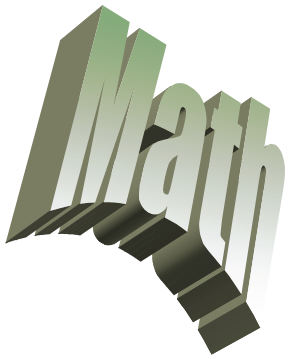
Algebra/Geometry Institute Summer 2005



Faculty Name: Darla Gist

School: Friars Point Elementary

Grade Level: 6th Grade

Lesson: Our Tangible World is Full of Dimensions

1 **Teaching objective(s) –**

Students will be able to distinguish between two dimensional and three dimensional figures. Students will be able to classify different kinds of three dimensional figures and identify the number of faces, edges, and vertices each figure has.

2 **Instructional Activities**

The teacher will begin the lesson by explaining the difference between a two dimensional figure and a three dimensional figure. The teacher will accomplish this by providing the students with a definition of a two dimensional figure and the definition of a three-dimensional figure. The students will write the definitions into their notebooks. The teacher will then talk about the world being made of three dimensional and two dimensional objects. Secondly, the teacher will provide the students with thick and thin attribute blocks. The teacher will explain that the thin attribute blocks are representative of two dimensional objects and the thick attribute blocks are representative of three dimensional objects, emphasizing length, width, and height. The teacher will then provide the students with the definitions of faces, edges, and vertices. The flat surfaces are faces, the line segments where the two faces meet are edges, and the point where three or more edges intersect to form a point is called a vertex. The students will write these definitions in their notebooks. The

teacher will then stand before the class with a thin, triangular attribute block and a thick triangular attribute block and show them the faces, edges, and vertices of each of those objects. The teacher will then have the students examine the faces, edges, and vertices of the circular, triangular, and rectangular attribute blocks at their desk. The teacher will then collect the attribute blocks.

Then, the teacher will take out a cube and illustrate the faces, the edges, and vertices of it and provide the students with the following definitions: polyhedra, prisms, pyramids, cylinders, cones, and spheres. Thereafter, the teacher will bring out tangible examples of the above three dimensional figures. The teacher will stand before the class and describe a rectangular pyramid, a triangular pyramid, a cube, a cylinder, a rectangular prism, and a triangular prism and identify all the faces, edges, and vertices of those objects. After describing each object, the teacher will pass one example of each of the objects around and allow the students the opportunity of examining the objects individually.

The students will then be grouped into groups of three, and they will complete a chart describing the different geometric shapes that are in bags on their desk. The bags will only include a rectangular pyramid, a triangular pyramid, a cube, a cylinder, a rectangular prism, a triangular prism, and a thick and thin rectangular, circular, and triangular attribute block. After the students have completed their charts, the teacher will take up the charts. The teacher will then stand before class, pull out a figure, and randomly call on a group to have a group member come to the front and give the dimensions, faces, edges, and vertices of that particular shape. Thereafter, the teacher will take the students out to the play ground area, and the students will observe the area and list the different geometric shapes that they observe. Upon returning to the classroom, the teacher will recap and allow the students to

describe the figures that they saw on the playground to reemphasize the idea of the world being three dimensional.

3 **Materials and Resources**

Gunnar Carlsson, Ph.D. *Mcgraw Hill Mathematics*. Mcgraw Hill School Companies, Inc. 2002. New York, NewYork.

Bright, George W. *Navigating through Measurement for grades 6-8*. National Council of Teachers of Mathematics, 2002.

Yarn, tape, and three dimensional and two dimensional shapes.

4. **Assessment** **-** Teacher observation and completing the chart.

Exploring the dimensions of Geometric Shapes

Group Members:_____ Date: _____

Class: _____Topic: _____

Complete the following chart for each object the bag.

Geometric Shape Name	**Dimension (Put 2 or 3)**	**# of faces**	**# of edges**	**# of vertices**