

Unpacked South Dakota State Mathematics Standards

Purpose: *In order for students to have the best chance of success, standards, assessment, curriculum resources, and instruction must be aligned in focus, coherence, and rigor. Unpacked standards documents are intended to help align instruction to the focus, coherence, and rigor of the South Dakota State Mathematics Standards. The standards have been organized in clusters as they are not so much built from topics, but rather woven out of progressions. Not all content in a given grade is emphasized equally in the mathematics standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. To say that some things have greater emphasis is not to say that anything in the standards can safely be neglected in instruction. Neglecting standards will leave gaps in student skill and understanding and may leave students unprepared for the challenges of a later grade.*

Domain: Measurement and Data		Grade Level: 5
5.MD.A Cluster: Convert like measurement units within a given measurement system.		
Students will formulate and solve equations to complete measurement conversions in real-world problems expressing smaller units in terms of larger units and larger units in terms of smaller units.		
<p>**This is a SUPPORTING cluster. <i>Students should spend the large majority of their time (65-85%) on the major work of the grade. Supporting work and, where appropriate, additional work should be connected to and engage students in the major work of the grade.</i></p> <p>5.MD.1 Convert customary and metric measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m). Use these conversions in solving multi-step, real world problems involving distances, intervals of time, liquid volumes, masses of objects, and money (including problems involving simple fractions or decimals). For example, 3.6 liters and 4.1 liters can be combined as 7.7 liters or 7700 milliliters.</p>		
Aspects of Rigor for Student Learning: (Conceptual, Procedural, and/or Application)		
Conceptual Understanding	Procedural Fluency	Application
	Write and solve an equation to show conversion of units.	Use measurement conversions in solving multi-step, real world problems.
Enacting the Mathematical Practices - Evidence of Students Engaging in the Practices		
<ol style="list-style-type: none"> 1. Make sense of problems and persevere in solving them. <ul style="list-style-type: none"> • Students will interpret and make sense of word problems they solve involving customary and standard measurement conversions. • Students will persevere through multistep problems using multiple conversions. 2. Reason abstractly and quantitatively. <ul style="list-style-type: none"> • Students will make sense of the number units in relationship to the size of the unit when converting. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. <ul style="list-style-type: none"> • Students will use specific vocabulary to convert measurements. 7. Look for and make use of structure. <ul style="list-style-type: none"> • Students will discover the relationship of base-ten conversions within the metric system. 8. Look for and express regularity in repeated reasoning. 		

Vertical and Horizontal Coherence and Learning Progressions		
<u>Previous Learning Connections</u>	<u>Current Learning Connections</u>	<u>Future Learning Connections</u>
<p>In 4th grade, students worked to understand the relative sizes of measurement units within a system. (4.MD.1)</p> <p>Students also used the four operations to solve word problems including problems involving fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. (4.MD.2)</p>	<p>Students are learning about the powers of 10, which relates to converting metric measurements. (5.NBT.2)</p> <p>Students are also working to perform operation with multi-digit whole numbers and with decimals to hundredths.</p>	<p>In 6th grade, students use ratios to convert measurement units. Students manipulate and transform units appropriately when multiplying or dividing quantities. (6.RP.3d)</p>
Vocabulary (Key Terms Used by Teachers and Students in this Cluster):		
Convert all units of measurement in customary and metric systems including: meter, kilometer, centimeter, millimeter, liter, milliliter, gram, kilogram, milligram, mile, yard, foot, inch, gallon, quart, pint, cup, ton, pound, and ounce		
Relevance, Explanations, and Examples:		
<div style="background-color: #f0f0f0; padding: 10px;"> <p>Task</p> <p>What time was it 2011 minutes after the beginning of January 1, 2011?</p> <p>Solution</p> <p>January 1, 2011 begins at 12:00 AM. To find the time 2011 minutes later will require changing units since time is told in hours and minutes. There are 60 minutes in an hour so to see how many hours there are in 2011 minutes we can perform the division problem $2011 \div 60$. Since $30 \times 60 = 1800$, we can write</p> $2011 = \underline{30} \times 60 + 211.$ </div>		
Achievement Level Descriptors		
Cluster: Convert like measurement units within a given measurement system.		
Concepts and Procedures	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:
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