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: 2

2.MD.B Cluster: Relate addition and subtraction to length.

Learners solve word problems by applying previously-learned addition and subtraction skills to the concept of length. They write equations for measurement word problems using symbols for unknown values and calculate the sum and differences represented in the equations.

**This is a MAJOR cluster. *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.*

2.MD.5 Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem.

2.MD.6 Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ..., and represent whole-number sums and differences within 100 on a number line diagram.

Aspects of Rigor for Student Learning: (Conceptual, Procedural, and/or Application)

Conceptual Understanding	*Procedural Fluency*	*Application*
	Solve addition and subtraction problems within 100 involving lengths (**2.MD.5**) Use drawings and equations to represent and solve length problems (**2.MD.5**)	Represent and solve numerical problems about length (**2.MD.5**) Add and subtract measurements of objects (**2.MD.5**)
Understand that number line diagrams have specific conventions (**2.MD.6**) Understand that a number line diagram is like a ruler (**2.MD.6**) Use a number line diagram as a measurement model and use strategies relating to distance, proximity of numbers and reference points (**2.MD.6**) Connect moving to the right or left on		Create number lines to solve addition and subtraction problems (**2.MD.6**)

a number line to addition and subtraction (**2.MD.6**)		

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

1. **Make sense of problems and persevere in solving them.**
   - Interpret and solve measurement word problems using concrete objects and number lines.
2. **Reason abstractly and quantitatively.**
3. **Construct viable arguments and critique the reasoning of others.**
4. **Model with mathematics.**
   - Use a number line to model and solve addition and subtraction problems.
5. **Use appropriate tools strategically.**
6. **Attend to precision.**
7. **Look for and make use of structure.**
8. **Look for and express regularity in repeated reasoning.**

Vertical and Horizontal Coherence and Learning Progressions

Previous Learning Connections	*Current Learning Connections*	*Future Learning Connections*
Learners use marked number lines to add and subtract numbers to 100. (**1.NBT.4-6**)	Learners apply their understanding of a variety of problem types to solve one- and two-step measurement problems. (**2.OA.1**) Learners use unmarked number lines to add and subtract within 1000. They expand their understanding of number lines to include a distance model. (**2.NBT.7**) Learners generate measurement data by measuring objects and showing the measurements on a line plot (**2.MD.9**).	Learners will understand a fraction as intervals between whole numbers on a number line (**3.NF.2**).

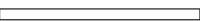*Vocabulary (Key Terms Used by Teachers and Students in this Cluster):*

- Difference
- Equation
- Length
- Number Line
- Ruler
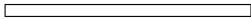
- Symbol
- Unit
- Unknown
- Whole Number

Relevance, Explanations, and Examples:

Length word problems include missing measurements problems:

Missing measurements problems

43

$43 - 8 = 35$

so, 35, and
$35 + 43 = 78$

43

$43 - 8 = 35 \quad 35 + 43 = 78$

8

43

35

8

x

43 35

$x = 43 + 35$

$x = 78$

Different solution methods for "A girl had a 43 cm section of a necklace and another section that was 8 cm shorter than the first. How long the necklace would be if she combined the two sections?" 2.MD.5