Task Model 1a-b
 	
Response Type: Multiple Choice, single correct response
 	
DOK Level 1
 	
4.OA.B.4
Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
 	
Evidence Required:
1. The student determines one or more factors or factor pairs for a given whole number (from 1 to 100).
 	
Tools: None
	Prompt Features: The student is prompted to identify factors of a whole number.
	
	Stimulus Guidelines:
	• All of the number's factors (or factor pairs) should be included in the key; distractors will include the same number of entries and will include numbers that are not factors (or factor pairs).
	• Numbers used are whole numbers within the range of 1–100.
	• Item difficulty can be adjusted via these example methods:
	   ○ Changing the range of numbers used
	   ○ Using prime numbers
	   ○ Using numbers outside the 10 × 10 table
	
	TM1a
	Stimulus: The student is presented with a whole number and lists of whole number factors.
	
	Example Stem: Which list has **all** of the factors of 36?
	
	  A. 1, 2, 3, 4, 6, 9, 12, 18, 36
	  B. 1, 2, 3, 6, 8, 9, 12, 16, 36
	  C. 1, 2, 4, 6, 8, 9, 16, 18, 36
	  D. 1, 2, 3, 5, 6, 9, 12, 18, 36
	
	TM1b
	Stimulus: The student is presented with a whole number and lists of pairs of whole number factors.
	
	Example Stem: Which list has **all** of the factor pairs of 36?
	
	  A. 1 × 36, 2 × 18, 3 × 12, 4 × 9, 6 × 6
	  B. 1 × 36, 2 × 16, 3 × 12, 4 × 9, 6 × 8
	  C. 1 × 36, 2 × 18, 3 × 6, 4 × 8, 6 × 12
	  D. 1 × 36, 2 × 12, 3 × 9, 4 × 8, 6 × 6
	
	Rubric: (1 point) The student identifies the correct list (e.g., A; A).
	
	Response Type: Multiple Choice, single correct response

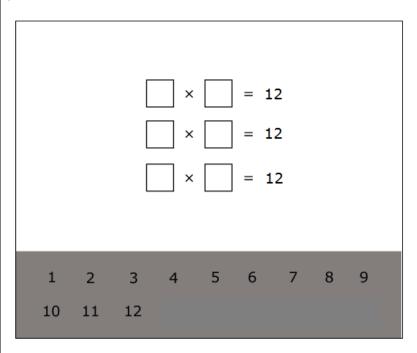|	
Task Model 1c **Response Type: Drag and Drop** **DOK Level 1** **4.OA.B.4** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. **Evidence Required:** 1. The student determines one or more factors or factor pairs for a given whole number (from 1 to 100). **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 identify factor pairs of a whole number. **Stimulus Guidelines:** • Numbers used in the presets are whole numbers within the range of 2–20. • The whole number presented in the stem is **not** 4, 9 or 16. **TM1c** **Stimulus:** The student is presented with a whole number in the range of 2–20 (excluding 4, 9, and 16) and a set of multiplication equations with boxes for all possible factor pairs, each having the given whole number as the product. **Example Stem:** Drag numbers into the boxes to make factor pairs of 12. **Rubric:** (1 point) The student identifies all of the correct factor pairs (e.g., 1×12, 2×6, 3×4). **Response Type:** Drag and Drop

| Task Model 1d

Response Type:
Multiple Choice, single
correct response

DOK Level 1

4.OA.B.4
Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Evidence Required:
1. The student determines one or more factors or factor pairs for a given whole number (from 1 to 100).

Tools: None | **Prompt Features:** The student is prompted to identify a common factor of two numbers.

Stimulus Guidelines:
• Numbers used are whole numbers within the range of 1–100.

TM1d
Stimulus: The student is presented with two whole numbers within the range of 1–100.

Example Stem: Which number is a factor of **both** 16 and 20?

A. 3
B. 4
C. 5
D. 8

Rubric: (1 point) The student identifies a common factor (e.g., B).

Response Type: Multiple Choice, single correct response |

| Task Model 1e

Response Type:
Multiple Choice, single
correct response

DOK Level 1

4.OA.B.4
Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Evidence Required:
1. The student determines one or more factors or factor pairs for a given whole number (from 1 to 100).

Tools: None | **Prompt Features:** The student is prompted to identify common factors of two numbers.

Stimulus Guidelines:
• Numbers used are whole numbers within the range of 1–100.
• Answer choices should be in the form of lists of three to four whole numbers.
• Item difficulty can be adjusted via these example methods:
  ○ Changing the range of numbers used
  ○ Using numbers outside the 10 × 10 table

TM1e
Stimulus: The student is presented with two whole numbers.

Example Stem: Which numbers are factors of **both** 18 and 45?
A. 1, 2, 8
B. 1, 3, 9
C. 1, 4, 8
D. 1, 5, 9

Rubric: (1 point) The student identifies common factors of two whole numbers (e.g., B).

Response Type: Multiple Choice, single correct response |

Task Model 1f	**Prompt Features:** The student is prompted to identify factor pairs of a whole number.

Task Model 1f

**Response Type:
Fill-in Table**

DOK Level 1

4.OA.B.4
Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Evidence Required:
1. The student determines one or more factors or factor pairs for a given whole number (from 1 to 100).

Tools: None

Prompt Features: The student is prompted to identify factor pairs of a whole number.

Stimulus Guidelines:
- A maximum of four equations/factor pairs should be required.
- Item difficulty can be adjusted via these example methods:
  - Number of factor pairs required
  - Familiarity with the number
  - Changing the range of numbers used
  - Using numbers outside the 10 × 10 table

TM1f
Stimulus: The student is presented with a whole number in the range of 1–100 and multiplication equations equaling that whole number with unknown factors in a fill-in table.

Example Stem: Enter numbers into the boxes to make four different factor pairs of 54.

	×		= 54
	×		= 54
	×		= 54
	×		= 54

Rubric: (1 point) The student identifies four different factor pairs of the number (e.g., 1 and 54, 2 and 27, 3 and 18, 6 and 9).

Note: Numbers may be in either order (e.g., 1 and 54 **or** 54 and 1).

Response Type: Fill-in Table

Task Model 1g-h	**Prompt Features:** The student is prompted to identify factors of a whole number.
Response Types: Multiple Choice, single correct response and Equation/Numeric	**Stimulus Guidelines:**
DOK Level 1	- All of the number's factors (or factor pairs) should be included in the key; distractors will include the same number of entries and will include numbers that are not factors (or factor pairs). - Numbers used are whole numbers within the range of 1–100. - Item difficulty can be adjusted via these example methods: - Changing the range of numbers used - Using prime numbers - Using numbers outside the 10 × 10 table
4.OA.B.4 Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	**TM1g** **Stimulus:** The student is presented with a whole number and lists of whole number factors with one factor missing. **Example Stem:** Which factor of 12 is missing in this list of numbers? 1, 2, 3, 4, __, 12
Evidence Required: 1. The student determines one or more factors or factor pairs for a given whole number (from 1 to 100).	A. 5 B. 6 C. 8 D. 10 **Rubric:** (1 point) The student identifies the correct missing factor (e.g., B). **Response Type:** Multiple Choice, single correct response
Tools: None	**TM1h** **Stimulus:** The student is presented with a whole number and lists of whole number factors with one factor missing.
Version 3 Update: Added two new task models TM1g and TM1h.	**Example Stem:** Which factor of 24 is missing in this list of numbers? 1, 2, 3, 4, 6, __, 12, 24 **Rubric:** (1 point) The student identifies the correct missing factor (e.g., 8). **Response Type:** Equation/Numeric

Task Model 2	**Prompt Features:** The student is prompted to match factors and multiples.

Task Model 2

Response Type: Hot Spot/Matching Tables

DOK Level 2

4.OA.B.4
Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Evidence Required:
2. The student recognizes that a whole number (from 1 to 100) is a multiple of each of its factors.

Tools: None

Accessibility Note: Hot Spot items are not currently able to be Brailled, but the only current way to assign partial credit. Minimize the number of items developed to this TM using Hot Spot. An accessible alternate to Hot Spot for this TM is to use the Matching Tables format when partial credit scoring becomes available for this format.

Prompt Features: The student is prompted to match factors and multiples.

Stimulus Guidelines:
- All numbers are whole numbers within the range of 1–100.
- Item must include at least one number for each column (e.g., cannot have a column that should be left blank).
- Item difficulty can be adjusted via these example methods:
  - Using factors of 1, 2, or 5
  - Using factors of 3 or 4
  - Using factors of 6, 7, 8, or 9
  - Using prime numbers
  - Using numbers outside the 10 × 10 table

TM2
Stimulus: The student is presented with a one-digit whole number and six additional whole numbers.

Example Stem: Decide whether each number is a multiple of 6, a factor of 6, or neither. Each number may be matched to more than one description. Click in the table to respond.

	Multiple of 6	Factor of 6	Neither a Multiple Nor a Factor of 6
1			
2			
3			
6			
8			
12			

Rubric: (3 points) The student correctly fills in all three columns (e.g., Multiple column: 6, 12; Factor column: 1, 2, 3, 6; Neither column: 8), with no incorrect fill-ins.
(2 points) Partial credit is possible for correctly filling in two of the three columns (e.g., Multiple column and Neither column filled in correctly, but Factor column not filled in correctly), with no incorrect fill-ins on the two columns (e.g., Multiple and Neither).
(1 point) Partial credit is possible for correctly filling in one of the three columns (e.g., Multiple column filled in correctly but Factor and Neither column not filled in correctly), with no incorrect fill-ins on the one column (e.g., Multiple).

Response Type: Hot Spot or Matching Tables

Task Model 3	**Prompt Features:** The student is prompted to identify multiples of a one-digit whole number.
Response Type: **Multiple Choice, single correct response**	**Stimulus Guidelines:**
DOK Level 1	• All numbers are whole numbers within the range of 1–100.
	• Answer choices should be a list of whole numbers that are multiples of the given number.
4 OA.B.4.	• Item difficulty can be adjusted via these example methods:
Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.	○ Varying the factors (factors of 1, 2, or 5), (factors of 3 or 4), and (factors of 6, 7, 8, or 9)
	○ Using correct answers that are less than or equal to ten times the given factor
	○ Using correct answers that are greater than ten times the given factor
	TM3a
	Stimulus: The student is presented with a one-digit whole number.
Evidence Required:	
3. The student determines if a whole number (from 1 to 100) is a multiple of a given one-digit number.	**Example Stem:** Select the list of numbers that are **all** multiples of 8.
	A. 8, 18, 24, 44
	B. 8, 26, 44, 62
	C. 16, 32, 48, 64
	D. 40, 48, 54, 76
	Rubric: (1 point) The student correctly identifies the multiples of a one-digit number (e.g., C).
Tools: None	**Response Type:** Multiple Choice, single correct response

Task Model 3	**Prompt Features:** The student is prompted to identify common multiples of two one-digit whole numbers.

Response Type: Multiple Choice, single correct response **DOK Level 1** **4.OA.B.4** Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. **Evidence Required:** 3. The student determines if a whole number (from 1 to 100) is a multiple of a given one-digit number. **Tools:** None	**Stimulus Guidelines:**
	 • All numbers are whole numbers within the range of 1–100.
	 • Item difficulty can be adjusted via these example methods:
	  ○ Varying the factors (factors of 1, 2, or 5), (factors of 3 or 4), and (factors of 6, 7, 8, or 9)
	  ○ Using correct answers that are less than or equal to ten times the given factor
	  ○ Using correct answers that are greater than ten times the given factor **TM3b** **Stimulus:** The student is presented with two one-digit whole numbers. **Example Stem:** Which number is a multiple of **both** 2 and 5?
	 A. 7
	 B. 14
	 C. 40
	 D. 52 **Rubric:** (1 point) The student correctly identifies the multiple of two one-digit numbers (e.g., C). **Response Type:** Multiple Choice, single correct response

Task Model 4	**Prompt Features:** The student is prompted to identify numbers as prime or composite.

Task Model 4

Response Type: Matching Tables

DOK Level 2

4.OA.B.4
Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

Evidence Required:
4. The student determines if a whole number (from 1 to 100) is prime or composite.

Tools: None

Prompt Features: The student is prompted to identify numbers as prime or composite.

Stimulus Guidelines:
- All numbers are whole numbers within the range of 1–100.
- Item difficulty can be adjusted via these example methods:
  - Prime numbers less than vs. greater than 50
  - Composite numbers with factors that are less than 10 vs. greater than 10

TM4
Stimulus: The student is presented with three whole numbers.

Example Stem: Decide whether each number is prime or composite. Click in the table to respond.

	Prime	**Composite**
17		
52		
87		

Rubric: (1 point) The student identifies all numbers as prime or composite (e.g., P, C, C).

Response Type: Matching Tables