Sizing Up Shapes

**General Information**

Class: Math  
Subject: Geometry  
Lesson Title: Sizing Up Shapes  
Grade Level: First Grade  
Lesson Length: two ninety minute lessons

**Purpose**

The purpose of this lesson is: The students will be able to identify, build, and name the solid shapes of cylinders, cones, and rectangular prisms.

**Objectives**

**Content Objectives**

Given specific directions to create a cylinder, a cone, and a rectangular prism using manipulatives, all students will be able to identify and name these shapes and their characteristics.

1. ELLs will become familiar with the three solid shapes.  
2. ELLs will investigate the characteristics of each solid shape by creating them using toothpicks and marshmallows.  
3. ELLS will create a shared Keynote of the three solid shapes and examples found on the Internet of real world items of each.

**Language Objectives**

Given a demonstration, all students will be able to explain the characteristics of the three solid shapes through discussions about the marshmallow/toothpick manipulatives and Keynote presentations.

1. ELLs will read the words cylinder, cone, and rectangular prism.  
2. ELLs will discuss the characteristics of each solid shape.  
3. ELLs will record information on the Keynote, using GarageBand, to explain how each real world example is actually one of the solid shapes.

**Culture Objectives**

Given a class discussion on a concept of solid shapes:

1. ELLs will pair with a native English speaking student to differentiate between a picture of a solid shape and real world examples on the Internet to create a shared Keynote project.
State Standards

North Carolina Math Competency Goal 3:
The learner will identify, describe, draw, and build basic geometric figures.
Objective 3.02 Identify, build, and name cylinders, cones, and rectangular prisms.

Teacher Materials

- wooden examples of cylinders, cones, and rectangular prisms
- toothpicks
- small marshmallows
- pipe cleaners
- play-dough/ clay
- large paper plates (1 per child)
- sentence strips
- index cards
- markers
- optional - copy of NC Strategies for First Grade Instruction - Classroom Strategies Section - Objective 3.01 - C - page 49
- one computer for every two children with Internet access
- Keynote, iPhoto, GarageBand & iTunes (Mac programs)

Activity 1 – Introduction and Schema Activation

Students will be broken into small groups (comprised of English native students and ELLs) and given several of the wooden examples of cylinders, cones and rectangular prisms. They will be asked to compare the shapes before sorting them into groups. As adults circulate, students will be asked to communicate why shapes were sorted in that manner. Then, sentence strips with the words cylinder, cone, and rectangular prism will be distributed to each group. Students will be asked to read the strips and decide how those words relate to the wooden shapes. As students answer that question in a large group discussion, the teacher will guide students to notice special characteristics like number of sides, edges and corners. It will also be important for students to notice the faces of solid shapes are plane shapes such as squares, rectangles and circles.
Activity 2 – Assignment/Activity/Demonstration

In the same cooperative groups, students will use toothpicks, small marshmallows, pipe cleaners, and/or play-dough/clay to construct each of the three solid shapes. Each group will still be in possession of the wooden shapes to give the students a concrete example to handle while they are building their solid shapes. The teacher will demonstrate what is expected by building a pyramid with toothpicks and marshmallows, all the while, talking through what is being done while comparing the wooden pyramid to the one being built so that the students see what is expected of them. Then, each student will proceed to build his/her own cone, cylinder and rectangular prism from the manipulatives of their own choosing. Groups will be encouraged to discuss what they are doing as they work. (This lesson is a suggestion in the NC Strategies for First Grade Instruction - Classroom Strategies Section - Objective 3.01 - C - page 49)

Activity 3 – Conclusion

Once a student has completed all three shapes, s/he will create labels for each using markers and index cards. Students will then display all three solid shapes with each identifying label on a paper plate on a bookshelf in the classroom or perhaps in the media center. Once a student is finished, s/he will continue to assist within the cooperative group until all members are done. When everyone has completed this exercise, the teacher will conclude the lesson by asking students what they have learned and enjoyed today.

Activity 4 – Assessment

The following day, the class will go to the computer lab. Students will work with a partner (native English and ELL) to create a Keynote. The first slide will be a title page such as Solid Shapes. It will also include the names of the group participants. The next three slides will have the same type of information on each of them with the main difference being that each page’s main topic is one of each of the solid shapes. Each group will surf the Internet to find an image of the solid shapes, for example, a cylinder. Once the desired shape has been found, it will be downloaded into iPhoto and the source cited. Then that image will be placed on the second slide. Next, they will look for two - three examples of real world cylinders to download into iPhoto and cite their sources. Those pictures will be placed on the same slide with the “real, plain” cylinder. Lastly, students will add a text box and label the page with the word cylinder. Work needs to be saved periodically. These steps will be repeated for cones and rectangular prisms. The fifth slide will be a “Works Sited” slide so that students remember the importance of giving credit for the images used. The next step is for students to open GarageBand so that together, the partners can record information about each slide such as, “A soda can and a haybale are examples of cylinders.” Then, the students will save the recording and import it to iTunes before adding it to the appropriate slide. When all projects are completed, each group will share with the class. Below is a screenshot of the suggested Keynote slide.
### Instructional Technology Used for Teaching

<table>
<thead>
<tr>
<th>Purpose for Technology</th>
<th>Point Use of Technology</th>
<th>Purpose of Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Level 5 - Student Use Only (Internet Research)</td>
<td>Rational - Students will be able to work together to use the Internet to search for examples of each of the solid shapes. They can do it one of two ways: by putting in a specific item or by putting in the solid shape and then seeing what real life items are displayed. The second way will provide a research model for students that cannot think of specific items that meet the criteria for the solid shape.</td>
<td></td>
</tr>
<tr>
<td>• Level 9 - Student-Made Resources (Audio and video podcasting, blogging, moviemaking) Creating</td>
<td>Rational - Students will be able to work together to use several different programs to create a product to display their knowledge of the three solid shapes. By using the Keynote, students can show their creativity. GarageBand and iTunes will help them narrate and demonstrate that they have grasped the concepts.</td>
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### Author Identification

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Permission to Publish: X Yes