

Dr. Ray's Sample 5E Math Lesson/Activity Plan for Field 1

Lesson components shaded gray are opportunities for you to show me what you know!

Name: Dr. Ray Section: 2

Date Submitted: _____ Date Taught: _____

Title of Lesson: Who Am I? Grade Level: 2nd

Establishing the Lesson Framework

Texas Essential Knowledge & Skills (TEKS):

Content – 2.8.C The student is expected to: classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices.

Process – 2.1.D The student is expected to: communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.

Content Objective: The second-grade student will describe polygons with 12 or fewer sides based on their attributes such as the number of sides and number of vertices.

Language Objective(s): The second-grade student will identify and verbally state the attributes of polygons. The second-grade student will also describe and identify shapes using real-life examples.

Rationale:

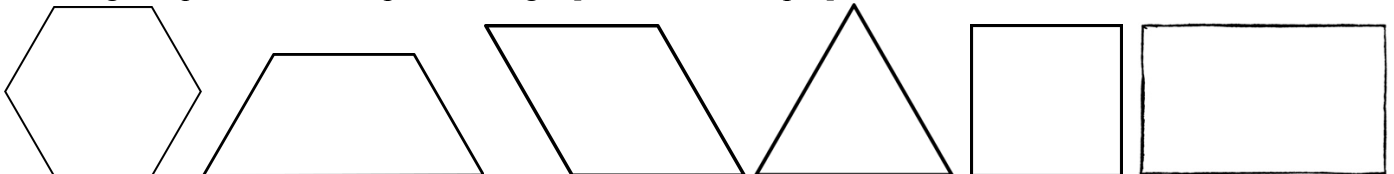
Designing Supportive Learning Environments

Planning Resources:

- This lesson is adapted from a lesson provided on the [Annenberg Learner](#) website.
- Reys, R., Lindquist, M.M., Lambdin, D.V., & Smith, N.L. (2012). *Helping Children Learn Mathematics* (10th ed.). Hoboken, NJ: John Wiley & Sons, Inc.

Materials for Lesson:

- Brown lunch sack filled with the following shapes: Pattern blocks – hexagon, trapezoid, rhombus (blue), triangle, square; Other shape – rectangle [I used foam shapes]



- Larger copies of the above shapes (for Anchor Chart)
- White boards and dry erase markers (1 per student)
- Anchor Chart/Whiteboard space with the following table prepared

Shape	Name	Number of Sides	Number of Vertices	Real-Life

- Markers for Anchor Chart
- Post-its (1 per student)
- Pencils (1 per student)

Classroom Arrangement/Student Groupings:

Safety Concerns (if applicable):

Student Needs/Adaptations:

STUDENT	CONTEXTUAL FACTOR	STUDENT NEED/ADAPTATION
Student A		
Student B		
Student C		

Content Knowledge

Prerequisite Skills:

Possible Errors/Misconceptions:

Content Connections:

Instructional Strategies – 5E Model for a Math Lesson/Activity

INTRODUCTION																																							
Engage Time Allowed: 4 min. Description of Activity: ○ Before the start of the small group activity, be sure you have all materials (brown sack with shapes, larger copies of shapes [hidden from view of students], individual white boards and dry erase markers) and you have constructed the anchor chart below: <table border="1"> <thead> <tr> <th>Shape</th><th>Name</th><th>Number of Sides</th><th>Number of Vertices</th><th>Real-Life</th></tr> </thead> <tbody> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table> ○ Once you are prepared, gather students for small group time at the kidney table in the back of the room. ○ The teacher will say: “Let’s get started on our small group math time today! First, I want to ask you, what do you think might be in my brown sack?”					Shape	Name	Number of Sides	Number of Vertices	Real-Life																														
Shape	Name	Number of Sides	Number of Vertices	Real-Life																																			
Evaluate The teacher asks students to guess what is in the brown sack. For the first round of questioning, the teacher is assessing students’ current attention or attitude. The teacher can determine which students might need additional encouragement to participate or engage in the lesson activity. For the second and third round of questioning (feeling in sack, looking at contents of sack), the teacher is listening for some of the following																																							

○ Show the sack to students and gather students' verbal responses. ○ After each student has shared, the teacher will say: "Those are all interesting guesses! Now, I want each of you to place your hand in this sack and feel around without raising your hand out of the sack. Don't say anything out loud!" Let each student take a turn placing their hand in the sack and feeling around inside. ○ After each student has a chance to feel inside the bag, the teacher will ask: "Do you have any new guesses about what is in the sack?" ○ After each student has a chance to share, the teacher will say: "Let's see what's in the sack!" ○ Pour the contents of the sack out onto the table. The teacher will ask: "Were any of our guesses correct or close? Do you know what these are?"	vocabulary in students' responses: Shapes, Pattern Blocks, Triangle, Square, Rhombus, Trapezoid, Hexagon, Rectangle. The teacher can informally see which terms students are familiar with from Kinder/1st grade.
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INSTRUCTIONAL PROCEDURE

Explore & Explain

Time Allowed: 20 min.

Description of Activity:

Creating an Anchor Chart (8 min.)

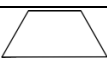
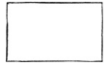
- Ask each student to pick one shape from the 6 shapes. The teacher will gather the remaining shapes.
- Pull out or display the anchor chart. The teacher will say: "I'm curious what you already know about the shapes in our sack. For your shape, I want you to share the name of your shape, the number of sides, and the number of vertices. If you need help, you can ask a friend in the group. I will go first with one of my shapes."
- Model discussing the shape (ex: triangle), by naming the shape (ex: Triangle), identifying the number of sides (ex: "I feel 3 edges or sides."), and identifying the number of vertices (ex: "I feel 3 corners or points on my shape.") Be sure to ask students for help for at least one of these aspects. Fill in the anchor chart information while sharing this information with students using the larger copies of shapes in the "Shape" column.
- Ask students: "Where do we see this shape (ex: triangles) in the real-world?" Add students' responses to the anchor chart.
- Have each student share the information about their selected shape. Once they've named the shape and identified the number of sides and vertices, be sure to ask students to prove how they know the number of sides and vertices of the objects. Also, ask: "Where do we see this shape in real-life?"
- Fill in the anchor chart as students share. For the real-life column, you can write or draw the examples. Ask students to contribute to the writing/drawing, when appropriate. Encourage students to look around the room if they are stuck on the real-life examples.

Shape	Name	Number of Sides	Number of Vertices	Real-Life <i>(examples)</i>
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Evaluate

The teacher will gather students' responses on the small group anchor chart. The teacher is listening for the vocabulary the student is using to name the shape (ex: polygon, triangle, square, quadrilateral), the number of sides (ex: edges, flat, between corners, "no bumps"), the number of vertices (ex: corner, point, tip), and real-life (ex: examples in the classroom, see list in chart to the left). The teacher will use this information to create the anchor chart and also gain insight into students that need additional support or questioning in the "Who Am I?" activity.

The teacher is taking mental note of students that need additional help from peers during the anchor chart activity. Also, the teacher is observing which shapes might be easier or more

	Triangle	3	3	Pizza, yield traffic sign, boat sail	problematic for the small group to identify from previous learning experiences as well as students' working definitions for sides and vertices. The teacher will use this information to be intentional about asking questions in the small group about shapes the students struggle with in the "Who Am I?" activity. During the "Who Am I?" activity, the teacher is looking for thumbs-up as a formative check that students have an answer for the described shape. This is both a check of participation and content knowledge. The teacher is listening for the shape describer to use vocabulary related to: sides, vertices, and the shape in real-life. Once students share their guesses, if everyone is correct, the teacher will know students are familiar with the attributes of this shape (or guessed well!). Shapes are returned to the sack to allow for multiple chances for the same shape. If students are incorrect, the teacher will ask questions about the difficult shape. This will help the teacher probe students' thinking about more difficult shapes.
	Rhombus	4	4	Kite, diamond, part of baseball field, earring	
	Hexagon	6	6	Honeycomb, nuts and bolts	
	Trapezoid	4	4	Table top, hat, bridge	
	Rectangle	4	4	Flag, card, envelope, dollar bill	
	Square	4	4	Pillow, slice of cheese, dice	
Who Am I? Activity (12 min.) - Once the anchor chart is complete, display the anchor chart so it is visible to all the small group members, and have all the students return their shapes to the brown sack. - The teacher will say: "We are now going to play a game called "Who Am I?" to see if you can identify the shapes in this sack based not on what you see but on what you feel. On your turn, you will place your hand in the sack and select one shape. Without removing your hand, feel your shape. Even if you know the name of your shape, you will not share this out loud! Instead, you must describe your shape based on what you feel or using some of the ideas we explored in our anchor chart. If you are one of the students guessing the name of the shape, once you have your guess in your head, give us a thumbs-up on your chest. Once everyone has a thumbs-up, we will share our guesses. I will go first so you can practice!" - Model selecting a shape and feeling it without removing from the bag. Remind students to show a thumbs-up once they have a guess. Describe what you feel: "This shape has 4 corners or pointy parts when I feel around it. Also, this shape feels like all the corners are the same size. When I trace around this shape, it feels like there is a short side, then a longer side, then back to a short side, then a longer side. Maybe if I had a piece of a chocolate bar in my pocket, it might feel like this shape. [ex: rectangle]" Wait for all students to have their thumbs-up. - Ask students to share their guesses. Once everyone has shared, reveal the shape. Return the shape to the sack and rotate the sack around the small group so that each student has a turn providing clues for the shape. For shapes that students struggle with, ask: "What are the most important characteristics of this shape? How is this shape similar or different from the other shapes?" Refer to anchor chart when needed.					
Elaborate Time Allowed: 8 min.					Evaluate Since the anchor chart will not be displayed

Description of Activity: Who Am I? Activity Revisited - Once each student has done a round of “Who Am I?”, the teacher will take the brown sack and share new instructions. The teacher will also take down/cover the anchor chart created earlier and pass out a white board and a dry erase marker to each student in the group. - The teacher will say: “For the second round of “Who Am I?”, you will only be able to share 2 clues about your shape. Clues could relate to the number of sides, number of vertices, what you feel on the shape, or how this shape is seen in real-life. If you are guessing the name of the shape, instead of keeping the name in your head, you will draw and write the name of your shape on your white board. The goal is for everyone to draw the correct shape. We will just be practicing writing the names of the shapes. So, once you share your 2 clues, wait until every is done writing on their white boards. We will all show our white boards and then check to see if we are correct. If EVERYONE is correct, we can remove the shape from the sack. If one of us doesn’t draw the correct shape, the shape goes back into the bag. This round of “Who Am I?” is a bit more difficult than the last round because you can only share 2 clues! Who would like to go first?” - Much like before, the student volunteer will take the brown sack, reach in and grab a shape without removing their hand, and feel the shape. For this round, students can only share 2 clues. - For the first shape, the teacher should intentionally *miss* the shape drawing in order to help normalize making mistakes in this activity. - If students are guessing shapes correctly, ask: “How did you know the shape was a _____? What clue helped you the most?” - If students are guessing shapes incorrectly, ask: “Why did you guess the shape was a _____? What clue would have helped you draw the correct shape?” - The activity continues until all the shapes are removed from the bag or until it is time to wrap-up. The teacher will jot down anecdotal notes on a sticky note about which shapes return to the sack.	during this part of the activity, the teacher will gain more definite insight into students’ abilities to identify shapes and their attributes without assistance. The teacher continues to listen for the shape describer to use vocabulary related to: sides, vertices, and the shape in real-life. The teacher will use students’ drawings to assess the describers’ clues and the drawers’ identifying of shapes. The teacher will use questioning to probe deeper into students’ understandings of the shapes and their attributes. The teacher will make note of shapes that return to the sack. The teacher will keep this information on a sticky note. The teacher will use this information to determine which shapes students need additional practice with describing and/or identifying.
CLOSURE	
Time Allowed: 5 min. Description of Activity: - To wrap up the activity, have students place all shapes back into the sack and erase and pass back their white boards and dry erase markers. The teacher says: “Great job describing and identifying shapes based on their attributes today!” - The teacher will ask students: “What attributes of shapes did we talk about today in our activities? Can you tell me an example?”	Evaluate The teacher will ask summarizing questions of the small group to probe students’ understanding of attributes of shapes and their abilities to identify shapes based on attributes. This will help the teacher determine which terms the

○ The teacher will say: “To wrap-up our activity, I am going to give each of you a post-it and a pencil. Write your name at the top of your post-it. Then, you will place your hand in the brown sack one last time and select a shape. Remove your shape from the bag. On your post-it, you will write the following information: the name of your shape, the number of sides, the number of vertices, and draw a picture of your shape in the real-world.” ○ While providing these instructions, write out the instructions on one of the write boards so students can visually see. Your Name Name of your Shape Number of Sides Number of Vertices Draw a Picture of Your Shape in the Real-World ○ The teacher will say: “Once you are finished, please place your shape back in the brown sack, hand me your post-it and pencil, and you can return to your desk in the full group.”	small group needs to revisit in future meetings. The post-it responses will be used as a formal assessment to determine individual students’ abilities to identify shapes and their attributes and show how we see shapes in the real-world. The teacher will use this assessment to determine which individual students might need additional time and practice identifying and describing these types of polygon shapes.
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