

# Zome System

*Builds Genius!*

## Geometry Is All Around Us

### Mathematics Basic Concept

#### Lesson Objective:

Students will increase their familiarity with various polygons.

#### Prerequisite Skills:

Knowledge of basic 2-dimensional shapes ("Geometric Shapes"). Ability to define geometry.

#### Time Needed:

One class period of 45-60 minutes.

#### Materials Needed:

- One or two Zome System Creator Kits for 25-30 students.
- The Shapes Game by Paul Rogers (1989, Henry Holt and Company, Inc.)

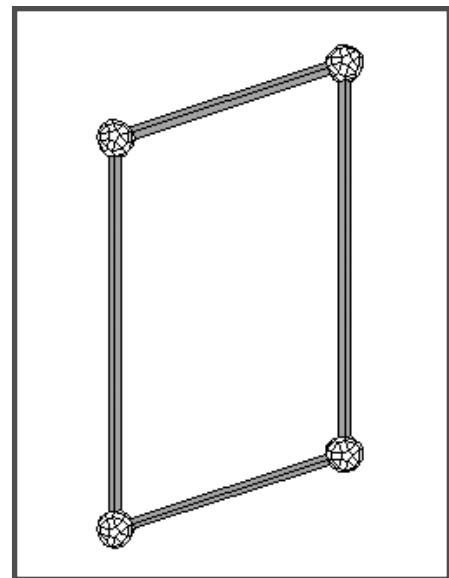
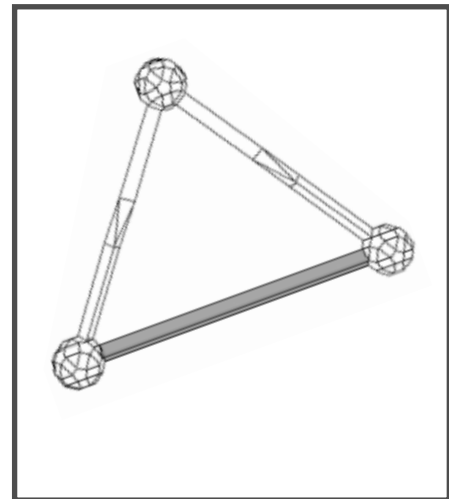
#### Procedure:

Begin the lesson by exploring your students understanding of what geometry is. *What is geometry? What subject or subjects does geometry belong to? Why is it important to study geometry?* Collect brainstormed ideas on the board or on chart paper. *Can we see any examples of geometric shapes in the classroom?* Add examples to the brainstormed list.

Read The Shapes Game to the class. Discuss the illustrations as the book is read.

The first challenge for the students is to predict which Zome System struts will be needed to create the shapes they saw in the book. The students can either work individually or with a partner. They should record their predictions in their math journals. Journal entries should include the number and color of struts they think will be needed for a certain shape.

Distribute the Zome System pieces evenly to the class. Students should attempt to build the shapes they have predicted on paper. As they build, they should record how



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the shape was actually built. Ask students to either make a presentation to the class, or to members of their cooperative team, about how their constructions differed from their prediction. Students should also write a letter with a picture and definition of the shape they created using Zome System. The letter should be written so a Kindergarten student could understand the shape described. The class can also write geometry riddles about various shapes. Share these aloud and have students guess the shape.

Hang completed shapes on walls and from the ceiling in the room as a visual reminder about shapes around us.

### Assessment:

Take notes during discussions and presentations, and review journal entries and descriptive letters. To meet the standard, students must build and correctly describe at least four different polygons. To exceed the standard they must write definitions that are clear enough that another student could replicate the shapes without the use of a visual aid.

### Standards Addressed:

\* Mathematics standards addressing **geometry and spatial sense** (NCTM Standard 9).

### Transfer Possibilities:

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”).

