

## Math Lesson Plan

Grade: 2		Subject: Math
Materials: Geoblocks J and P, student activity book p. 95, materials from session 1.2 and 1.3, task cards from session 1.2, 4 Geoblocks (including "s"), and chart: "What we know about this shape"		Technology Needed: N/A
<b>Instructional Strategies:</b> ⌘ Direct instruction ⌘ Peer teaching/collaboration/cooperative learning ⌘ Guided practice ⌘ Visuals/Graphic organizers ⌘ Socratic Seminar ⌘ PBL ⌘ Learning Centers ⌘ Discussion/Debate ⌘ Lecture ⌘ Modeling ⌘ Technology integration ⌘ Other (list)		<b>Guided Practices and Concrete Application:</b> ⌘ Large group activity ⌘ Hands-on ⌘ Independent activity ⌘ Technology integration ⌘ Pairing/collaboration ⌘ Imitation/Repeat/Mimic ⌘ Simulations/Scenarios ⌘ Other (list) Explain:
Standard(s) 2.G.1: Identify trapezoids, rhombuses, pentagons, hexagons, octagons, parallelograms, quadrilaterals, cubes, spheres, cylinders, cones, triangular prisms, rectangular prisms  <b>Objective(s)</b> By the end of this lesson students will be able to identify a 3-D shape by its attributes, develop geometric vocabulary to describe and compare defining attributes of 3-D shapes and their 2-D faces, make a 2-D representation of a 3-D shape, attend to features of 3-D shapes, particularly the number and shapes of faces and match a 3-D shape to a 2-D image of its faces by expanding and putting to practice knowledge gained throughout the week by creating their own Geoblock task cards and working with a partner to find the best fit.  Bloom's Taxonomy Cognitive Level: Remember, understand		<b>Differentiation</b> Below Proficiency: Some students may need help understanding that the drawing only represents two sides of the block. If needed, students will be able to work with a smaller subset of blocks.  If students are having difficulty understanding the task, I will have them choose a few blocks and trace two of the faces. I will demonstrate how the block has more than two faces, but two of them fit to those drawn on the page.  Above Proficiency: I will encourage students to draw two sides that they know will match more than one block.  Approaching/Emerging Proficiency: Students will be expected to follow the directions listed and complete tasks with their second grade bests. I will be available to help if needed.  Modalities/Learning Preferences: Visual: Anchor chart to allow students a visual
<b>Classroom Management- (grouping(s), movement/transitions, etc.)</b> - Students will raise their hand when wanting to answer a question.  -Students will talk at a level 1 when answering questions.  -Students will move around the room respectfully and quietly  -Students will stay in their desks during work time.		<b>Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)</b> -Students will be respectful when holding the Geoblocks  -Students will work together, equally pulling their weight when doing their assignment  -During discussions, students use appropriate language and volume, raise their hands instead of blurt and give others a chance to speak.
Minutes	Procedures	
2	Set-up/Prep: -Take out blocks and sort them for each group -Ensure that all task cards and sheets needed are printed and accessible	
5	Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.) I will show students Geoblock J (rectangular prism) and ask them to describe the shapes of the faces; together, count the total number of sides. I will then ask a student to volunteer and point out one pair of faces that are exactly the same. I will ask another student to point out another pair of faces that are the same. Finally, I will ask a third student to point out the third pair of faces that are the same.  “The rectangular prism has six faces. They are all rectangles. Our friends just showed us the pairs of faces that are the same. When two shapes are exactly the same, mathematicians say they are congruent. Can everyone say congruent? This rectangular prism has 3 pairs of congruent faces.	
10	Explain: (concepts, procedures, vocabulary, etc.)	

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	<p>“Who remembers earlier in the week when we did Find the Block? Good. This activity is going to be similar to Find the Block. In this activity we are going to make a task card by tracing only some of the faces of a block, and then challenging our partners to figure out which block is a match. You have been finding which Geoblock matches the pictures on the task cards. Now you will have a chance to make your own task card. You can either draw two different faces or you can draw two faces that are congruent. Can anyone remind me what congruent means?” *Allow students time to remember. They should say that congruent means that two objects are the same.*</p> <p>I will display the worksheet S23 and Geoblock P. “I have chosen Geoblock P which is a triangular prism.” I will use the white board to show students how to trace one face that is a triangle and one face that is a square. “You can choose any two faces to trace, even congruent faces. Kapeesh?” Students: “Kaposh.”</p> <p>“You and your partner will need to secretly choose a Geoblock. Then you will need to choose two faces of your block to trace in the space of your page labeled Block 1. After you draw the faces, put the block back in the bin. Choose another block and do the same for Block 2. I would like 2 friends to come up and demonstrate what it looks like to sit near your partner.”</p> <p>I will call on 2 students and ask them to sit back to back as they draw the two faces of their Geoblocks. They cannot be touching and they must be wearing their masks.</p> <p>“When you are both finished, switch papers. Look very carefully at the faces and then try to find a block that could fit both of the faces for Block 1. The block needs to match exactly. Several blocks include a face that is triangular but they don’t match if they’re larger or smaller than the triangle on the paper. It’s like Cinderella’s glass slipper. It has to fit.</p> <p>“We know that our blocks might have one face that fits, but what if we find more than one shape that fits both faces? Do you think that is possible? Raise your hand if you do.” *Allow time to see what students think. “I bet that you are right. So everyone needs to look carefully at the related blocks and be able to explain why they are similar and why they are different.</p>
30	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</p> <p>“I am going to explain the next part of the lesson. Please listen closely because this is important. Everyone is going to choose a Geoblock that I will bring to you. You are going to sit facing away from your partner and you are going to choose a Geoblock secretly. On page 95 of math journal you will find a page titled Trace a Face. It looks like this (I will hold up an example page). In the Block 1 section you are going to choose a shape and draw two faces of your secret Geoblock. You do not want your partner to see. You’re acting like a spy. When you are done, you can choose a second Geoblock but it has to be different. You may not do the same one twice. When you are drawing your Geoblocks, please use a regular pencil. You are allowed to trace the face of the blocks, but I would be sad if there was any colors on the blocks.</p> <p>“Does anyone have any questions?” *Allow time for questions.* “Alright. Please take our your math journals and I will partner everyone up.</p>
15	<p>Review (wrap up and transition to next activity):</p> <p>Key focus points for discussion:</p> <ul style="list-style-type: none"> <li>-Attending to features of 3-D shapes, particularly the number and shapes of faces</li> <li>-Matching a 3-D shape to a 2-D image of its faces</li> </ul> <p>“You have been thinking a lot about 2-D shapes and 3-D shapes. Take a look at the Find the Block Task Card and think about what you know about the 3-D shape just by looking at these polygons.”</p> <p>I will display Find the Block Task Card 6. Students will have a few minutes to study the card and turn and talk to their partner about what they know about the shape that is represented by the card.</p> <p>As observations are offered, I will ask students to raise their hand if they had the same idea as well. This will allow me to acknowledge the thinking of many students at one time. I will ask a volunteer to indicate the attribute on the Task Card.</p> <p>Student 1: “The shape has five faces.” Teacher: “How many of you also identified that attribute? What information on the Task Card shows that the shape has 5 faces?” I will record this information on the “What we know about this shape” chart, and then ask for another observation.</p> <p>Student 2: “The shape has two faces that are triangles.” Teacher: “Class, do you agree? Where do you see that on the card?”</p> <p>I will continue accepting observations, asking students to verify each by indicating whether they agree and indicating on the card how they know. I will record each on the chart so that I am describing the block as completely as possible. If no one mentions that some of the sides are congruent, I will ask students about that.</p>

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“Can you tell by looking at the card whether this shape has any faces that are congruent, or exactly the same? Which ones? Is there one pair of congruent faces? More than one?”  
 I will have students volunteer to point to the congruent faces on the task card. Finally, I will ask students to visualize the 3-D shape they just described.  
 “You know a lot about this shape. Close your eyes and see if you can picture the Geoblock that matches your description. Think about the number and shapes of the faces and about which ones are the same. See if you can picture how the faces come together to from an edge or a vertex.”  
 When students are not looking, I will display the four Geoblocks that I have chose, including the one (Geoblock S) represented by Task Card 6.

“Now take a look at these 4 shapes. Can you tell right away which one matches the image in your mind, the written description, and the image on the card?”  
 I will briefly have the students share how they knew which Geoblock matched the Task Card.

If time permits, I will repeat using a different Task Card.

**Formative Assessment:** (linked to objectives)  
 Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.  
 Students attend to the two-dimensional representation of two faces of a 3-D shape. As I observe the students' work, I will note the following:

- Can students accurately trace the two faces of the Geoblock?
- How do students choose a Geoblock? Do they work systematically, first choosing blocks that have one matching face and then trying to match the second face? Or do they use trial and error to match each block to the traced faces?
- If there is more than one Geoblock that matches the two faces, can they find them all?

**Consideration for Back-up Plan:**

**Summative Assessment** (linked back to objectives)  
 End of lesson:

I will collect the students' worksheets of their Geoblock faces and note if they understood the concept or not.

If applicable- overall unit, chapter, concept, etc.:

**Reflection** (What went well? What did the students learn? How do you know? What changes would you make?):  
 My practicum teacher asked me to teach the math unit for the 2nd grade class during my practicum week. I accepted, knowing that this would be challenging for me but that it would also push me to grow as a teacher. I was able to teach out of the teachers' manual during the week, but it was a topic that I was unfamiliar with. As I was teaching, I found that my students struggled to be engaged in the material outside of the activities that I included in the lessons. Looking over this lesson plan on Wednesday night, I made the decision to not teach what I had prepared. I decided that my students would be better engaged if I tried a different approach. I found a template online for a booklet with a summary of all the information I wanted my students to know. I decided that my students would watch a short BrainPOP video on Geoblocks, participate in an activity, and then we would all create the booklet together step-by-step. I prepared all of the materials and went to practicum the next day.

The BrainPOP video on Geoblocks was a major hit with the students. It went over the major 3-D shapes I wanted them to know and it was a great way to engage them right away. The activity that we completed right after allowed students to show the knowledge they gained throughout the week and the reminder from the video. I called on several different students to come up to the board and match 3-D shapes to real life objects that were also 3-D shapes (e.g. a cube and a die). Right away, I had all of the students engaged and desiring to be part of the lesson. After the activity, we started creating the booklet on Geoblocks. This required a lot of steps and explanations. During this time I worked on my with-it-ness specifically. We did not have a lot of time and I needed to keep things moving. I felt that overall, I took what I had learned and reflected on all week and did my best with my last lesson. I know that my students learned about six different 3-D shapes, could state the numbers of their faces, edges, and vertices, and that they had a visual representation of each. I know this through the activity that we completed and the booklet that we created. Each student left the lesson with a booklet that stated the takeaway information I wanted them to have. There was a part of the booklet that we ran out of time to create, but overall the students had the important information by the end of the lesson.

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There were a lot of changes that took place regarding this lesson. I reflected a lot and I changed my plan because I thought it was best for my students. If I could change anything, I would probably avoid completely changing my plans at the last minute; however, I would do it again if I thought my students would gain more from it. Had I taught my original lesson, I doubt that my students would have been engaged. I am not sure if they would have gained as much knowledge from the original lesson as I had hoped. I believe the lesson I taught instead was the better option all around. It helped my visual learners, my hands-on learners, and it brought everything that I taught throughout the week into one place. For the lesson that I taught, I might have tried to fine tune the timing of the lesson a little better. There was a lot that we had to do in a short amount of time. I might have cut down on the introduction a little to have more time to finish the booklet. Overall, I evaluated the situation and decided that I could do better than I planned. I believe I succeeded in this, and I am pleased with how the lesson went.