

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: Operations and Algebraic Thinking		Grade Level: 2
2.OA.C Cluster: Work with equal groups of objects to gain foundations for multiplication.		
Learners begin to explore some general patterns that connect to their work with addition and subtraction. They also begin to explore basic visual representations of multiplication.		
<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>2.OA.3 Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.</p> <p>2.OA.4 Use addition to find the total number of objects arranged in rectangular arrays with up to 5 columns; write an equation to express the total as a sum of equal addends.</p>		
Aspects of Rigor for Student Learning: (Conceptual, Procedural, and/or Application)		
Conceptual Understanding	Procedural Fluency	Application
Differentiate between odd and even numbers. (2.OA.3)		
Understand that rectangular arrays are arranged in columns and rows. (2.OA.4)		
Understand that repeated addition can be used to find the total number of objects in an array (2.OA.4)		
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. 2. Reason abstractly and quantitatively. <ul style="list-style-type: none"> • Observe what happens to the sum of even or odd numbers. 3. Construct viable arguments and critique the reasoning of others. <ul style="list-style-type: none"> • Prove whether a number is odd or even. 4. Model with mathematics. <ul style="list-style-type: none"> • Use objects, drawings, numbers and/or equations to show whether a number is odd or even. • Write an equation to go with an array. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 		

- Use repeated addition to begin thinking about multiplication
- 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>
Learners decompose numbers within 10 into pairs. (K.OA.3) This leads into the addition of numbers within 20, specifically with doubles. (1.OA.6)	Learners use their understanding of number groupings to skip count within 1000. (2.NBT.2) Learners partition rectangles into rows and columns of same-size squares and count to find the total number of them. (2.G.2)	As learners progress in their understanding of odd and even numbers, they learn to develop and apply more sophisticated mathematical arguments and proofs (MP3, MP4) . Learners relate arrays to equal group situations. (3.OA.1)

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

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| <ul style="list-style-type: none"> • Even number • Odd number • Equal • Equation • Array | <ul style="list-style-type: none"> • Column • Row • Repeated addition |
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Relevance, Explanations, and Examples:

Use concrete objects, visual representations, skip counting or doubles and near doubles equations to prove whether a number is odd or even.

Sample Task:

Can you make an array from ___ tiles? Write an equation to show how you would figure out the total number of tiles.