

## LESSON PLAN

<b>Teacher Name</b>	Jordan Kramsky
<b>Grade Level</b>	Fourth Grade
<b>Subject/Unit</b>	Mathematics - Geometry

**Notes/Comments:**

<b>Lesson Title</b>	From Pictures to Words
<b>Brief Description</b> <i>What do the students do in this lesson?</i>	Students will use large marshmallows and pretzel sticks to create various geometric figures (both 2D and 3D). These figures will be used to review shapes and their properties (vertex, edge, face), parallel and perpendicular lines, line segments, and angle types.
<b>Goals</b> <i>What do you want the students to learn, practice, or experience as a result of participation in this lesson?</i>	<ul style="list-style-type: none"> <li>-Student will understand basic components of geometric figures.</li> <li>-Student will be able to construct geometric figures using provided materials.</li> <li>-Students will explore and manipulate the parts that make up a geometric figures.</li> </ul>
<b>TEKS/PreK Guidelines addressed</b>	<p>Teks: (111.16, B, 8, ABC)</p> <p>(8) Geometry and spatial reasoning. The student identifies and describes lines, shapes, and solids using formal geometric language. The student is expected to:</p> <ul style="list-style-type: none"> <li>(A) identify right, acute, and obtuse angles;</li> <li>(B) identify models of parallel and perpendicular lines; and</li> <li>(C) describe shapes and solids in terms of vertices, edges, and faces.</li> </ul>
<b>Materials needed</b> <i>List all of the materials needed to teach this lesson. Be as detailed as possible.</i>	<p>Large Jet Puffed Marshmallows (~25/pair)</p> <p>Pretzel Sticks (~25/pair)</p> <p>Paper Cups/Plates to hold materials</p> <p>Accompanying Worksheet</p>
<b>Preparation and set-up</b> <i>Describe how the materials should be prepared, set up, and organized. Be as detailed as possible.</i>	<p>Teacher should practice combining shapes prior to lesson.</p> <p>Teachers should prepare examples prior to class so he/she may monitor student work as they build shapes. Students will work in pairs to complete this task and groups should be pre-assigned if need be.</p>

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### Procedure

*Describe exactly what the teacher and the students do in the lesson. Be specific.*

- Teacher should begin by distributing worksheets to students before having students read the directions.*
  - Teacher should then describe the process students will be undergoing as well as answer any questions before starting.*
  - Begin by assessing students prior knowledge: Have students describe the difference between a line segment and a ray or line.*
  - Have students construct a line segment by connecting two marshmallows to a pretzel.*
  - Ask students to describe how a perpendicular line would be added to the line segment. After a pretzel is added, have students identify what was formed (right angle).*
  - Continue directing students in making a square using the pretzels and marshmallows. Have students indicate the parallel and perpendicular lines as well as the angles produced. Ask students about the number of sides/angles/lines present in the figure.*
  - Describe to the students that you are going to start making the square into a three-dimensional shape. Ask students what they would do in order to start making a cube. Once you have added the first vertical pretzel, ask students what the corner of the object is called (vertex).*
  - Continue to form figure into cube, pointing out the introduction of a face and an edge when a side is complete.*
  - Have students fill out worksheet as the figures are created.*
- Once the first figure is made and all the students have completed it. Instruct students to build the figures shown on the worksheet.*
- Shapes should include: Square > Cube > Square Pyramid*  
*Triangle > Triangular Pyramid*  
*Rectangle > Rectangular Prism*  
*Hexagon > Hexagonal Pyramid*
- Instructor should survey students work as they produce the figures and prompt them about angles/faces/edges etc. that they see.*
  - Be sure to point out acute angles (triangle/pyramids) and obtuse angles (hexagonal pyramid)*
  - Conclude lesson by grading student worksheet together as a class. Allow students to split and eat marshmallows/pretzel sticks before cleaning up.*
- Free time leftover in the lesson should be used to allow students to build any geometric figure they like.*

### Evaluation

*How will you determine that all students met the goals of the lesson?*

Students will be assessed based on the work they produce in the classroom (both in the constructed figure and their verbal responses) and by the accompanying worksheet.