Math Game

Guess My Rule: Shapes

Materials:

◊ Deck of Guess My Rule Cards

◊ Two areas for grouping shapes according to whether or not they fit a rule - for example, a circle made of string or two different pieces of paper.

Procedure:

1. The first player chooses a rule and gives a few examples, putting those shapes that fit the rule in one place and those shapes that do not in the other place. The rule should focus on properties of geometric shapes.

2. The second player tries to guess the rule by placing a shape either inside or outside the circle, depending on whether the player thinks it fits the rule or not.

3. The first player says whether or not the placement is correct.

4. The second player uses this information to eliminate possibilities, devise new solutions, and revise earlier guesses of what the rule might be. Using this new information, the second player again tries to guess where a particular shape belongs.

5. Repeat steps 3 and 4. The second player can guess a rule if the player thinks he or she has found a solution. The first player says whether or not the rule is correct.

6. Play continues until the second player guesses the rule or there are no shapes left to place.

Web Resources

You will find web resources at:

http://www.everett.k12.wa.us/math

www.illuminations.nctm.org - select Activities

http://www.rainforestmaths.com/

Ask your teacher for the password to download the Geo-Logo software for <u>Picturing Polygons</u>.

Glossary

polygon — a plane shape having three or more sides

quadrilateral — a polygon with four sides.

coordinates — used to show position on a grid; shown as pairs of letters or numbers, e.g. (8,4)

On-Line Glossary

http://www.amathsdictionaryforkids.com/

Clements, D. Investigations in Number, Data, and Space: Picturing Polygons. Dale Seymour, 1998.
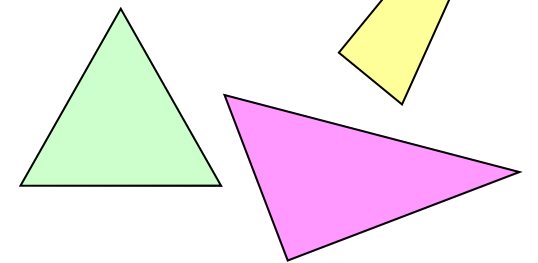

Investigations in Number, Data, and Space

Everett Public Schools

Picturing Polygons

2-D Geometry

Unit Goals:

- Reasoning and communicating about properties of geometric shapes

- Sorting and classifying triangles and quadrilaterals

- Estimating and measuring the size of angles and turns

**Proposed Time Frame:**

2 and half weeks

Investigation 1:

* Distinguishing between polygons and shapes that are not polygons

* Drawing polygons

* Locating points on a coordinate grid

* Using the *Geo-Logo* commands setxy and jumpto to draw polygons on the computer

* Recognizing and naming polygons by number of sides

Investigation 2:

* Reasoning and communicating about properties of geometric shapes

* Sorting and classifying triangles and quadrilaterals

* Developing vocabulary to describe special triangles and quadrilaterals

* Generating geometric figures from descriptions of their properties

* Estimating and measuring the size of angles and turns
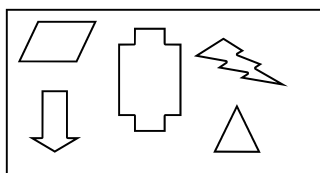
Polygons
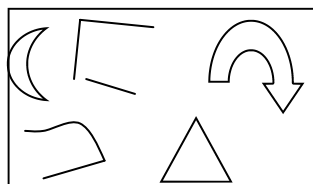
Non-polygons

Listed below are questions to help teachers during observations and assessments.

Getting Started

* What is it that you don't understand? (Have your child be specific.)

* What do you need to find out?

* What do you need to know?

* What terms do you understand or not understand?

While Working

* How can you organize the information?

* Do you see any patterns or relationships that will help solve this?

* What would happen if…?

Reflecting about the Solution

* How do you know your answer is reasonable?

* Has the question been answered?

* Can you explain it another way?

At Home:

As the unit unfolds, your child will work with:

* Polygons with different numbers of sides, from 3 up to 10.

* Polygons whose angles and sides follow certain rules.

* Regular polygons (with all sides equal).

When your child has assignments to work on at home, talk about them together and participate when asked. For example, how does your child find and draw a polygon that is "hidden" on a coordinate grid? When you and your child try to draw angles of a certain number of degrees - without any tools, just estimating - how close can both of you come? Is a square a rectangle? Is a retangle a square? What are the rules for these polygons?

Look for opportunities to talk about shapes and angles with your child. Most of the angles in our rooms and on our furniture are right angles (90º angles). Why is this? Equilateral triangles have 60º angles. Diagonal across a square forms a 45º angle. If your child has any game boards or spinners, look at their designs. Do you see any of these angles? What other angles do you see?

Above all, see how much fun shapes can be, and enjoy watching the growth of your child's understanding of geometry.