Task Model 1 **Response Type: Multiple Choice, multiple correct response** **DOK Level 1** **6.EE.B.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 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.B.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 **Version 3 Update:** Revised TM1a example stem 1 and added new example stem 2. Revised TM1c.	**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 1:** Select **all** inequalities that include 0 in the solution set. A. $x > -4.24$ B. $x < -5.5$ C. $x > -5.13$ D. $x < 4.5$ **Example Stem 2:** Select **all** inequalities that include all numbers less than -6 in the solution set. 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., A,C,D; B,D). **TM1c** **Stimulus:** The student is presented with a one-variable inequality. **Example Stem:** Select **all** the values that satisfy the inequality $x < 7\frac{1}{2}$. A. $x = -8$ B. $x = -7$ C. $x = 7$ D. $x = 8$ **Rubric:** (1 point) Student selects all the correct sets of numbers (e.g., A, B and C). **Response Type:** Multiple Choice, multiple correct response

Task Model 1

Response Type: Matching Tables

DOK Level 2

6.EE.B.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 Guidelines: 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.B.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 Guidelines:** 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.B.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 Guidelines:** 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 number of peaches, p, that Julia has before 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.B.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 Guidelines:** • 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 a correct equation (e.g., $32 + n = 59.13$ or equivalent). **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.B.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

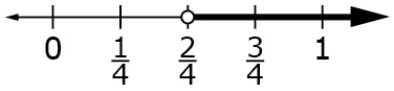
Prompt Features: The student is prompted to identify a number line that represents the solution to a one-variable inequality presented in a mathematical or real-world context.

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

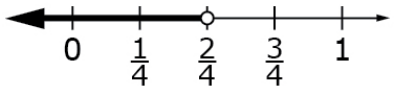
- Inequalities should be in the form $x > c$ *or* $x < c$ in which c must represent a rational number.
- Number lines should have evenly spaced tick marks.
- If used, context should be familiar to students 11 to 13 years old.
- Item difficulty can be adjusted via these example methods, but are not limited 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 $x < -\frac{2}{4}$.

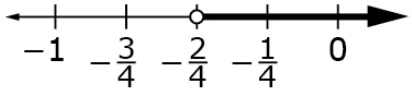
A.



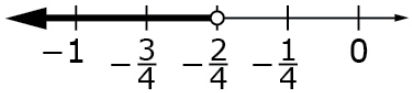
B.



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.B.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

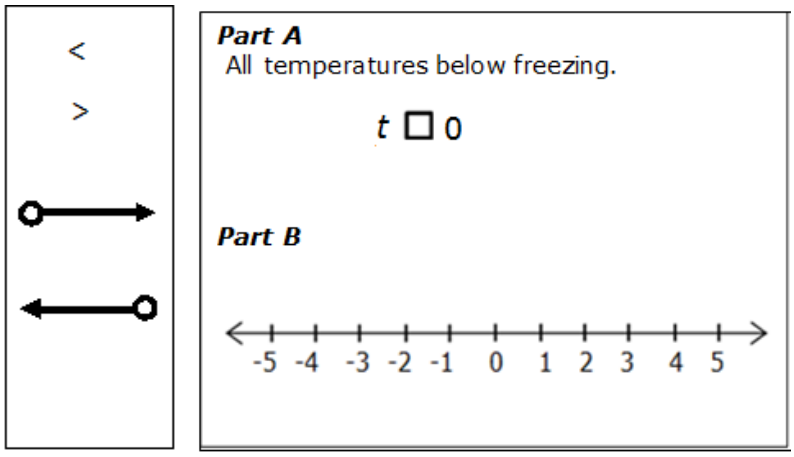
Accessibility Note:
Drag and Drop items are not currently able to be Brailled. Minimize the number of items developed to this TM

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 Guidelines: 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-to 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