

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: Geometry		Grade Level: 3
3.G.A Cluster: Reason with shapes and their attributes.		
Students will understand shapes have common attributes and may share these attributes with other shapes in different categories. Students will partition shapes and express as a unit fraction.		
<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>3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.</p> <p>3.G.2 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of a shape.</p>		
Aspects of Rigor for Student Learners: (Conceptual, Procedural, and/or Application)		
Conceptual Understanding	Procedural Fluency	Application
Learners will understand that shapes have different attributes. (3.G.1)	Learners will be able to draw shapes with different attributes which fit or don't fit in a larger category. (3.G.1)	
<p>Learners understand what equal area is and why the shapes are partitioned this way. (3.G.2)</p> <p>Learners understand what a unit fraction is. (3.G.2)</p> <p>In a unit fraction the numerator is always one. (3.G.2)</p> <p>In a unit fraction the denominator is determined by how it is partitioned. (3.G.2)</p>	Learners can partition a whole shape into equal areas and name each unit fraction within the whole. (3.G.2)	

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.**
4. **Model with mathematics.**
5. **Use appropriate tools strategically.**
6. **Attend to precision.**
 - Learners will use clear precise language to describe quadrilaterals in discussions with others.
7. **Look for and make use of structure.**
 - Learners will conceptualize a quadrilateral as a closed figure with four straight sides and notice characteristics of the angles and the relationship between opposite sides.
 - The experience of discussing and thinking about attributes of shapes will help third graders understand geometric structure.
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 2nd grade, learners have had many experiences with specific attributes of shapes such as triangles, hexagons and cubes. They have learned the the difference between defining attributes and non-defining attributes.</p> <p>Learners recognized and drew shapes having specified attributes, such as a given number of angles or a given number of equal faces.They identified triangles, quadrilaterals, pentagons, hexagons, and cubes. (2.G.1)</p>	<p>In 3rd grade, learners will begin to use attributes to categorize shapes. They will understand shapes fit into a bigger categories (quadrilaterals) due to their attributes. They work on partitioning shapes into equal areas (unit fractions).</p> <p><i>* Standards have been listed in this column to show progression of learning and how instruction correlates (a mutual relationship or connection, in which one thing affects or depends on another.) with the focus standard which is boldfaced.</i></p> <p>Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. (3.G.1)</p> <p>Learners understand a fraction $\frac{1}{b}$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction $\frac{a}{b}$ as the quantity formed by a parts of size $\frac{1}{b}$. (3.NF.1)</p> <p>Learners understand a fraction as a number on the number line; represent fractions on a number line diagram.</p>	<p>In 4th grade, learners will extend their understanding to include angles of geometric shapes and angle measurements.</p> <p>Learners draw points, lines, line segments, rays, angles (right, obtuse, acute) and perpendicular and parallel lines in 2-D figures. (4.G.1)</p> <p>Learners recognize angles as geometric shapes which are formed when two rays share a common endpoint and understand concepts of angle measurement. (4.MD.5)</p>

(3.NF.2)

Learners partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of the shape. **(3.G.2)**

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

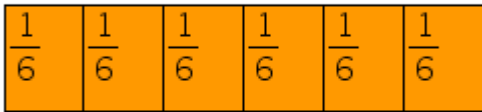
- Attributes
- Categories
- Rhombus, Rectangle, Square, Trapezoid
- Quadrilateral
- Partition
- Unit Fraction
- Equal Area
- Fraction

Relevance, Explanations, and Examples:

Partitioned into halves, thirds, fourths, sixths and eighths

Unit fractions and equal area of a whole

Use models to represent unit fractions.



Each part is $\frac{1}{6}$ the area of the whole.

The unit fraction is $\frac{1}{6}$ or one-sixth.

Achievement Level Descriptors

Cluster: Reason with shapes and their attributes.

Concepts and Procedures

Level 1: Students should be able to recognize rhombuses, rectangles, and squares.

Level 2: Students should be able to reason with the attributes of quadrilaterals to recognize rhombuses, rectangles, and squares as examples of quadrilaterals and reason with shapes to partition them into parts with equal areas.

Level 3: Students should be able to draw examples of quadrilaterals that do not belong to given subcategories by reasoning about their attributes; partition shapes into parts with equal areas and

	express the area of each part as a unit fraction of the whole; and understand that shapes in different categories may share attributes and that the shared attributes can define a larger category.
	Level 4: