

Algebra/Geometry Summer Institute 2006
Faculty Name: Monica O'Bryan
School: Davis Elementary, Greenwood, MS
Grade Level: Sixth



Marshmallow Geometry

1. Teaching Objective(s):

The students will:

- ⇒ Recall properties of two and three dimensional figures
- ⇒ Construct two and three-dimensional objects
- ⇒ Differentiate between faces, edges, and vertices

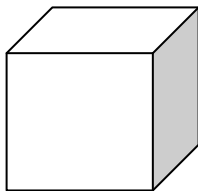
2. Instructional Activities:

- Tell the students, "Today we will continue our lesson on three dimensional figures. Tell me what we know so far about three dimensional figures." Allow time for discussion. Accept reasonable answers.

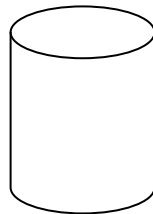
Definitions (already taught, to be discussed)

- Face – the flat surface on a three dimensional figure
- Edge – the line segment formed where two faces meet
- Vertex – the point formed where two edges meet

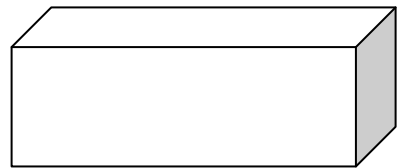
* Present geometric solids and discuss the properties.



Cube



Cylinder



Rectangular Prism

Ask: What is the difference between a three-dimensional and a two-dimensional figure? (Sample answer \Rightarrow a three dimensional object has a thickness and therefore has a volume, whereas a two dimensional figure only has length and width.)

- Discuss the movies Spy Kids and Spy Kids 3-D. Have students tell you the difference between the movies. Copy attachment #1 onto a transparency and ask students to identify which pictures are 3-D and which pictures are 2-D.

Group Projects:

The students will create 3-dimensional objects and participate in a formal presentation to the class.

The teacher will:

- show the students a square created using marshmallows and toothpicks. Ask, "How do we know that this is a square?" (Sample answer \Rightarrow it has four congruent sides because all of the toothpicks are the same length.)
- show the students a cube created with marshmallows and toothpicks. Together discuss the properties of a cube.
- * Note – the marshmallows are the vertices and the toothpicks are the edges.

The students will:

- work in groups to construct four two-dimensional objects using toothpicks and marshmallows.
- work in the same groups to construct four three-dimensional objects using toothpicks and marshmallows.
- use the models that they have created to complete the given chart. (Attachment #2)

Students will present their shapes and their information to the class.

3. Materials and References:

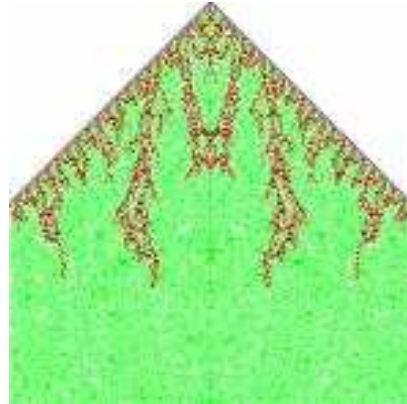
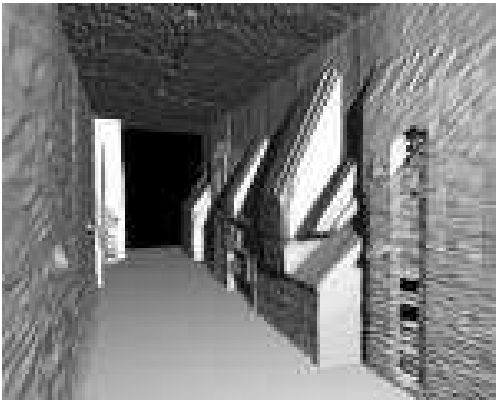
- ❖ Marshmallows
- ❖ Toothpicks
- ❖ Set of three-dimensional shapes
- ❖ Chart created by teacher
- ❖ Objects created by teacher
- ❖ Transparency
- ❖ Overhead projector
- ❖ www.google.com (pictures)

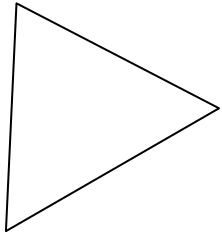
4. Assessment

The teacher will grade students on their presentations using a scoring rubric. (Attachment #3)

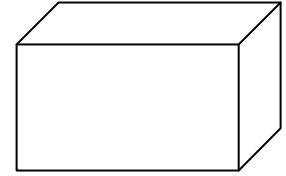
Attachment # 1

Identify which pictures are 2-D and which ones are 3-D.
(All pictures copied from www.google.com)





Attachment #2



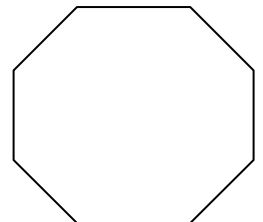
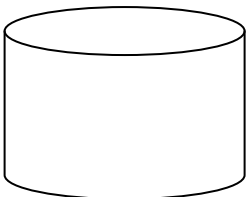
Directions: Using the figures that you have created, complete the following charts.

Two-Dimensional Objects

Name of Object	How many sides?

Three-Dimensional Objects

Name of Object	How many faces?	How many vertices?	How many edges?



Attachment #3

Scoring Rubric

Group presentation scores will be based on six different categories for a total of 50 points. The categories are as follows:

Participation from each member - _____ (5 pts.)

How well the team worked together - _____ (10 pts.)

Neatness/Organization - _____ (5 pts.)

All information is gathered and presented - _____ (10 pts.)

Creativity - _____ (10 pts.)

Overall Presentation - _____ (10 pts.)

Grade: _____