Zome System

Builds Genius!

Geometric Shapes

Mathematics
Basic Concept

Lesson Objective:
Students will learn to identify a polygon from its number of sides after looking at a model or a picture.

Prerequisite Skills:
Students need to have played with Zome System before.

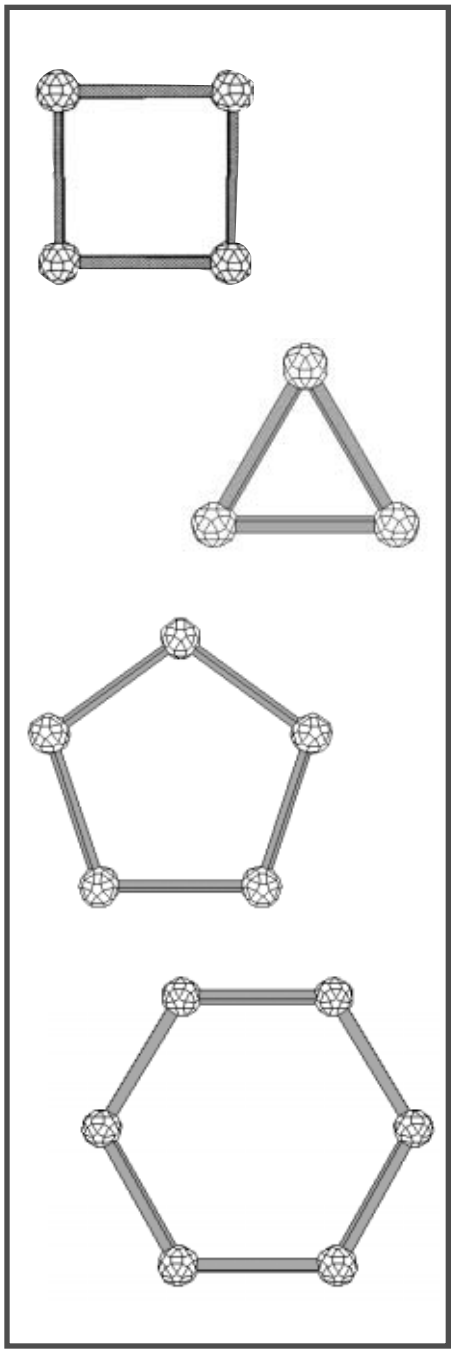
Time Needed:
One class period of 45-60 minutes.

Materials Needed:
- One Zome System Creator Kit for 25-30 students
- Shapes by Ishtar Schwager Publications (choose another book about shapes if this one is not available)

Procedure:

Read your book about geometric shapes to the class. Discuss the different shapes and their properties introduced in the book. *How many sides does the shape have? Does the shape look like anything else we know?*
Distribute the Zome System pieces, and give 20 minutes to try to build some of the shapes in the book. Bring the class back together for a discussion. Ask each student to introduce one shape that they built. *What shapes they were able to build? Why couldn't they make a circle? How can we organize the shapes into groups? Which shapes look alike?* Guide the students towards a system where shapes are grouped according their number of sides. (For this activity, put all squares and rectangles in the set with four sides.) Record the findings on the board or on chart paper. Example: triangles have 3 sides; squares have 4 sides; rectangles have 4 sides; pentagons have 5 sides; hexagons have 6 sides.

In a variation for young students, the class can be divided into cooperative teams with specific job assignments.



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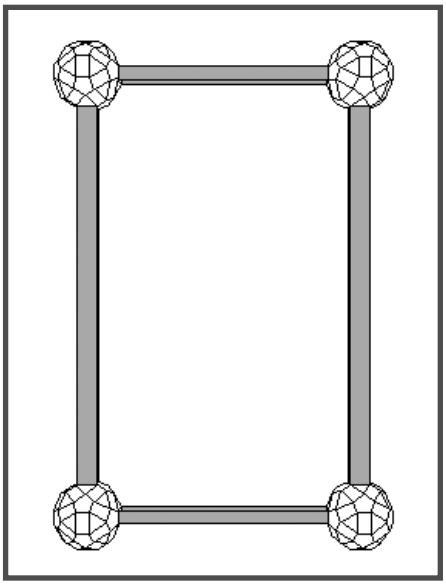
For example; one group would be responsible for making triangles, one work on squares, etc. Older students (i.e., second graders) can draw pictures and write about the properties of the shapes they make in their math journals. Display the shapes that were built, around the classroom.



Assessment:
Question students individually and in groups. Ask them to build shapes with Zome System, and name them correctly. Students have met the standard if they can identify basic polygons from their number of sides.

Standards Addressed:
* Mathematics standards addressing geometry and spatial sense (NCTM Standard 9).

Transfer Possibilities:
More work on polygons ("Geometry is all Around Us"). Exploration of number relationships and symmetry concepts in polygons ("Shape and Number," "What is Reflection Symmetry?" and "Multiple Reflection Symmetry"). Expansion into 3-dimensional forms ("2-D and 3-D Shapes"). Use of geometric shapes in buildings and other man-made structures ("Tallest Tower in the World," "Bridge Building Unit"). Art and design applications ("Trying Tessellation").

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