

# 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.*

<b>Domain: Measurement and Data</b>		<b>Grade Level: 2</b>
<b>2.MD.A Cluster: Measure and estimate lengths in standard units.</b>		
Learners recognize the need for standard units of measure. They understand that linear measure involves an iteration of units and they estimate and measure lengths in standard units.		
<p><b>**This is a MAJOR cluster.</b> <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><b>2.MD.1</b> Measure the length of an object by selecting and using appropriate tools such as rulers, yardsticks, meter sticks, and measuring tapes.</p> <p><b>2.MD.2</b> Measure the length of an object twice, using length units of different lengths for the two measurements; describe how the two measurements relate to the size of the unit chosen.</p> <p><b>2.MD.3</b> Estimate lengths using units of inches, feet, centimeters, and meters.</p> <p><b>2.MD.4</b> Measure to determine how much longer one object is than another, expressing the length difference in terms of a standard length unit.</p>		
<b>Aspects of Rigor for Student Learning:</b> (Conceptual, Procedural, and/or Application)		
<b>Conceptual Understanding</b>	<b>Procedural Fluency</b>	<b>Application</b>
	Line up the measuring tool with the object being measured ( <b>2.MD.1</b> )	Measure the length of real-world objects ( <b>2.MD.1</b> )
	Iterate the tool without any gaps or overlaps ( <b>2.MD.1</b> )	Determine appropriate tools for measurement ( <b>2.MD.1</b> )
	Determine total number of units ( <b>2.MD.1</b> )	
Understand that the smaller the unit, the more iterations needed to cover a given length ( <b>2.MD.2</b> )	Measure the length of an object using two different units and compare the two measurements ( <b>2.MD.2</b> )	
Estimate lengths in different units ( <b>2.MD.3</b> )		Apply estimation to real world situations ( <b>2.MD.3</b> )
	Measure two objects using the same standard length unit to determine their difference in length ( <b>2.MD.4</b> )	

## Enacting the Mathematical Practices - Evidence of Students Engaging in the Practices

1. **Make sense of problems and persevere in solving them.**
2. **Reason abstractly and quantitatively.**
3. **Construct viable arguments and critique the reasoning of others.**
  - Compare and explain two measurements and how they are affected by the size of the unit chosen
4. **Model with mathematics.**
5. **Use appropriate tools strategically.**
  - Select an efficient tool for measurement.
6. **Attend to precision.**
  - Line up a measuring tool with the end of the object and measure with no gaps or overlaps.
7. **Look for and make use of structure.**
8. **Look for and express regularity in repeated reasoning.**

## Vertical and Horizontal Coherence and Learning Progressions

<u><i>Previous Learning Connections</i></u>	<u><i>Current Learning Connections</i></u>	<u><i>Future Learning Connections</i></u>
<p>Learners are exposed to the process of measuring objects using non-standard units, such as cubes or paperclips. <b>(1.MD.1)</b></p> <p>Learners are also exposed to the concept of comparing objects limited to comparative terms such as shorter, longer, shortest, and longest. <b>(1.MD.2)</b></p>	<p>Learners move from use of non-standard units to standard units of measure in this cluster.</p> <p>Learners use addition and subtraction strategies as they compare the length of objects and determine the difference. <b>(2.NBT.5)</b></p> <p>Learners apply their understanding of linear measurement to solve word problems. <b>(2.MD.5)</b></p>	<p>Learners generate measurement data by measuring objects and showing the measurements on a line plot <b>(2.MD.9)</b></p> <p>Learners begin to sub-divide lengths as they use rulers marked with halves and fourths of an inch. <b>(3.MD.3)</b></p> <p>Learners apply linear measurement to measure perimeter and area. <b>(3.MD.5-8)</b></p>

### *Vocabulary (Key Terms Used by Teachers and Students in this Cluster):*

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| <ul style="list-style-type: none"> <li>• Centimeter (cm)</li> <li>• Inch</li> <li>• Length</li> <li>• Meter</li> <li>• Standard Units of Measure</li> </ul> | <ul style="list-style-type: none"> <li>• Unit</li> <li>• Yard</li> </ul> |
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### *Relevance, Explanations, and Examples:*

Standard units used in this cluster include inches, feet, centimeters, and meters.

Common measurement misconceptions that need to be addressed during instruction may include:

- Not lining up the measuring tool with the end of the object
- Beginning the measurement count at the “1” mark on a ruler rather than the “0”
- Not iterating the unit accurately, leaving gaps or overlapping
- Selecting the incorrect unit of measure (e.g., when asked for centimeters, learner measures in inches)