**DOMAIN: Geometry**

**CLUSTER: Reason with shapes and their attributes.**

**Big Idea:** Two-dimensional shapes can be described, classified, and analyzed by their attributes. A shape’s location in space can be described quantitatively.

**Enduring Understandings:** Plane shapes have many properties that make them different from one another. Polygons can be put together or taken apart to make other polygons. Polygons can be described and classified by their sides and angles. A region can be divided into equal-sized parts in different ways, and equal-sized parts have the same area but not necessarily the same shape.

**STANDARDS FOR MATHEMATICAL CONTENT**

3.G.1 Understand that shapes in different categories (e.g., rhombuses, rectangles, and squares) are a subcategory of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of the subcategories.

**STANDARDS FOR MATHEMATICAL PRACTICE**

MP1 Make sense of problems and persevere in solving them.

MP2 Reason abstractly and quantitatively.

MP3 Construct viable arguments and critique the reasoning of others.

MP4 Model with mathematics.

MP5 Use appropriate tools strategically.

MP6 Attend to precision.

MP7 Look for and make use of structure.

MP8 Look for and express regularity in repeated reasoning.

**RESOURCES**

- **50 Problem Solving Lessons** (Burns, 1996)
  - Lessons with Geoboards, pp. 33-35

- **About Teaching Mathematics, 2nd Ed.** (Burns, 2000)
  - The Four-Triangle Problem, p. 93
  - Explorations Using the Geoboard, p. 95 (focus on 8-12)
  - Geoboard Square Search, p. 97

- **Inside Mathematics**

- **Math Matters,** (Chapin and Johnson, 2000)
  - Quadrilaterals, p. 156-159

**ASSESSMENTS**

- **My Math** Assessment Masters
  - Ch.14, pp. 335-355

- **My Math** Think Smart for the SBAC
  - Chapter 14 Test, p. 131
  - Chapter 14 Performance Tasks, p. 163

- **My Math** eAssessment [connectED.mcgraw-hill.com](http://connectED.mcgraw-hill.com)
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<tr>
<td>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 1/4 of the area of the shape.</td>
<td>MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively. MP3 Construct viable arguments and critique the reasoning of others. MP4 Model with mathematics. MP5 Use appropriate tools strategically. MP6 Attend to precision. MP7 Look for and make use of structure. MP8 Look for and express regularity in repeated reasoning.</td>
<td>About Teaching Mathematics, 2nd Ed. (Burns, 2000)  - Sharing Brownies, p. 230 My Math  - 14-7 Partition Shapes</td>
<td>My Math Assessment Masters  - Ch.14, pp. 335-355 My Math Think Smart for the SBAC  - Chapter 14 Test, p. 131  - Chapter 14 Performance Tasks, p. 163 My Math eAssessment connectED.mcgraw-hill.com</td>
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Domain Legend

▲ Major Cluster: Areas of intensive focus, where students need fluent understanding and application of the core concepts (approximately 75%)

s Supporting Cluster: Rethinking & linking; some material is being covered, but in a way that applies core understandings (s/a approximately 25%)

a Additional Cluster: Expose students to other subjects, may not connect explicitly to the major work of the grade
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<tr>
<td>1. How can two-dimensional shapes be described, analyzed, and classified?</td>
<td>Students will define two-dimensional shapes by using complex sentences, comparatives, and superlatives. <em>(Teacher provides manipulatives and time for exploration.)</em></td>
<td>2-dimensional</td>
</tr>
<tr>
<td>2. What is a polygon?</td>
<td>Students will orally describe polygons by using conjunctions (because) and auxiliary verbs (may, might, should, could, would) <em>(Teacher encourages multiple representations.)</em></td>
<td>3-dimensional</td>
</tr>
<tr>
<td>3. What are some ways to describe groups of polygons?</td>
<td>Students will ask clarifying questions of their peers as to how they organized and represented sorting a variety of groups of polygons using present and past tense verbs. <em>(Teachers may provide a variety of grouping structures to allow for various opportunities for language use.)</em></td>
<td>Acute angle</td>
</tr>
<tr>
<td>4. How can I describe quadrilaterals?</td>
<td>Students will restate a partner’s response to how they chose to describe quadrilaterals by using paraphrasing expressions. <em>(Teachers may employ the talk moves during student discussions, allowing for wait time, restating, and recasting.)</em></td>
<td>Angle</td>
</tr>
<tr>
<td>5. How can I divide a region into two equal parts?</td>
<td>Students will report a group consensus as to the variety of ways to divide a region into two equal parts utilizing past-tense citation verbs: determined, concluded. <em>(Teacher circulates the classroom, recasting the student output.)</em></td>
<td>Area</td>
</tr>
<tr>
<td>6. How can I write a fraction to name part of a whole?</td>
<td>Students will sequentially explain how to write a fraction to name part of a whole by using targeted mathematical language and complex sentences. <em>(Teacher may refer students to math word wall for support.)</em></td>
<td>Attributes</td>
</tr>
</tbody>
</table>

**ADDITIONAL SUPPORT**

- 2-dimensional
- 3-dimensional
- Acute angle
- Angle
- Area
- Attributes
- Closed figure
- Congruent
- Denominator
- Diagonal
- End point
- Fourths
- Fraction
- Halves
- Hexagon
- Numerator
- Obtuse angle
- Octagon
- Open figure
- Overlap
- Parallel
- Parallelogram
- Partition
- Pentagon
- Plane figure
- Polygon
- Properties
- Quadrilateral
- Ray
- Rectangle
- Rhombus/rhombi
- Right angle
- Side length
- Solid
- Square
- Thirds
- Trapezoid
- Triangle
- Unit fraction
- Vertex
DAILY/WEEKLY ROUTINES

- 

LITERATURE CONNECTIONS

- Grandfather Tang’s Story by Ann Tompert
- Shape Up! Fun with Triangles and Other Polygons by David A. Adler
- Sigmung Square Finds His Family by Jennifer Taylor-Cox
- Fraction Action by Loreen Leedy
- The Greedy Triangle by Marilyn Burns
- If You Were a Quadrilateral by Molly Blaisdell
- Pigs To to Market: Fun with Math and Shopping by Amy Axelrod

DIFFERENTIATION

FRONT LOADING

My Math
Each chapter includes: (at beginning of chapter)
  • My Math Words
  • My Vocabulary Cards
  • My Foldables

Each lesson includes: (at beginning of lesson)
  • ELL Instructional Strategy

ENRICHMENT

My Math
Each lesson includes:
  • a beyond level hands-on activity under differentiated instruction (found after Practice & Apply)

INTERVENTION

My Math
Each lesson includes:
  • an approaching level hands-on activity (found after Practice & Apply)

Each formative assessment includes:
  • Tier 2 Strategic Intervention, Ch. 14, p. 858A

Key:
1 Front Loading refers to materials that can be used before the lesson begins to prepare students for success, which may be helpful for English learners, standard English learners, students with disabilities or low achieving students.
2 Enrichment refers to materials that can be used with students who are ready to have their thinking extended, which may be helpful for gifted and talented and high achieving students, or any students who are ready for more depth and complexity.
3 Intervention refers to materials that can be used after the lessons with students who are needing additional positive experiences with the mathematics, low achieving students who would benefit from another approach, or students who have gaps in their knowledge.

For more information on Differentiation, please refer to: The California Framework, Universal Access section: