

<p>Claim 1: Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p>	
<p>Content Domain: Measurement and Data</p>	
<p>Target G [s]: Convert like measurement units within a given measurement system. (DOK 1)</p> <p>Tasks for this target ask students to convert measurements and should be used to provide context for the assessment of 5.NBT Target D. Some tasks will involve contextual problems and will contribute evidence for Claim 2 or Claim 4. (DOK 2)</p>	
<p>Standards: 5.MD.A, 5.MD.A.1</p>	<p>5.MD.A Convert like measurement units within a given measurement system.</p> <p>5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems.</p>
<p>Related Below-Grade and Above-Grade Standards for Purposes of Planning for Vertical Scaling: 4.MD.A, 4.MD.A.1, 4.MD.A.2 6.RP.A, 6.RP.A.3d</p>	<p>Related Grade 4 Standards</p> <p>4.MD.A Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</p> <p>4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table. <i>For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...</i></p> <p>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.</p> <p>Related Grade 6 Standards</p> <p>6.RP.A Understand ratio concepts and use ratio reasoning to solve problems.</p> <p>6.RP.A.3d Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.</p>
<p>DOK Level(s):</p>	<p>1, 2</p>

Achievement LEVEL Descriptors:	
RANGE Achievement Level Descriptors (Range ALD) Target G: Convert like measurement units within a given measurement system.	Level 1 Students should be able to convert a whole number metric measurement to a different metric measurement resulting in a whole number; and convert a whole number customary measurement to a different customary measurement resulting in a whole number.
	Level 2 Students should be able to convert a metric measurement to the tenths place to a different metric measurement and convert a standard measurement given to the 1/4 unit (fractions/mixed numbers) from a larger measurement unit to a smaller one.
	Level 3 Students should be able to convert like measurements within a system using whole numbers, fractions (standard system), and decimals (metric system).
	Level 4 No Descriptor
Evidence Required:	<ol style="list-style-type: none"> 1. The student converts units of linear measure within a single measurement system. 2. The student converts units of weight/mass measure within a single measurement system. 3. The student converts units of liquid volume measure within a single measurement system. 4. The student converts units of time measure within a single measurement system.
Allowable Response Types:	Equation/Numeric
Allowable Stimulus Materials:	None
Construct-Relevant Vocabulary:	mass, weight, length, time, kilometer, meter, centimeter, kilogram, gram, liter, milliliter, inch, foot, yard, mile, ounce, pound, cup, pint, quart, gallon, hour, minute, second
Allowable Tools:	None
Target-Specific Attributes:	Metric or customary units (length, mass, liquid, time) Measurement conversions are within a single system including kilometer (km), meter (m), centimeter (cm), kilogram (kg), gram (g), liter (L), milliliter (mL), inch (in), foot (ft), yard (yd), mile (mi), ounce (oz), pound (lb), cup, pint (pt), quart (qt), gallon (gal), hour (hr), minute (min), second (s). Decimal numbers can be to the thousandths place. Division of whole numbers is limited to four-digit dividends and two-digit divisors. Division of fractions is limited to whole number by unit fraction or unit fraction by whole number.
Non-Targeted Constructs:	None

<p>Accessibility Guidance:</p>	<p>Item writers should consider the following Language and Visual Element/Design guidelines¹ when developing items.</p> <p>Language Key Considerations:</p> <ul style="list-style-type: none"> • Use simple, clear, and easy-to-understand language needed to assess the construct or aid in the understanding of the context • Avoid sentences with multiple clauses • Use vocabulary that is at or below grade level • Avoid ambiguous or obscure words, idioms, jargon, unusual names and references <p>Visual Elements/Design Key Considerations:</p> <ul style="list-style-type: none"> • Include visual elements only if the graphic is needed to assess the construct or it aids in the understanding of the context • Use the simplest graphic possible with the greatest degree of contrast, and include clear, concise labels where necessary • Avoid crowding of details and graphics <p>Items are selected for a student’s test according to the blueprint, which selects items based on Claims and targets, not task models. As such, careful consideration is given to making sure fully accessible items are available to cover the content of every Claim and target, even if some item formats are not fully accessible using current technology.²</p>
<p>Development Notes:</p>	<p>Some tasks will involve contextual problems and will contribute evidence for Claim 2 or Claim 4.</p>

¹ For more information, refer to the General Accessibility Guidelines at: <http://www.smarterbalanced.org/wordpress/wp-content/uploads/2012/05/TaskItemSpecifications/Guidelines/AccessibilityandAccommodations/GeneralAccessibilityGuidelines.pdf>

² For more information about student accessibility resources and policies, refer to http://www.smarterbalanced.org/wordpress/wp-content/uploads/2014/08/SmarterBalanced_Guidelines.pdf

<p>Task Model 1</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems.</p> <p>Evidence Required: 1. The student converts units of linear measure within a single measurement system.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to convert a unit of linear measure to a larger or smaller unit within the same system.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Measurement conversions are within a single system including kilometer (km), meter (m), centimeter (cm), inch (in), foot (ft), yard (yd), mile (mi). • Decimal numbers can be to the thousandths place. • Conversions involving division of fractions are limited to a whole number by a unit fraction or unit fraction by a whole number. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Single-unit conversions using adjacent common units of measure (e.g., 1 foot = 12 inches) ○ Whole number conversion problems which use one step of separation between units ○ Single-step conversion problems containing fractions or decimals or multi-step conversion problems using whole numbers ○ Multi-step conversion problems containing fractions or decimals <p>TM1a Stimulus: The stem presents a length measurement in customary units.</p> <p>Example Stem: Enter the number of inches equal to 7 yards.</p> <p>TM1b Stimulus: The stem presents a length measurement in metric units.</p> <p>Example Stem: Enter the number of millimeters equal to 7 centimeters.</p> <p>Rubric: (1 point) The student correctly converts from one measurement to another measurement (e.g., 252; 70).</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 2</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems.</p> <p>Evidence Required: 2. The student converts units of weight/mass measure within a single measurement system.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to convert a unit of weight/mass measure to a larger or smaller unit within the same system.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Measurement conversions are within a single system including kilogram (kg), gram (g), ounce (oz), pound (lb). • Decimal numbers can be to the thousandths place. • Conversions involving division of fractions are limited to a whole number by a unit fraction or unit fraction by a whole number. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Single-unit conversions using adjacent common units of measure (e.g., 1 pound = 16 ounces) ○ Whole number conversion problems which use one step of separation between units ○ Single-step conversion problems containing fractions or decimals or multi-step conversion problems using whole numbers ○ Multi-step conversion problems containing fractions or decimals <p>TM2a Stimulus: The stem presents a weight measurement in customary units.</p> <p>Example Stem: Enter the number of ounces equal to $7\frac{1}{2}$ pounds.</p> <p>TM2b Stimulus: The stem presents a mass measurement in metric units.</p> <p>Example Stem: Enter the number of grams equal to 24.7 kilograms.</p> <p>Rubric: (1 point) The student correctly converts from one measurement to another measurement (e.g., 120; 24,700).</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 3</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems.</p> <p>Evidence Required: 3. The student converts units of liquid volume measure within a single measurement system.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to convert a unit of liquid measure to a larger or smaller unit within the same system.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Measurement conversions are within a single system including liter (L), milliliter (mL), cup, pint (pt), quart (qt), gallon (gal). • Decimal numbers can be to the thousandths place. • Conversions involving division of fractions are limited to a whole number by a unit fraction or unit fraction by a whole number. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Single-unit conversions using adjacent common units of measure (e.g., 1 gallon = 16 cups) ○ Whole number conversion problems which use one step of separation between units ○ Single-step conversion problems containing fractions or decimals or multi-step conversion problems using whole numbers ○ Multi-step conversion problems containing fractions or decimals <p>TM3a Stimulus: The stem presents a liquid volume measurement in customary units.</p> <p>Example Stem: Enter the number of cups equal to $2\frac{1}{8}$ gallons.</p> <p>TM3b Stimulus: The stem presents a liquid volume measurement in metric units.</p> <p>Example Stem: Enter the number of milliliters equal to 4.6 liters.</p> <p>Rubric: (1 point) The student correctly converts from one measurement to another measurement (e.g., 34; 4600).</p> <p>Response Type: Equation/Numeric</p>
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<p>Task Model 4</p> <p>Response Type: Equation/Numeric</p> <p>DOK Level 1</p> <p>5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems.</p> <p>Evidence Required: 4. The student converts units of time measure within a single measurement system.</p> <p>Tools: None</p>	<p>Prompt Features: The student is prompted to convert a unit of time measure to a larger or smaller unit.</p> <p>Stimulus Guidelines:</p> <ul style="list-style-type: none"> • Measurement conversions are within a single system including hour, minute, second. • Decimal numbers can be to the thousandths place. • Conversions involving division of fractions are limited to a whole number by a unit fraction or unit fraction by a whole number. • Item difficulty can be adjusted via these example methods: <ul style="list-style-type: none"> ○ Single-unit conversions using adjacent common units of measure (e.g., 1 minute = 60 seconds) ○ Whole number conversion problems which use one step of separation between units ○ Single-step conversion problems containing fractions or decimals or multi-step conversion problems using whole numbers ○ Multi-step conversion problems containing fractions or decimals <p>TM4 Stimulus: The stem presents a measurement of time.</p> <p>Example Stem: Enter the number of minutes equal to $\frac{3}{4}$ hour.</p> <p>Rubric: (1 point) The student correctly converts from one measurement to another measurement (e.g., 45).</p> <p>Response Type: Equation/Numeric</p>
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