First Grade Unit 5: Geometry

Big Conceptual Idea: K-6 Progression on Measurement and Data (Measurement Part) (pp. 8-11), K-5 Progression on Geometry (pp. 8-9)

Throughout the unit the Math Practices are introduced and used. Find student friendly posters here.

Links might require you being logged into your Bridges Educator Site. If the link does not work for you, copy and paste the http address into a browser.

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<tr>
<th>Mathematical Background:</th>
<th>Unit Essential Question:</th>
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<td>Read Bridges Unit Overview pages (p. i-xi).</td>
<td>What are the attributes of two-dimensional and three-dimensional shapes? What are the relationships between shapes and how can composing and decomposing shapes support the part/part/whole concept?</td>
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**Instructional note:**

This unit's big idea is deepening the children’s understanding of two-dimensional and three-dimensional shapes and shapes' relationships to other shapes. The Van Hiele levels of geometrical reasoning are outlined in the unit overview pages 2 and 3, and as encouraged above, should be read prior to instruction. The goal of Unit 5 is to explore two-dimensional and three-dimensional shapes by identifying, describing, constructing, drawing, comparing, composing and sorting. Students progress through the levels of geometric understanding as they experience and explore with shapes. Students in first grade are likely at a level 0 or Visualization. Students at level 0 might say, “a rectangle is a door or a table.” Level 0 thinkers relate a geometric figure to an object it resembles.

Depending on how much experience students have had exploring with shapes, some might be at a level 1 or Analysis. These students are beginning to notice shape properties. For example, students might say “rectangles have 4 sides and 4 right angles.” It could take most of elementary school for students to progress through recognizing shapes, discussing shapes in terms of geometric properties and make comparisons between shapes. Most importantly, students need lots of experiences that are focused on the characteristics of shapes to do so. “All teachers should be aware that the experiences they provide are the single most important factor in moving children up this developmental ladder” (Van de Walle, Karp, Lovin, & Bay-Williams, 2014, p.304). Teachers utilize tasks or activities involving shape to clarify the terms or vocabulary students are already using and introduce new vocabulary or language of shapes. Encourage students to use terminology, including edges, faces, vertices, parallel, and so forth as they talk and write about their experiences in the math workshop. These terms are not expected to be mastered by students, but the exposure to precise academic terminology will support students in developing academic vocabulary and develop geometric concepts, including shape attributes and properties.

Throughout mathematical instruction the idea of relationships should not be new. A focus on developing the big idea of part-whole relationships occurred throughout the previous units. Geometry continues to support this idea of “building understanding of part-whole relationships as well as the properties of the original and composite shapes. Note that the process of combining shapes to create a composite shape is much like combining 10 ones to make 1 ten” (K-6 Progression on Geometry, 2013, p. 8).

Clements and Sarama state “spatial sense can be defined as an intuition about shapes and the relationships between shapes and is considered a core area of mathematical study in the early grades” (as cited in Van de Walle et al., 2013, p. 299). The standards have identified geometrical reasoning as one of the four critical content areas in mathematics for first graders. “Geometry instruction in grades pre-K-2 should help children learn more about the world they live in while also playing a significant role in supporting the development of number concepts” (Van de Walle et al., 2014, p. 299). Geometry instruction also develops “…the background for measurement and for initial understandings of properties such as congruence and symmetry.” (Nevada Academic Content Standards (NVACS), 2010, p. 13).

Other ideas that students will be grappling with as they encounter these shape experiences include “Shapes can be moved in a plane in space without changing the shape’s properties. These movements can be described in terms of translations (slides), reflections (flips) and rotations (turns)” (Van de Walle et al., 2014, p. 299).

The following are student misconceptions to be aware of and address throughout the unit:

- A trapezoid is always red (The trapezoids in pattern blocks are red)
- Triangles are always equilateral (The triangles in pattern blocks and on many pre-made posters are often equilateral).
- Size and orientation changes the shape (Students think that triangles must be oriented with the horizontal base parallel to the bottom of the page. Students consider a triangle with a horizontal base parallel to the top of the page is “upside down.”
- A rhombus can be called a diamond. (A diamond is not a shape. It is a gemstone).
• Pattern blocks or attribute blocks as examples for 2-D shapes. (Pattern blocks have thickness and are therefore 3-D. Note: 2-D shapes are the footprint or outline of the pattern block constructed of line segments.)

In your preparation of materials, the teacher guide recommends copying paper pattern blocks on certain colors to match the pattern blocks. However, to dispel these misconceptions, consider mixing the colors up and/or providing various shapes to enable a focus on shape-defining attributes and characteristics (versus non-defining attributes such as color).

The geometry standards for first grade are expected to be secure at the end of this unit, see the Assessment Binder, Assessment Overview tab, pp. 13-15.

October Number Corner developed foundation of schema for this geometry unit with the Pattern Block Data Collection Graph. In October, students worked on identifying 2-Dimensional shapes such as; triangles, trapezoids, rhombus', and hexagons throughout this month. Students’ experiences with creating composite shapes through October Number Corner Calendar Collector Activity 5 provided a shared experience to draw on as students continue to explore shapes in Unit 5. In December Number Corner, 3-Dimensional shapes made their appearance on the Calendar Grid. Students identified and described cylinders, rectangular prisms, spheres, and cones. These prior experiences support students’ continued work on geometry understandings during this unit. Further, February Number Corner provides opportunities to explore the ideas of rotational geometry and congruency around 2-Dimensional shapes.

### Essential Academic Vocabulary

**New Academic Vocabulary:**
Use these words consistently during instruction to begin to develop understanding.

*a Word Resource Card is available

| Side* | Add* |
| Net | Addition |
| Fraction* | Circle* |
| | Compare* |
| | Cone* |
| | Cube* |
| | Cylinder* |
| | Edge* |
| | Equal* |
| | Equation* |
| | Face* |
| | Flat |
| | Fourth* |
| | Half* |
| | Hexagon* |
| | Parallel Lines |

| Review Vocabulary: |
| (Vocabulary taught prior grades or units) |
| Attribute* | Pyramid* |
| Addition | Quarter (one fourth) |
| Circle* | Rectangular Prism* |
| Compare* | Rhombus* |
| Cone* | Rotate/Turn |
| Cube* | Solid |
| Cylinder* | Sphere* |
| Edge* | Square* |
| Equal* | Tally |
| Equation* | Trapezoid* |
| Face* | Triangle* |
| Flat | Triangular prism* |
| Fourth* | Two-Dimensional shape (2-D)* |
| Half* | Three-Dimensional shape (3-D)* |
| Hexagon* | Vertex or Corner* |
| Parallel Lines |

**Additional terminology that students might need support with:** actual, actually, identify, information, problem solving, strategies, plus, predict, prediction, slide (move over)

Standards listed in **bold** indicate a focus of the lesson.

### Module 1-Session 1: What’s in the Box?

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<th>Big Idea Mathematical Development</th>
<th>Instructional Clarifications &amp; Considerations</th>
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</table>
| 1.MD.4 1.G.1 | Access Prior Learning:  
  - K.G.2- Correctly name shapes regardless of their orientations or overall size  
  - October Number Corner Pattern Block Collection | Instructional NOTE:  
  - Send your Family Letter home. Find it [here](#).  
  - Consider starting a KWL chart to pre-assess the misconceptions that students might have about shapes. Do not correct these misconceptions at this time but use this chart as an opportunity for classroom discourse throughout the unit.  
  - The [pattern block web app](#) will be useful throughout this unit. |
| MP.1 MP.7 | Developing the Big Idea:  
  Students will deepen their understanding of the relationship between shapes by organizing two dimensional shapes by attributes. This requires | -continues on next page- |
### Module 1 - Session 2: Shape Sorting with Attribute Cards

**1.MD.4 1.G.1**  
**Access Prior Learning:**  
- K.G.2: Correctly name shapes regardless of their orientations or overall size  
- October Number Corner Pattern Block Collection

**1.G.2**  
**MP.4 MP.7**  
**Developing the Big Idea:**  
Students will deepen their understanding of the relationship between shapes by organizing two-dimensional shapes by attributes. This requires students to analyze and describe shapes by noticing their differences and similarities, and identifying the attributes that define shapes and ones that do not. This will also provide experiences to support students in movement into the Van Hiele Level 1 of understanding.

**Instructional NOTE:**  
- This lesson presents opportunities to discuss triangles and might bring out the misconceptions. Some students might believe triangles need to be equilateral or have a horizontal base parallel to the bottom of the page. Exposing students to varying triangles such as isosceles and scalene triangles might prevent this misconception from forming. (Students do not need to know the terms isosceles and scalene).  
- This lesson will add to their vocabulary to describe shapes by introducing the idea of straight and curved sides and closed shapes with no holes or gaps.  
- Another misconception that might arise is the orientation of a shape as a defining attribute (shape is “tipped” on its corner).  
- Allow misconceptions to present themselves for rich classroom discussion. Making a statement like “Color doesn’t matter” before students have a chance to discuss their thoughts can limit discussion and student growth. It is the discovery and the classroom statement like “Color doesn’t matter” before students have a chance to discuss their thoughts can limit discussion and student growth. It is the discovery and the classroom discussion that fosters the growth, not the direct explanation. “Students with a growth mindset have more positive brain activity when they make mistakes, with more brain regions lighting up and more attention to and correcting of errors.” (Moser et al., 2011, pp. 1484-1489).

**Enrichment:** See Extension in the margin (p. 16)

**Child Watching:**  
- Observe for students who think that a shape’s color or size is a defining attribute. Address this through questioning and classroom discourse techniques.

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### Module 1 - Session 3: Last Shape in Wins

**1.G.1 1.G.2**  
**Access Prior Learning:**  
- K.G.2: Correctly name shapes regardless of their orientations or overall size  
- K.G.6: Compose simple shapes to form larger shapes

**MP.1 MP.7**  
**Developing the Big Idea:**  
Students will deepen their understanding of the relationship between shapes by discussing the hexagon and comparing it with other two-dimensional shapes by attributes. The shape puzzle games require students to use strategy and visual spatial skills to determine what shapes will fit. Students will begin to discover that some of the pattern block shapes take up more area than others. Students will also develop an understanding of composing or decomposing shapes. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**  
- See the online digital Work Place game: Last Shape In Wins (Copy and paste)  
  https://bridges.mathlearningcenter.org/digital-materials/work-place-5a-last-shape-wins
- See the Work Place Sentence Frames for Unit 5 [here](https://bridges.mathlearningcenter.org/digital-materials/work-place-5a-last-shape-wins).
- Last Shape in Wins is recommended as a Work Place grade to enter in Infinite Campus (see Q3 Grading suggestion document).
- These lessons are heavy in vocabulary. Remember to utilize the Vocabulary Resource Cards, post them and review them.
- Read the Math Practices in Action in the margin (p. 22)

**Enrichment:** See the Game Variations on Work Place Instructions (p. T5)

**Child Watching:**  
- Observe for students unsure of the names of the shapes or having difficulty telling them apart (See p. T4 for support).

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### Module 1 - Session 4: Pattern Block Puzzles: How Many Ways?

**1.G.1 1.G.2**  
**Access Prior Learning:**  
- K.G.2: Correctly name shapes regardless of their orientations or overall size  
- K.G.6: Compose simple shapes to form larger shapes  
- Previous Sessions in Unit 5

**MP.7**  
**Developing the Big Idea:**  
Students will develop their understanding of the relationship between shapes by using pattern block puzzles. This requires students to analyze and describe shapes by noticing their differences and similarities, and identifying the attributes that define shapes and ones that do not. This will also provide experiences to support students in movement into the Van Hiele Level 1 of understanding.

**Instructional NOTE:**  
- See the online digital Work Place game: Pattern Block Puzzles (Copy and paste)  

**Enrichment:** See the Assessment and Differentiation Chart on Work Place Guide (p. T6)
Module 1 - Session 5: There's a Shape in My Pocket

**Access Prior Learning:**
- K.G.2 - Correctly name shapes regardless of their orientations or overall size
- K.G.5 - Compose simple shapes to form larger shapes
- Previous Sessions in Unit 5

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by discussing the rhombus and comparing it with other two-dimensional shapes by attributes. The activity requires them to analyze shapes by noticing the differences and similarities and identifying the attributes that define the shapes. Students will also continue to develop an understanding of composing or decomposing shapes. The idea of 3 triangles fitting into a trapezoid shape etc. begins building the idea of parts and wholes. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Tune into the idea students might present that a rhombus is a diamond. This is a misconception that students might have picked up through media or other sources. Address this by reinforcing that a diamond is a type of rock, not a shape. Note: A square is both a rhombus and a rectangle.
- For teacher knowledge, every rhombus is a kite. However, not every kite is a rhombus. A rhombus is an equilateral with all four sides equal length. A kite has one pair of adjacent sides equal in length and a second pair of equal lengths. This doesn't need to be shared with students at this time, but it is good background information to know.

**Enrichment:** See the Extension activity in margin (p. 38)

**Child Watching:**
- Observe for students focusing on the faces of the objects, calling a cube a square, and correct the terms consistently
- Observe for students using vocabulary to describe the shape attributes.
- Observe for students focusing on the faces of the objects, calling a cube a square, and correct the terms consistently

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Module 2 - Session 1: Shape Detectives

**Access Prior Learning:**
- K.G.1 - Describe objects in the environment using names of shapes
- K.G.2 - Correctly name shapes regardless of their orientations or overall size
- K.G.3 - Identify shapes as 2-D or 3-D
- K.G.4 - Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by discussing two-dimensional shapes and three-dimensional shapes by attributes. The activity requires students to analyze shapes by noticing their differences and similarities and identifying the attributes that define the shapes. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Read the About This Session in the margin (p. 4)
- To prevent misconceptions, think of two-dimensional shapes as an image, shadow or a drawing. The minute you cut out a shape from paper, mathematically there is a very minuscule edge to the paper, although the depth of this “side” is so marginal, there is in fact depth. Consider for this lesson just drawing a circle (or rectangle) on a piece of paper as opposed to actually cutting it out.
- Conversation around the image of the three dimensional shape on the card might need to occur. Show how the artist tries to represent all the sides in the image but address the fact that an artist cannot show all the sides at one time either, but the sides are still there. Also, the artist shows a sphere as 3-dimensional by drawing or shading a shadow to show depth.

**Enrichment:** See the Extension activity in margin (p. 6)

**Child Watching:**
- Observe for students using vocabulary to describe the shape attributes.
- Observe for students focusing on the faces of the objects, calling a cube a square, and correct the terms consistently

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Module 2 - Session 2: Mystery Bag Sorting

**Access Prior Learning:**
- K.G.1 - Describe objects in the environment using names of shapes
- K.G.2 - Correctly name shapes regardless of their orientations or overall size
- K.G.3 - Identify shapes as 2-D or 3-D
- K.G.4 - Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe
- Previous lesson

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 9)
- See the Extension activity in margin (p. 10)

**Child Watching:**
- Observe for students using vocabulary to describe the shape attributes.
- Observe for students focusing on the faces of the objects, calling a cube a square, and correct the terms consistently

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Module 2- Session 3: Shape Walk

Access Prior Learning:

- K.G.1- Describe objects in the environment using names of shapes
- K.G.2- Correctly name shapes regardless of their orientations or overall size.
- K.G.3-Identify shapes as 2-D or 3-D
- K.G.4-Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe.
- Previous lesson

Developing the Big Idea:
Students will deepen their understanding of the relationship between shapes by discussing three-dimensional shapes by attributes. The activity requires students to analyze shapes by noticing their differences and similarities and identifying the attributes that define the shapes. This will provide experiences to support students in movement into the Van Hiele Level 1.

Instructional NOTE:
The following information is intended for teacher background knowledge. Teachers should model precise mathematical language for students to hear, however, students are not expected to use formal names such as “right circular cylinder.”

- Students are likely to generalize shapes in the real world, or have misconceptions. For example, they might select a water bottle as a cylinder. Mathematically a plastic water bottle with hourglass curved face and/or ridges is not truly a cylinder. However, use this as an opportunity to discuss the attributes by posing a question such as; “What attributes does this water bottle have that make you say it is a cylinder?” Honor student thinking and student discovery, while pointing out the attributes, such as the lip on the lid, or the ridges that make it a non-example. Place 3-dimensional solids next to the object for comparison. There are many types of water bottles in a school setting. Some of them will be true (right circular) cylinders, whereas some might not be. See pictures. Note that a straw is another non-example of a cylinder because it does not have bases. Other non-examples of right circular cylinders include soda cans and some containers of canned food. The standard states: 1.G.2-compose 2-D or 3-D shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) (NVACS, 2010). There are other types of cylinders and cones. It is not necessary to name them or have students identify them. It is only necessary for them to distinguish the attributes that make a true right-circular cylinder and identify when a solid is a non-example.

- Non-examples for right circular cones include: Traffic cones (it has a lip), ice cream cones (it has no base), party hat (it has no base), teepee (no base and not a culturally responsive example). Validate students reasoning of approximate objects (a glue stick is like a cylinder, however; it has only one solid base).

- It is a difficult task to find many great examples, so spend the time addressing why a shape doesn’t meet the criteria. Perhaps the Shape Walk becomes more of a “Finding the Rare Shape Hunt” and a celebration occurs if an accurate example is found.

Enrichment: See the Extension activity in margin (p. 13)

Child Watching:

- Observe for students finding non-examples of the solids and ensure you help them discover the different attributes that make it a non-example.

Module 2- Session 4: Cube Studies

Access Prior Learning:

- K.G.1- Describe objects in the environment using names of shapes
- K.G.2- Correctly name shapes regardless of their orientations or overall size.
- K.G.3-Identify shapes as 2-D or 3-D (this includes cubes)
- K.G.4-Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe.
- Previous lesson

Instructional NOTE:

- Be sure to include an orange pattern block. Although this is actually a rectangular prism, it has two square faces and can be easily confused with a cube. When a student pulls this solid out of the bag, capitalize on the opportunity to discuss the differences.

- A unifix cube is a non-example of a cube due to the protruding affixation feature and the open face.

Enrichment: Work Place Guide Assessment & Differentiation chart (p. T1)

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### Module 2 - Session 5: Four Triangles & One Square

**1.G.1**

**1.G.2**

**MP.4**

**MP.7**

**Access Prior Learning:**
- K.G.3-Identify shapes as 2-D or 3-D
- K.G.4-Analyze and compare 2 and 3-D shapes in different sizes and orientations using informal language to describe
- Previous lesson
- Kindergarten students had limited exposure to pyramids, so this content will be new information

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by composing a large square out of 9 smaller squares building a pyramid. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Although students will be building pyramids with 4 triangles and a square, pyramids can be made with other shapes as the base.
- The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for this checkpoint (p. 51). It can also be downloaded from the site and scores can be entered digitally to create a color coded spreadsheet. [https://bridges.mathlearningcenter.org/implementation](https://bridges.mathlearningcenter.org/implementation) Click the link labeled “assessment tools” on the right hand side of this webpage.
- Read the Math Practices in Action in the margin (p. 26)

**Enrichment:** See the Extension activity in margin (p. 26)

**Child Watching:**
- Use the scoring guide to assess students and inform your instruction.

### Module 3 - Session 1: Nine-Patch Inventions

**1.OA.6**

**1.G.1**

**1.G.2**

**MP.2**

**MP.7**

**Access Prior Learning:**
- Activate prior knowledge about quilts, perhaps bring in an example, or show images.
- There are various suggested literature connections listed on p. 4 that can be read to the class to build background knowledge of quilting.

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by composing a large square out of 9 smaller squares building onto the part/part/whole relationship. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Make a deliberate connection to the idea the different shapes can be composed to make a whole shape, just as parts of an addition equation compose to create a sum. This supports the part/part/whole reasoning students are developing.
- The blog titled, “Four Cs Digital Learning & Bridges” helps take this lesson to the next level to support the 21st Century learning environment, using the Number Frames App. [https://bridges.mathlearningcenter.org/implementation/blog/four-cs-digital-learning-bridges](https://bridges.mathlearningcenter.org/implementation/blog/four-cs-digital-learning-bridges)

**Child Watching:**
- Observe for students making connections to the parts and wholes (e.g. 3 and 6 are both parts to the whole of 9).

### Module 3 - Session 2: Nine-Patch Mini-Quilts

**1.G.2**

**MP.6**

**MP.7**

**Access Prior Learning:**
- Activate prior knowledge about quilts, perhaps bring in an example, or show images.
- There are various suggested literature connections listed on p. 4 that can be read to the class to build background knowledge of quilting.
- Previous lesson

**Developing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by composing a large square out of smaller squares building onto the part/part/whole relationship. This will provide experiences to support students in movement into the Van Hiele Level 1.

**Instructional NOTE:**
- Read the About This Session in the margin (p. 8)
- This session’s value is in moving complex shapes around and combining them using the quilt as a context. “As students combine shapes, they continue to develop their sophistication in describing geometric attributes and properties and determine how shapes are alike and different, building foundations for measurement and initial understandings of properties such as congruence and symmetry” [K-5 Progression on Geometry, pp. 8-9].
- Emphasize Math Practice 7 in this lesson and help students look for and make use of structure.

**Child Watching:**
- Observe for students experimenting with the ideas and seeing results of combined shapes. How are they making sense of structure and using it?

### Module 3 - Session 3: Sandwich Fractions

**1.G.1**

**1.G.3**

**Access Prior Learning:**
- Kindergarten students were not exposed to fractional parts, only the idea of composing shapes with smaller shapes. K.G.6-

**Instructional NOTE:**
- Read the Math Practices in Action in the margin (p. 15)

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<th>Compose simple shapes to form larger shapes</th>
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<td>Developing the Big Idea:</td>
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<tr>
<td></td>
<td></td>
<td>Students will deepen their understanding of the relationship between shapes by partitioning a large square into smaller equal fractional pieces, and giving a name to those pieces building onto the part/part/whole relationship.</td>
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- “students learn to intentionally compose and decompose plane and solid figures building an understanding of part-whole relationships as well as the properties of the original and composite shapes” (K-5 Progression on Geometry, p. 8).
- Misconceptions that students might have about cutting things equally might present themselves. For example, halves must both be the same size exactly. The need to attend to precision is important here.
- Halves shaped like triangles and halves shaped like rectangles are both still the same amount if the whole was the same. Students might struggle seeing this. (In 2nd grade students will explore that halves do not need to be the same shape, yet do represent the same area).
- Research suggests “…starting work with fractions using words and not symbols…This approach of using words rather than symbols emphasizes that one half or one fourth is one number. This is an important foundation for ensuring that subsequent work in fractions is well grounded” (Small, 2014, p. 8). Therefore, when labeling and naming fractions, it is not the time to introduce ¼ with the symbol or use the numerical, instead use the word labels, one-fourth. This relieves the pressure that teachers feel to ensure students understand fraction notation. “Fraction symbolism represents a fairly complex convention that can be misleading to children. That is why it is important in grades pre-K-2 to use fraction words and postpone introducing fraction symbolism. Let children first focus on making sense of fractions without the complication of also trying to make sense of the symbolism” (Van de Walle et al., 2014, p. 256).
- The above note also removes the possibility of teachers reinforcing a common misconception that occurs when attempting to help students make sense of fractions by teaching them to think about it as 1 “out of” 4. This creates the idea that 1 and 4 are two separate numbers and that there are 4 wholes, when in fact a fraction itself a number that represents parts of a whole not four wholes. The standards state “…describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares” (NVACS, 2010, 1.G.3). This is different than saying 2 "out of" four, because the term “shares” reinforces the idea that it is a piece of a whole.
- Even though the materials suggest labeling the parts with ½ or ¼, label these with just the words one-half or one-fourth—not the symbol. Reinforce the idea of fractions as numbers by counting them using the language one-fourth, two-fourths, three-fourths, four-fourths.

Enrichment: Ask students to find as many ways as they can to represent fourths. There are several ways students can do this beyond the typical squares and triangles. Consider the possibilities of mixing these ideas as well; perhaps one side is cut into bars, and the other side is cut into squares. This online game, Thirteen Ways of Looking at a Half would be a great tool to enrich as suggested by the Bridges educator site.

Child Watching:
- Observe for students’ struggling with precision resulting in sizes that are not equal

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### Module 3- Session 4: Paper Pizzas

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<th>1.G.3</th>
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<td>Kindergarten students were not exposed to fractional parts, only the idea of composing shapes with smaller shapes. K.G.6- Compose simple shapes to form larger shapes</td>
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Developing the Big Idea:

Students will deepen their understanding of the relationship between shapes by partitioning a large square into smaller equal fractional pieces, and giving a name to those pieces building onto the part/part/whole relationship.

Instructional NOTE:

- See the notes above about fraction labeling. Even though the materials suggest labeling the parts with ½ or ¼ label these with the words “one-half” or “one-fourth,” not the symbol. Reinforce the idea of fractions as numbers by counting them using the language one-fourth, two-fourths, three-fourths, four-fourths.
- Students might want to refer to pieces of a pizza in fourths or smaller as triangles. This is a misconception, as they are not triangles due to the curved side. If this comes up, show a triangle shape and compare with the slice of pizza to highlight the differences.
- Reinforce the “name” you have given the piece as being called a one-fourth slice.
- Encourage students to attend to precision as they cut.

Enrichment: See Step 12 (p. 20)

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### Module 3- Session 5: Fraction Bingo

**Access Prior Learning:**
- Kindergarten students were not exposed to fractional parts, only the idea of composing shapes with smaller shapes. K.G.6 - Compose simple shapes to form larger shapes
- Previous lessons

**Securing the Big Idea:**
Students will deepen their understanding of the relationship between shapes by partitioning a large square into smaller equal fractional pieces, and giving a name to those pieces building onto the part/part/whole relationship.

**Instructional NOTE:**
- The fraction bingo cards do have the symbol ½ etc. written on the cards. It is okay to leave this, however, take a sharpie and add to the card the words one-half or halves to reinforce the standard.

**Enrichment:** See the Extensions in the margin (p. 24).

**Child Watching:**
- Observe for students’ use of language. Are they counting fractional parts with the terms one-half, two-halves?
- Observe for understanding of the “whole.” You can assess this by frequently asking, “What is the whole?”

### Module 3- Session 6 & 7: Unit 5 Assessment, Part 1 & Part 2 (spread over 2 days)

**Access Prior Learning:**
- Kindergarten students were not exposed to fractional parts, only the idea of composing shapes with smaller shapes. K.G.6 - Compose simple shapes to form larger shapes
- Previous lessons

**Securing the Big Idea:**
Most students should be able to show their level security in the big idea of shapes and their relationships to one another, including identifying 2 and 3-D shapes, composing and decomposing shapes. If your students have not secured these ideas, there will be another opportunity to secure them in April Number Corner.

**Instructional NOTE:**
- The Assessment Binder under the Bridges Unit Assessment tab provides the scoring guide for the for Unit 4 Assessment (p. 56). It can also be downloaded from the site and be entered digitally to create a color coded spreadsheet. [Click the link labeled “assessment tools” on the right hand side of this webpage.](https://bridges.mathlearningcenter.org/implementation)
- The Grade 1 Assessment Map in the Assessment Binder under the Overview tab (pp. 13-15) identifies the Geometry Standards as targeted for mastery (secure understandings). That being said, if students are still struggling, consider using the next module as time to provide intensification, and support. Also note that April Number Corner will revisit these standards.

**Child Watching:**
- Use the Scoring Guide to inform your instruction. If any students are not secure, consider pulling for small group support throughout the next week.

### Module 4- Session 1: Shape Riddles

**Access Prior Learning:**
- The lessons in the unit leading up to this have provided students with many shape experiences that they will draw upon during this lesson
- Students have engaged in using nets to build other 3D shapes in previous Work Places

**Securing the Big Idea:**
Most students should be able to show their level of security in the big idea of shapes and shapes relationships to one another by using students’ knowledge of shape attributes and comparing shapes to identify the mystery shape.

**Instructional NOTE:**
- The online digital resource for this work place, Shape Riddles is found at [https://bridges.mathlearningcenter.org/digital-materials/session-1-shape-riddles](https://bridges.mathlearningcenter.org/digital-materials/session-1-shape-riddles)

**Enrichment:** See Assessment & Differentiation Chart on the Work Place Guide (p. T3).

**Child Watching:**
- Observe for the language students use when discussing shapes. Begin thinking about which students are in Van Hiele Level 0 and describing shapes as "boxes" or "cicles." Observe which students are in Van Hiele Level 1 and are using the language of geometry, describing shapes by their attributes.
- Observe for understanding of the “whole.” You can assess this by frequently asking, “What is the whole?”

### Module 4- Session 2: Shape Sorting & Graphing

**Access Prior Learning:**
- K.MD.1 - Describe and compare measurable attributes of objects such as length or weight
- K.MD.2 - Directly compare two objects with a measurable attribute in common to see which object has “more of”/"less of" the attribute and describe the difference.
- Students engaged in sorting and graphing in the previous unit with their height measurements

**Instructional NOTE:**
- Shape Sorting and Graphing is recommended as a Work Place grade to enter in Infinite Campus (see Q3 Grading suggestion document).
- Read the Math Practices in Action in the margin (p. 9)

**Enrichment:** Work Place Game Variations (p. T8).

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### Module 4 - Session 3: More Shape Riddles

<table>
<thead>
<tr>
<th>Access Prior Learning:</th>
<th>Instructional NOTE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.G.1 MP.1 MP.7</td>
<td>Enrichment: Open ended possibilities for students to create their own riddles for others</td>
</tr>
<tr>
<td><strong>Securing the Big Idea:</strong> Most students should be able to show their level security in the big idea of shapes and shapes relationships to one another by using students’ knowledge of shape attributes and comparing shapes to identify the mystery shape.</td>
<td><strong>Child Watching:</strong> Observe for the language students use when discussing shapes. Begin thinking about which students are in Van Hiele Level 0 and describing shapes as “boxes” or “icicles.” Observe which students are in Van Hiele Level 1 and are using the language of geometry, describing shapes by their attributes. Observe for students’ reasoning and deduction skills as they eliminate shapes that don’t fit the clue.</td>
</tr>
</tbody>
</table>

### Standards listed in **bold** indicate a focus of the lesson.

### References


