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: 1**
1.MD.C Cluster: Represent and interpret data This cluster engages first graders in collecting and using data to answer questions relevant to their lives. Learners can form a question, collect data in a chart, table, or graph form, organize the data and interpret the results to answer or ask a question.	
****This is a SUPPORTING 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.* **1.MD.4** Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	
Aspects of Rigor: (Conceptual, Procedural, and/or Application)	
Conceptual Understanding	***Procedural Fluency*** / ***Application***
Interpreting data **(1.MD.4)**	Organize and represent data **(1.MD.4)** Ask and answer questions about the data **(1.MD.4)**
Enacting the Mathematical Practices - Evidence of Students Engaging in the Practices	

1. **Make sense of problems and persevere in solving them.**
   - Recognize that an object can be used to name a unit of length
   - Express length with a whole number, even when the unit lengths are not a perfect whole.
2. **Reason abstractly and quantitatively.**
   - Reason about the data and solving problems with the information from the data: what has the most, least, relationships, etc.
3. **Construct a viable argument and critique the reasoning of others.**
   - Ask and answer questions about data
   - Explain reasoning (measurement, time, money, and data)
4. **Model with mathematics.**
   - Use data to solve everyday problems
5. **Use appropriate tools strategically.**
   - Use standard and non-standard measurement tools to express length
6. **Attend to precision.**
   - Measure end-to-end without gaps
   - Organize and represent data
7. **Look for and make use of structure.**
   - Tell time with specific vocabulary such as “half past the hour”

- Know five pennies are the same as a nickel and ten pennies are the same as a dime
- Use tally marks to keep track when counting data sets

8. **Look for and express regularity in repeated reasoning.**
    - Use a clock to tell time and notice that 60 minutes makes one hour

Vertical and Horizontal Coherence and Learning Progressions

Previous Learning Connections	***Current Learning Connections***	***Future Learning Connections***
Kindergarten learners classify objects into given categories and sort the categories. They count the number of objects in each category and understand the relationship between numbers and quantities in order to answer questions about how many up (to 20). **(K.MD.3) (K.CC.3-5)**	First grade learners use addition and subtraction within 20 to solve word problems that may use up to three whole numbers **(1.OA.1-2)** They think of survey questions with three categories and create a table to collect data. Using tally marks to represent data collected provides an opportunity to have more practice with groups of tens and ones. Students ask and answer questions about the data (most, least and how many more/less/fewer).	Second grade learners represent a data set with up to four categories by drawing a picture graph and a bar graph with single-unit scale. **(2.MD.10)**

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

- Category
- Sort
- Data
- Data point
- Tally marks

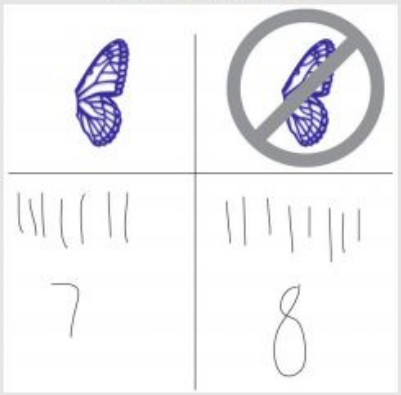
Relevance, Explanations, and Examples:

NOTE: When teaching learners how to interpret data from a graph, talk about the different parts of a graph such as the title, labels, which way the graph goes (horizontal/vertical), etc. even though learners are not responsible for this language.

NOTE: There is no single correct way to represent categorical data-and the Standards do not require Grade 1 learners to use any specific format.

However, learners should be familiar with mark schemes like the one shown in the figure. Another format that might be useful in Grade 1 is a picture graph in which one picture represents one object. (Note that picture graphs are not an expectation in the Standards until Grade 2.) If different learners devise different ways to represent the same data set, then the class might discuss relative strengths and weaknesses of each scheme (MP5).

Sorting categorical data



The marks represent individual data points. The two category counts, 7 and 8, are a numerical summary of the data.