

Task Model 1a	Prompt Features: The student converts measurements within					
	one system of units.					
Response Type:						
Equation/Numeric	Stimulus Guidelines:					
-	Conversion must be from larger unit to smaller unit wi					
DOK Level 1	the same system of measurement.					
	Items will involve one of these:					
4.MD.A.1	 Distances (km, m, cm; in, ft, vd) 					
Know relative sizes of	\circ Intervals of time (hr. min. sec)					
measurement units	\circ Liquid volumes (L, mL)					
within one system of	 Masses of objects (kg, g; lb, oz) 					
units including km, m,	• Item difficulty can be adjusted via these example					
cm; kg, g; lb, oz; L, mL;	methods:					
hr, min, sec. Within a	 Conversions involving one or two levels of 					
single system of	separation within the same system of					
measurement, express	measurement (e.g., feet to inches would be one					
measurements in a	level of separation; yards to inches would be two					
larger unit in terms of a	levels of separation)					
smaller unit. Record	 Use of fractions and decimals 					
measurement						
equivalents in a two-	TM1a					
column table. <i>For</i>	Stimulus: The student is presented with a measurement.					
example, know that 1 ft						
is 12 times as long as 1	Example Stem 1: Enter the unknown number that makes the					
in. Express the length of	statement true.					
a 4 ft snake as 48 in.						
Generate a conversion	3.5 centimeters = 🗆 millimeters					
table for feet and inches						
listing the number pairs	Example Stem 2: Enter the unknown number that makes the					
(1, 12), (2, 24), (3, 36),	statement true.					
	6 feet = □ inches					
Evidence Required:						
1. The student converts	Rubric: (1 point) The student enters the correct value (e.g., 35;					
measurements from	72).					
larger units to smaller						
units within a single	Response Type: Equation/Numeric					
system of units.						
Tools: None						



Tack Model 1h	Drompt Fosturacy The student converts measurements within					
Task model ID	Prompt reatures: The student converts measurements within					
	one system of units.					
Response Type:						
Matching Tables	Stimulus Guidelines:					
	Measurements in the table must be in smaller units than					
DOK Level 1	the measurement in the stem.					
	• Answer choices should be in the form of whole number.					
4.MD.A.1	decimal (only if dealing with money), or fractional units					
Know relative sizes of	from the same system.					
measurement units	Items will involve one of these:					
within one system of	\circ Distances (km m cm in ft vd)					
units including km m	 Intervals of time (hr min sec) 					
cm: ka a: lb oz: l ml :	\sim Liquid volumes (1 ml.)					
hr min sec Within a	\sim Masses of objects (kg. g: lb. oz)					
single system of	• Item difficulty can be adjusted via this example method:					
single system of	• Term difficulty can be adjusted via this example method.					
measurement, express	conversions involving one of two levels of					
larger upit in terms of a	separation within the same system of					
	Intersule of concentricity, need to inches would be buy					
smaller unit. Record	level of separation; yards to inches would be two					
measurement	levels of separation)					
equivalents in a two-						
column table. For	TM1b					
example, know that 1 ft	Stimulus: The student is presented with one measurement in	Stimulus: The student is presented with one measurement in				
is 12 times as long as 1	the stem.					
in. Express the length of						
a 4 ft snake as 48 in.	Example Stem: Decide whether each measurement is equal to 5					
Generate a conversion	yards. Select Yes or No for each measurement.					
table for feet and inches						
listing the number pairs	Yes No					
(1, 12), (2, 24), (3, 36),	180 inches					
	27 inches					
Fuidance Demuined.	15 feet					
Evidence Required:						
1. The student converts	Rubric: (1 point) Student correctly selects ves or no for each of					
measurements from	the given equivalencies (e.g., Y, N, Y).					
larger units to smaller						
units within a single	Response Type: Matching Tables					
system of units.						

Tools: None



Task Model 2	Prompt Features: The student is prompted to complete a table of					
Response Type: Fill-in Table	Stimulus Guidelines:					
DOK Level 2	 The left column represents larger units and the right is for smaller units. The right column should be empty. 					
4.MD.A.1	• Items will involve one of these:					
Know relative sizes of	• Distances (km, m, cm, in ft vd)					
measurement units	\sim Intervals of time (hr min sec)					
within one system of		uid volumes (1 ml.)				
units including km		and volumes (E, mE)	1. lb			
m cm ka a b oz	 Masses of objects (Kg, g; ID, oz) 					
	• Item unit	cuity can be adjusted				
L, ML; M, MM, Sec.	0 C0	this the same system	ne or two levels of separation			
within a single	WI	thin the same system	of measurement (e.g., feet to			
system of	inc	ches would be one lev	el of separation; yards to			
measurement,	inc	ches would be two lev	els of separation)			
express	0 Ih	e use of fractions or o	lecimals			
measurements in a	o Th	e number of conversi	ons the student must make			
larger unit in terms of	(fr	om 2 to 4 conversion	s per item)			
a smaller unit. Record						
measurement	TM2					
equivalents in a two-	Stimulus: The s	tudent is presented w	ith a two-column table.			
column table. <i>For</i>						
example, know that 1	Example Stem:	Enter the unknown n	umbers to complete the table			
ft is 12 times as long	of equal measure	ements.	•			
as 1 in. Express the	•					
length of a 4 ft snake	Feet	Inches				
as 48 in. Generate a conversion table for	3					
feet and inches listing	5					
the number pairs (1,						
12), (2, 24), (3, 36),						
	Interaction: Th	e student enters the i	number of inches into the			
	response boxes.					
Evidence Required:	•					
2. The student	Rubric: (1 point) The student enters the correct equivalencies for					
records measurement	the given measurements (e.g. $36, 60$)					
equivalents in a two-						
column table.	Response Type: Fill-in Table					
-						

Tools: None



Task Model 3a

Response Type: Equation/Numeric

DOK Level 2

4.MD.A.2

Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.

Evidence Required:

3. The student identifies measurement quantities from diagrams, such as number line diagrams that feature a measurement scale, and uses the information to solve word problems.

Tools: None

Version 3 update:

Revised the stem in TM3a to clarify the change in units. Retired TM3b. **Prompt Features:** The student uses a diagram, such as a number line that features a measurement scale, to solve word problems.

Stimulus Guidelines:

- Items will involve one of these:
 - Distances (km, m, cm; in, ft, yd)
 - Intervals of time (hr, min, sec)
 - Liquid volumes (L, mL)
 - Masses of objects (kg, g; lb, oz)

ТМЗа

Stimulus: The student is presented with an object or quantity that can be measured using a number line diagram with a measurement scale.

Example Stem: A ribbon is shown above a centimeter ruler. Enter the length, in **millimeters**, of the ribbon.

Ribbon										
0 cm	1	2	3	4	5	6	7	8	9	10

Rubric: (1 point) The student enters the correct measurement shown in the diagram (e.g., 90).

Note: Depending on the diagram, a range of responses may need to be accepted. It is reasonable to allow 89-91 mm for the example shown above.

Response Type: Equation/Numeric



Response Type: Equation/Numeric	world context.					
	Stimulus Guidelines:					
DOK Level 1	• Items may describe rectangles (in pure math context) or rectangular shapes (in a real-world context). The shapes					
4.MD.A.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. <i>For example,</i> <i>find the width of a</i> <i>rectangular room given</i> <i>the area of the flooring</i> and the length by	 rectangular shapes (in a real-world context). The shapes presented in real-world contextual items must be described as "rectangular" (e.g., a rectangular garden, a rectangular kitchen, etc.). The dimensions should be whole numbers with units listed. Item difficulty can be adjusted via these example methods: How "friendly" the numbers are to work with Including a visual diagram with labeled sides 					
and the length, by						
formula as a	IM4a Stimulus: The student is presented with the dimensions of a					
multiplication equation	summus: The student is presented with the dimensions of a					
with an unknown factor.						
	Example Stem: Use the diagram of the rectangular garden to					
Evidence Required:	solve the problem.					
4. The student uses the	•					
area and perimeter formulas for rectangles to solve problems in mathematical and real- world contexts.	20 ft					
Tools: None	30 ft					
	Enter the area, in square feet, of the garden.					
	Rubric: (1 point) The student enters the correct number (e.g., 600).					
	Response Type: Equation/Numeric					

Prompt Features: The student uses the area formula and/or

perimeter formula to solve a problem in a mathematical or real-

Task Model 4a



Task Model 4b

Response Type: Equation/Numeric

DOK Level 2

4.MD.A.3

Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor.

Evidence Required:

4. The student uses the area and perimeter formulas for rectangles to solve problems in mathematical and real-world contexts.

Tools: None

Prompt Features: The student uses the area formula and/or perimeter formula to solve a problem in a mathematical or real-world context.

Stimulus Guidelines:

- Items may describe rectangles (in pure math context) or rectangular shapes (in a real-world context). The shapes presented in real-world contextual items must be described as "rectangular" (e.g., a rectangular garden, a rectangular kitchen, etc.).
- The dimensions, areas, and perimeters should be whole numbers with units listed.
- Item difficulty can be adjusted via these example methods:
 - How "friendly" the numbers are to work with
 - Including a visual diagram with labeled sides

TM4b

Stimulus: The student is presented with one dimension and either the area or perimeter of a rectangle and must find the unknown side length.

Example Stem: Use the diagram of the rectangle to solve the problem.



The perimeter of the rectangle is 192 inches. What is the length, in inches, of the unknown side?

Rubric: (1 point) The student enters the correct number (e.g., 60).

Response Type: Equation/Numeric



Task Model 4c	Prompt Features: The student is prompted to identify possible dimensions of a rectangle.						
Response Type: Matching Tables DOK Level 2 4.MD.A.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a	 dimensions of a rectangle. Stimulus Guidelines: Items may describe rectangles (in pure math context) or rectangular shapes (in a real-world context). The shapes presented in real-world contextual items must be described as "rectangular" (e.g., a rectangular garden, a rectangular kitchen, etc.). The dimensions, areas, and perimeters should be whole numbers with units listed. Item difficulty can be adjusted via this example method: How "friendly" the numbers are to work with TM4c Stimulus: The student is presented with the area or perimeter of a rectangle. Example Stem 1: The dimensions for three rectangles are 						
formula as a multiplication equation with an unknown factor.	shown. Decide whether each rect square feet. Select Yes or No for	angle ha each reo	as an are tangle.	ea equal to 100			
		Yes	No				
4. The student uses the area and perimeter formulas for rectangles to solve problems in mathematical and real-	Rectangle 1: • Length = 5 ft • Width = 20 ft Rectangle 2: • Length = 10 ft • Width = 10 ft						
world contexts. Tools: None	Rectangle 3: • Length = 4 ft • Width = 25 ft						
	Example Stem 2: The dimensions for three rectangular gardens are shown. Decide whether each garden has a perimeter equal to 100 meters. Select Yes or No for each garden.						
		Yes	No				
	Garden 1: • Length = 5 m • Width = 45 m						
	Garden 2: • Length = 50 m • Width = 50 m						
	 Length = 4 m Width = 25 m 						
Rubric: (1 point) The student selects all of the correct dimensions for the rectangle (e.g., Y, Y, Y; Y, N, N).							
	Response Type: Matching Tables						