygon in Quadrant I with one-unit increment axes.
	  ○ Students graph polygon in all four quadrants with one-unit increment axes.
	  ○ Students graph polygon in all four quadrants with varying integer increment axes.
	
	TM3
	Stimulus: The student is presented with the vertices of a polygon in the context of a real-world or mathematical problem.
	
	Example Stem: Consider these ordered pairs.
	
	Point A: (3, 2)
	Point B: (−3, 2)
	Point C: (3, −2)
	
	 
	
	Use the Add Point and Connect Line tools to connect the three points to form triangle ABC.
	
	Interaction: The student is given the Connect Line, Add Point, and Delete tools to draw the polygon in the coordinate plane.
	
	Rubric: (1 point) Student plots all given points and connects the lines correctly.
	
	Response Type: Graphing

Task Model 4
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.G.3
Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
 	
Evidence Required:
4. The student determines the length of a side of a polygon in the coordinate plane, given coordinates for the vertices in the context of solving real-world and mathematical problems.
 	
Tools: Calculator
	Prompt Features: The student is prompted to determine the length of a side of a polygon in the coordinate plane given coordinates for the vertices that have the same first coordinate or the same second coordinate.
	
	Stimulus Guidelines:
	• If used, context should be familiar to students 11 to 13 years old.
	• Polygons should be limited to triangles, squares, rectangles, parallelograms, kites, rhombi, and trapezoids.
	• Coordinates of the ordered pairs should be integers.
	• Item difficulty can be adjusted via these example methods:
	  ○ Coordinates of the side used are in the same quadrant.
	  ○ Coordinates of the side used are in different quadrants.
	TM4
	Stimulus: The student is presented with coordinates for the side of a polygon in the coordinate plane with either the same first coordinate or the same second coordinate in the context of a mathematical or real-world problem.
	
	Example Stem 1: A triangle has these coordinates:
	
	Point A: (–5, 2)
	Point B: (–5, 6)
	Point C: (7, 2)
	
	Enter the length of side AC.
	
	Example Stem 2: Refer to the map as a coordinate grid. On the map, the library is located at (–5, 2), the bus station is located at (–5, 6), and the courthouse is located at (7, 2). Each square unit in the grid represents 1 square kilometer.
	 
	
	Enter the distance from the courthouse to the library in kilometers.
	
	Rubric: (1 point) Student enters the correct length (e.g., 12; 12). Correct answer should be a single numerical value and units should be assumed from the stem.
	
	Response Type: Equation/Numeric

Task Model 5
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.G.4
Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
 	
Evidence Required:
5. The student determines the surface area of three-dimensional figures formed by nets of polygons in the context of solving real-world and mathematical problems.
 	
Tools: Calculator
	Prompt Features: The student is prompted to determine the surface area of a three-dimensional figure formed from a net.
	
	Stimulus Guidelines:
	• If used, context should be familiar to students 11 to 13 years old.
	• Rational numbers used should be appropriate for the situation.
	• Item difficulty can be adjusted via these example methods:
	  ○ Students find surface area of polygon with all side measures expressed as whole numbers.
	  ○ Students find surface area of polygon with some side measures expressed as decimals.
	  ○ Students find surface area of polygon with some side measures expressed as fractions/mixed numbers.
	
	TM5
	Stimulus: The student is presented with a net composed of rectangles, triangles, or a combination of the two in the context of a real-world or mathematical problem.
	
	Example Stem 1: Susan is painting the outside of a square pyramid. The net for the pyramid is shown.
	 
	
	Enter the total surface area of the pyramid that Susan will paint in square centimeters.
	
	Rubric: (1 point) Student enters the correct surface area (e.g., 180; 186). Correct answer should be a single numerical value and units should be assumed from the stem.
	
	Response Type: Equation/Numeric

Task Model 1

Response Types: Multiple Choice, single correct response; Matching Tables

DOK Level 2

6.SP.1
Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*

Evidence Required:
1. The student recognizes a statistical question as one that anticipates variability.

Tools: Calculator

Prompt Features: The student is prompted to identify whether questions are statistical in nature based on whether they anticipate variability in the answer data.

Stimulus Guidelines: Context should be familiar to students 11 to 13 years old.

TM1a
Stimulus: The student is presented with questions based on a statistical scenario.

Example Stem: Julie is writing a report about rainbows and needs to gather data from her classmates.

Which is a statistical question Julie could ask her classmates?

A. What are the colors of the rainbow?
B. When was the first rainbow seen?
C. Is there really a pot of gold at the end of a rainbow?
D. How many rainbows have you seen this month?

Rubric: (1 point) Student selects the statistical question (e.g., D)

Response Type: Multiple Choice, single correct response

TM1b
Stimulus: The student is presented with three statistical and non-statistical questions.

Example Stem: A statistical question anticipates variability in the data related to it. Determine whether each question can be classified as a statistical question. Select Yes or No for each question.

Question	Yes	No
How many hours a week do people exercise?		
How many hours are there in a day?		
How many rainbows have students seen this month?		

Rubric: (1 point) Student identifies all three questions correctly (e.g., Y, N, Y). At least one question should be statistical.

Response Type: Matching Tables

Task Model 2

Response Type: Matching Tables

DOK Level 2

6.SP.2
Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

Evidence Required:
2. The student identifies statements that describe the center and/or spread, and/or overall shape of a set of data.

Tools: Calculator

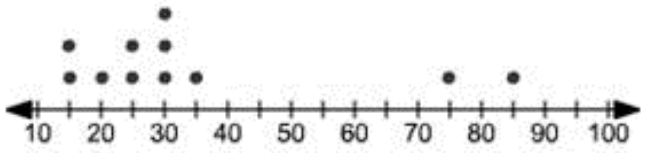
Prompt Features: The student is prompted to identify statements that describe the center, spread, or overall shape of a set of data related to a statistical question.

Stimulus Guidelines:

- Context should be familiar to students 11 to 13 years old.
- Numbers in data set should be whole numbers.
- Data can be presented in the form of a:
  - list
  - dot plot
  - table
  - graph including histogram
  - box plot.
- Item difficulty can be adjusted via these methods:
  - Students describe the spread of a data given a list or table of values.
  - Students describe the spread of a data set given dot plot or graph.
  - Students describe the shape of a dot plot or graph.
  - Students describe the center of a data set given a list or table of values.
  - Students describe the center of a data set given a dot plot or graph.

TM2
Stimulus: The student is presented with a set of data.

Example Stem 1: Ted surveyed his neighbors to see how much money they spent on gasoline each week. The results are shown in the dot plot.



Amount of money (dollars)

Determine whether each statement about the spread of the data is true. Select True or False for each statement.

Statement	True	False
The range of data values changes when data values 75 and 85 are removed.		
The median of the data values is used to calculate the range of the data.		
The range of the data values describes how the values vary from the greatest value to the least value.		

Rubric: (1 point) Student correctly identifies all three statements as true or false (e.g., T, F, T).

Task Model 2

Response Type: Matching Tables

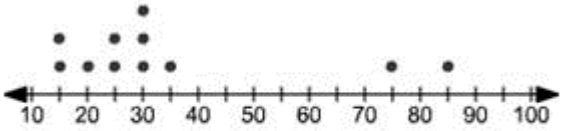
DOK Level 2

6.SP.2
Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

Evidence Required:
2. The student identifies statements that describe the center and/or spread, and/or overall shape of a set of data.

Tools: Calculator

Example Stem 2: Ted surveyed his neighbors to see how much money they spent on gasoline each week. The results are shown in the dot plot.



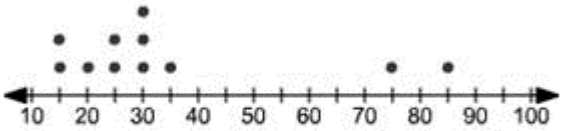
Amount of money (dollars)

Determine whether each statement about the shape of the data is true. Select True or False for each statement.

Statement	True	False
There is a gap in the data values between 35 and 75.		
The data is skewed left.		
The only outlier for the data set is 85.		

Rubric: (1 point) Student correctly identifies all three statements as true or false (e.g., T, F, F). False statements will include confusing terms such as skewed right, skewed left, bell curve, uniform distribution, cluster, gap, peak, and outlier.

Example Stem 3: Ted surveyed his neighbors to see how much money they spent on gasoline each week. The results are shown in the dot plot.



Amount of money (dollars)

Determine whether each statement about the center of the data is true. Select True or False for each statement.

Statement	True	False
The median of the data values is used to determine the range of the data.		
The mean of the data values is greater than the median of the data values because of the outliers.		
The median of the data values is an outlier of the data set.		

Rubric: (1 point) Student correctly identifies all three statements as true or false (e.g., F, T, F).

Task Model 2

Response Type: Matching Tables

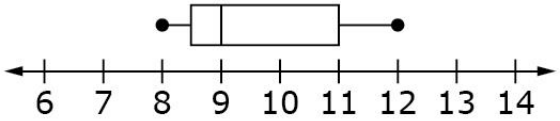
DOK Level 2

6.SP.2
Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

Evidence Required:
2. The student identifies statements that describe the center and/or spread, and/or overall shape of a set of data.

Tools: Calculator

Example Stem 4: Ted surveyed his classmates to collect data about the number of books read during the summer. The results are shown in the box plot.



Determine whether each statement about Ted's survey data is true. Select True or False for each statement.

Statement	True	False
The median of the data values is 9.		
The interquartile range of the data values is the difference between 11 and 8.		
The shape of the data is skewed right.		

Rubric: (1 point) Student correctly identifies all three statements as true or false (e.g., T, F, T). False statements will confuse the function of a measure of center, variation, and shape.

Response Type: Matching Tables

Task Model 3

Response Type: Matching Tables

DOK Level 2

6.SP.3
Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Evidence Required:
3. The student recognizes that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.

Tools: Calculator

Prompt Features: The student is prompted to identify statements about measures of center and/or variation for a given data set.

Stimulus Guidelines: Context should be familiar to students 11 to 13 years old.

TM3
Stimulus: The student is presented with statements regarding measures of center and/or variation about a data set.

Example Stem: Mike surveyed his classmates to collect data about the number of minutes they each spent doing homework last night. The data values range from 30 to 90.

Determine whether each statement about Mike's survey data is true. Select True or False for each statement.

Statement	True	False
The mean of the data values is greater than 30.		
The range of the data values is between 30 and 90.		
The median of the data values must be 60.		

Rubric: (1 point) Student correctly identifies all three statements as true or false (e.g., T,T,F).

Response Type: Matching Tables

Task Model 1

Response Types: Drag and Drop, Hot Spot, Multiple Choice, single correct response

DOK Level 2

6.SP.4
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Evidence Required:
1. The student displays numerical data on line plots, dot plots, histograms, and box plots.

Tools: Calculator

Prompt Features: The student is prompted to generate line plots, dot plots, histograms, or box plots that display a set of numerical data.

Stimulus Guidelines:

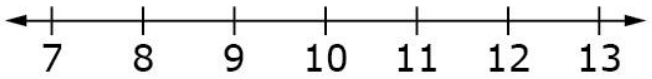
- If used, context should be familiar to students 11 to 13 years old.
- Numbers in data set should be whole numbers.
- Vertical axis for histograms should be in one-unit increments.
- First quadrant graphs should increase by one-unit increments on both axes.
- Item difficulty can be adjusted via these example methods:
  - Students create line plot/dot plot/histogram that corresponds to given data set.
  - Students select/create box plot that corresponds to given data set.

TM1a
Stimulus: Students create a dot plot given a data set.

Example Stem: Consider this data set.

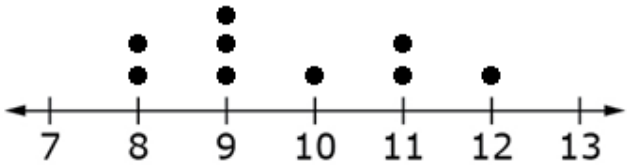
10	11	12
9	8	9
11	9	8

Click above the number line to create a dot plot for the data set.



Interaction: The student is given a labeled number line. Student uses the hot spot tool to click spaces above the number line to create a dot plot.

Rubric: (1 point) Student correctly creates a dot plot to represent the data (see below).



Response Type: Hot Spot

Task Model 1

Response Types: Drag and Drop, Hot Spot, Multiple Choice, single correct response

DOK Level 2

6.SP.4
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Evidence Required:
1. The student displays numerical data on line plots, dot plots, histograms, and box plots.

Tools: Calculator

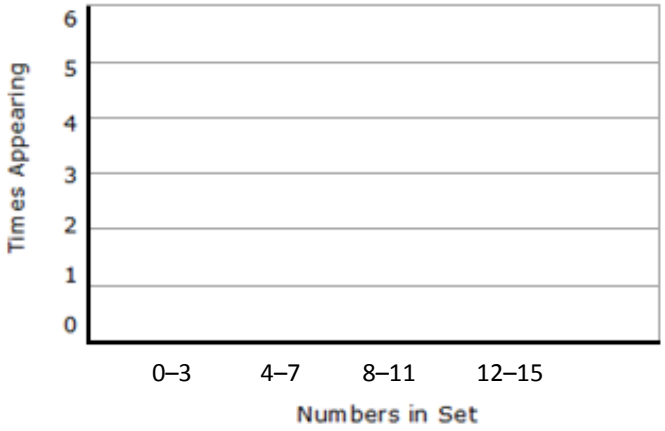
TM1b
Stimulus: Students create a histogram given a data set.

Example Stem: Consider this data set.

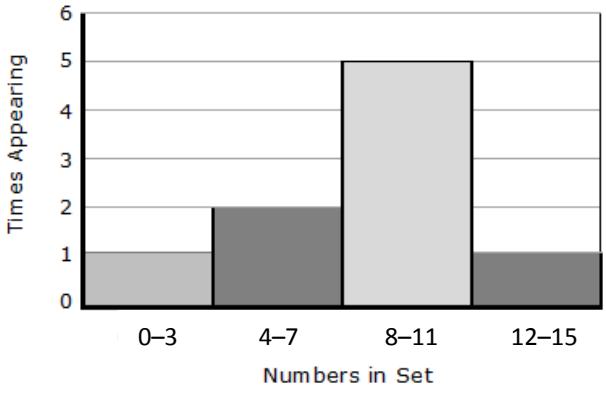
10	11	12
9	15	9
7	4	8

Click within the graph area to create a histogram for the data set.

Interaction: The student is given a 1st quadrant graph with both axes labeled. Hot-spot tool is used to click unit squares on the graph to shade in and create a histogram.



Rubric: (1 point) Student correctly creates a histogram to represent the data (see below).



Response Type: Hot Spot

Task Model 1

Response Types: Drag and Drop, Hot Spot, Multiple Choice, single correct response

DOK Level 2

6.SP.4
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Evidence Required:
1. The student displays numerical data on line plots, dot plots, histograms, and box plots.

Tools: Calculator

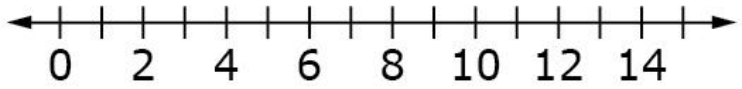
TM1c
Stimulus: Students create a box plot given a data set.

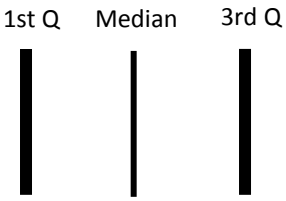
Example Stem: Consider this data set.

10	11	12
9	15	9
7	4	8

The vertical line segments represent the 1st quartile (1st Q), median and the 3rd quartile (3rd Q) of the data set.

Drag each line segment to the correct location on the number line.





Interaction: The student is given a number line and a palette at the bottom of the screen. The palette contains three images of line segments labeled "1st Q," "Median," and "3rd Q." Students use the drag-and-drop tool to place the line segents in the appropriate place on the number line. Snap-to feature should be used at each tick mark on the number line.

Rubric: (1 point) Student places the three line segments in the correct locations on the number line.

Response Type: Drag and Drop

Task Model 1

Response Types: Drag and Drop, Hot Spot, Multiple Choice, single correct response

DOK Level 2

6.SP.4
Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Evidence Required:
1. The student displays numerical data on line plots, dot plots, histograms, and box plots.

Tools: Calculator

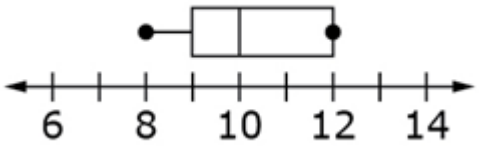
TM1d
Stimulus: Students identify the box plot that represents a given data set.

Example Stem: Consider this data set.

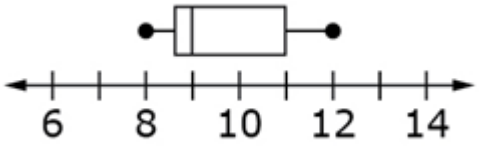
10	11	12
9	8	9
11	9	8

Which box plot displays the data shown in the chart?

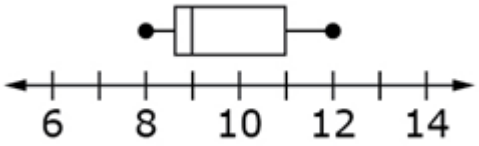
A.



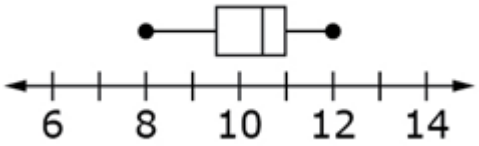
B.



C.



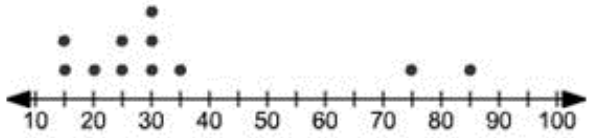
D.



Answer Choices: Answer choices will be box plots. Distractors will include incorrectly calculating the median, upper and lower quartile, and/or misrepresenting the data on a box plot.

Rubric: (1 point) The student selects the correct box plot (e.g., B).

Response Type: Multiple Choice, single correct response

Task Model 2
 	
Response Type: Equation/Numeric
 	
DOK Level 1
 	
6.SP.5a, 6.SP.5b
Summarize numerical data sets in relation to their context, such as by:
a. Reporting the number of observations.
b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.
 	
Evidence Required:
2. The student summarizes numerical data sets by describing the nature of the attribute under investigation including how it was measured, its units of measurement, and number of observations.
 	
Tools: Calculator
	Prompt Features: The student is prompted to summarize numerical data sets by writing how it was measured, its units of measurement, or number of observations.
	
	Stimulus Guidelines:
	• Context should be familiar to students 11 to 13 years old.
	• Data set may be presented as a:
	  ○ list
	  ○ table
	  ○ line/dot plot
	  ○ histogram
	• Item difficulty can be adjusted via these example methods:
	  ○ Students give the number of observations that corresponds to a given data set.
	  ○ Students describe how the attribute of a given data set is measured and the unit of measurement used.
	
	TM2
	Stimulus: The student is presented with a set of numerical data.
	
	Example Stem: Ted surveyed his neighbors to see how much money they spent on gasoline each week. The results are in the dot plot shown.
	 
	Amount of money (dollars)
	
	Enter the total number of people Ted surveyed.
	
	Rubric: (1 point) Student enters correct value (e.g., 11).
	
	Response Type: Equation/Numeric

Task Model 3

Response Type: Equation/Numeric

DOK Level 2

6.SP.5c
Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

Evidence Required:
3. The student summarizes numerical data sets by determining quantitative measures of center (median and/or mean) and variability (interquartile range, range, and/or mean absolute deviation).

Tools: Calculator

Prompt Features: The student is prompted to write quantitative values for the measures of center (median or mean) or variability (range) for a given numerical data set.

Stimulus Guidelines:

- Context should be familiar to students 11 to 13 years old.
- Data set may be presented as a:
  - list
  - table
  - line/dot plot
  - box plot
- Item difficulty can be adjusted via these example methods:
  - Students find the range/median for a data set (odd number data set for median).
  - Students find the mean/median for a data set (even number data set for median).

TM3a
Stimulus: The student is presented with a set of numerical data.

Example Stem 1: Judy surveyed her friends to see how many minutes they studied for their math test last evening. The results are in this list.

10, 15, 20, 15, 35, 25, 20, 30, 25

Enter the **mean** of the data.

Rubric: (1 point) Student gives the correct mean of the data. Students answers should be within an acceptable range (e.g., 21.6–22).

Response Type: Equation/Numeric

Example Stem 2: Judy surveyed her friends to see how many minutes they studied for their math test last evening. The results are in this chart.

10	15	20	15
35	25	20	30
25	30	10	15

Enter the **median** of the data.

Rubric: (1 point) Student gives the correct median of the data (e.g., 20).

Response Type: Equation/Numeric

Task Model 3
 	
Response Type: Equation/Numeric
 	
DOK Level 2
 	
6.SP.5c
Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
 	
Evidence Required:
3. The student summarizes numerical data sets by determining quantitative measures of center (median and/or mean) and variability (interquartile range, range, and/or mean absolute deviation).
 	
Tools: Calculator
	Prompt Features: The student is prompted to write quantitative values for the measures of variability (interquartile range or mean absolute deviation) for a given numerical data set.
	
	Stimulus Guidelines:
	• Context should be familiar to students 11 to 13 years old.
	• Data set may be presented as a:
	  ○ list
	  ○ table
	  ○ line/dot plot
	  ○ box plot
	• Item difficulty can be adjusted via these example methods:
	  ○ The data set has an odd amount of numbers.
	  ○ The data set has an even amount of numbers.
	  ○ Student finds the interquartile range.
	  ○ Student finds the mean absolute deviation.
	
	TM3b
	Stimulus: The student is presented with a set of numerical data.
	
	Example Stem 1: Judy surveyed her friends to see how many minutes they studied for their math test last evening. The results are in this list.
	10, 15, 20, 15, 35, 25, 20, 30, 25, 30
	
	Enter the **interquartile range** of the data set.
	
	Rubric: (1 point) Student enters the correct interquartile range of the data (e.g., 15).
	
	Response Type: Equation/Numeric
	
	Example Stem 2: Judy surveyed her friends to see how many minutes they studied for their math test last evening. The results are in this list.
	10, 15, 20, 15, 35, 25, 20
	
	Enter the **mean absolute deviation** of the data set.
	
	Rubric: (1 point) Student enters the correct mean absolute deviation of the data set. Students answers should be within an acceptable range (e.g., 5.7–6).
	
	Response Type: Equation/Numeric

Task Model 3

Response Type: Matching Tables

DOK Level 2

6.SP.5c
Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

Evidence Required:
3. The student summarizes numerical data sets by determining quantitative measures of center (median and/or mean) and variability (interquartile range, range, and/or mean absolute deviation).

Tools: Calculator

Prompt Features: The student is prompted to determine the effects on the mean, median, and range given a change in data points.

Stimulus Guidelines:

- If used, context should be familiar to students 11 to 13 years old.
- Data set may be presented as a:
  - list
  - table
  - line/dot plot
  - box plot

TM3c
Stimulus: The student is presented with a set of numerical data.

Example Stem 1: Consider this data.

10, 11, 12, 9, 15, 9, 7, 4, 8

Determine if each statement is true. Select True or False for each statement.

Statement	True	False
Changing the 4 to a 15 will increase the median.		
Changing the 4 to a 15 will decrease the range.		
Changing the 4 to a 15 will **not** change the mean.		

Example Stem 2: Consider this data.

10, 11, 12, 9, 15, 9, 7, 4, 8

Two extra numbers, 3 and 5, are added to the data set.
Determine whether each statement is true once these extra numbers are added. Select True or False for each statement.

Statement	True	False
Adding the extra numbers will increase the mean.		
Adding the extra numbers will decrease the range.		
Adding the extra numbers will **not** change the median.		

Rubric: (1 point) Student correctly identifes all three statements (e.g., T, T, F; F, F, T). Statements will describe mean, median, or range as increasing, decreasing, or staying the same.

Response Type: Matching Tables

Task Model 4

Response Type: Matching Tables

DOK Level 2

6.SP.5c
Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.

Evidence Required:
4. The student summarizes numerical data sets by describing any overall pattern and any striking deviations from the overall pattern in reference to the quantitative measures.

Tools: Calculator

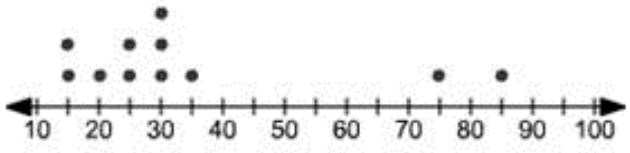
Prompt Features: The student is prompted to identify whether statements describe any overall pattern and any striking deviations from the overall pattern in reference to the quantitative measures for a given numerical data set.

Stimulus Guidelines:

- Context should be familiar to students 11 to 13 years old.
- Data set may be presented as a:
  - list
  - table
  - line/dot plot
  - box plot
  - histogram
- Item difficulty can be adjusted via these example methods:
  - Students describe overall pattern of a data set.
  - Students describe striking deviations from the overall pattern of a data set.

TM4a
Stimulus: The student is presented with a set of numerical data.

Example Stem: Ted surveyed his neighbors to see how much money they spent on gasoline each week. The results are in the dot plot shown.



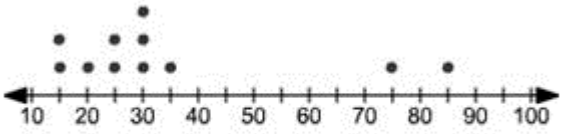
Amount of money (dollars)

Determine whether each statement about the dot plot of the data is true. Select True or False for each statement.

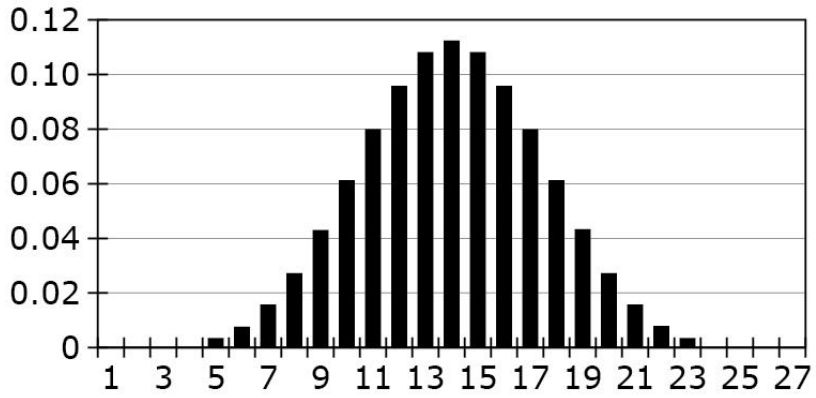
Statement	True	False
The dot plot is skewed right.		
The dot plot shows a uniform distribution.		
The dot plot shows a cluster of data from 40 to 70.		

Rubric: (1 point) Student correctly determines whether each of the three statements are true or false (e.g., T, F, F). Statements will describe the overall pattern and deviations within the data. False statements will include confusing terms such as skewed right, skewed left, bell curve, uniform distribution, cluster, gap, peak, and outlier.

Response Type: Matching Tables

Task Model 4
 	
Response Type: Multiple Choice, multiple correct response
 	
DOK Level 1
 	
6.SP.5c
Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered.
 	
Evidence Required:
4. The student summarizes numerical data sets by describing any overall pattern and any striking deviations from the overall pattern in reference to the quantitative measures.
 	
Tools: Calculator
	Prompt Features: The student is prompted to describe any striking deviations from the overall pattern in reference to the quantitative measures for a given numerical data set.
	
	Stimulus Guidelines:
	• Context should be familiar to students 11 to 13 years old.
	• Data set may be presented as a:
	  ○ list
	  ○ table
	  ○ line/dot plot
	  ○ box plot
	  ○ histogram
	
	TM4b
	Stimulus: The student is presented with a set of numerical data and asked to find the outliers.
	
	Example Stem: Ted surveyed his neighbors to see how much money they spent on gasoline each week. The results are in the dot plot shown.
	 
	
	Amount of money (dollars)
	
	Select **all** the values that can be considered outliers for this data set or, if there are none, select "There are no outliers."
	
	A. 15
	B. 30
	C. 75
	D. 85
	E. There are no outliers.
	
	Rubric: (1 point) Student correctly selects all the outliers or selects "There are no outliers." if there are no outliers (e.g., C and D).
	
	Response Type: Multiple Choice, multiple correct response

Task Model 5
 	
Response Type: Multiple Choice, single correct response
 	
DOK Level 2
 	
6.SP.5d
Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.
 	
Evidence Required:
5. The student summarizes numerical data sets by relating the choice of measures of center and variability to the shape of the data distribution or context data gathered.
 	
Tools: Calculator
	Prompt Features: The student is prompted to identify the most appropriate measure of center/variability for a given data set or relate the choice of measures of center/variability to the shape of the data distribution for a given numerical data set.
	
	Stimulus Guidelines:
	• If used, context should be familiar to students 11 to 13 years old.
	• Data can be presented in the form of a:
	  ○ list
	  ○ line/dot plot
	  ○ table
	  ○ histogram
	• Item difficulty can be adjusted via these example methods:
	  ○ Students determine best measure of center/variation based on shape of the data.
	  ○ Students determine best measure of center/variation based on attributes of the data, not including shape.
	
	TM5
	Stimulus: The student is presented with a set of numerical data.
	
	Example Stem 1: A survey was taken of how many magazines are purchased annually. The results are in this set of data.
	
	1, 2, 3, 4, 4, 5, 5, 5, 5, 6, 6, 7, 12, 36, 104
	
	Which is the most representative measure of center for this data?
	
	A. Median
	B. Range
	C. Mean
	D. Interquartile Range
	
	Answer Choices: Answer choices will be statistical terms relating to measures of center. Distractors will include confusing measures of center with measures of variation and/or inability to relate data to best measure of center.
	
	Rubric: (1 point) Student select the correct measure of center (e.g., A).
	
	Response Type: Multiple Choice, single correct response

Task Model 5 **Response Type: Multiple Choice, single correct response** **DOK Level 2** **6.SP.5d** Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered. **Evidence Required:** 5. The student summarizes numerical data sets by relating the choice of measures of center and variability to the shape of the data distribution or context data gathered. **Tools:** Calculator	**Example Stem 2:** Consider the shape of this data.  Based on the shape of the data, which is the most representative measure of variation? A. Median B. Range C. Mean D. Interquartile Range **Answer Choices:** Answer choices will be statistical terms relating to measures of center and variation. Distractors will include confusing measures of variations with measures of center and/or inability to relate shape of data to best measure of variability. **Rubric:** (1 point) Student select the correct measure of variation (e.g., B). **Response Type:** Multiple Choice, single correct response