Task Model 1 **Response Type: Equation/Numeric** **DOK Level 1** **6.EE.A.1** Write and evaluate numerical expressions involving whole-number exponents. **Evidence Required:** 1. The student evaluates numerical expressions involving whole-number exponents. **Tools:** Calculator	**Prompt Features:** The student is prompted to evaluate numerical expressions involving exponents. **Stimulus Guidelines:** • Expressions contain at least four numbers and one multiplication/division symbol. • Parentheses 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 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.A.1
Write and evaluate numerical expressions involving whole-number exponents.
 	
6.EE.A.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: Calculator
	Prompt Features: The student is prompted to write an expression to represent a given verbal description of that 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.A.1** Write and evaluate numerical expressions involving whole-number exponents. **6.EE.A.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:** Calculator **Version 3 Update:** Revised the options for example stem for TM3a. Retired TM3b.	**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 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 $4^3 \bullet (8w - 7)$. A. 3 is a factor of the expression. B. The difference of 8w and 7 is a factor of the expression. C. The expression represents the product of 4^3 and $8w - 7$. D. The expression represents the difference of $4^3 \bullet 8w$ and 7. **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 C). **Response Type:** Multiple Choice, multiple correct response

Task Model 4
 	
Response Type: Equation/Numeric
 	
DOK Level 1
 	
6.EE.A.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
 	
Version 3 Update:
Added new example stem 4 to TM4.
	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 rational numbers.
	• If used, exponents should be whole numbers.
	• 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 and specific values for variables in the expression.
	
	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 $y = 7$.
	
	Example Stem 4: A baker uses the expression $5.75c + 3.45p$ to calculate his profit when he sells c cakes and p pies.
	
	What is the baker's profit, in dollars, when he sells 33 cakes and 42 pies?
	
	Rubric: (1 point) Student enters the correct value for the expression or formula (e.g., 45; 12; 1321; 334.65). Units should be assumed from the problem.
	
	Response Type: Equation/Numeric

Task Model 5 **Response Type: Equation/Numeric** **DOK Level 2** **6.EE.A.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:** Calculator	**Prompt Features:** The student is prompted to create equivalent expressions based on given parameters. **Stimulus Guidelines:** • 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.A.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: Calculator

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 use given parameters to create an expression that is equivalent to a given expression.

Stimulus Guidelines:

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

Example Stem 2: Consider this equation.

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

Drag an expression into each box to create a true equation.

Interaction: Students will use the drag-and-drop feature to place expressions 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 $15y$; 15 and $2x$).

Response Type: Drag and Drop

Task Model 6
 	
Response Type: Multiple Choice, multiple correct response
 	
DOK Level 2
 	
6.EE.A.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: Calculator
	Prompt Features: The student is prompted to identify equivalent expressions.
	
	Stimulus Guidelines:
	• 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