

# Zome System

*Builds Genius!*

## Printing with Zome System

### Art / Mathematics Basic Concept

#### Lesson Objective:

The students will explore how a shape can be transferred from a Zome System model to paper. The activity reinforces the ideas of vertex points and sides.

#### Prerequisite Skills:

Students need to have played with Zome System before, and have some knowledge of polygons (“Geometric Shapes”).

#### Time Needed:

One or two class periods of 45-60 minutes.

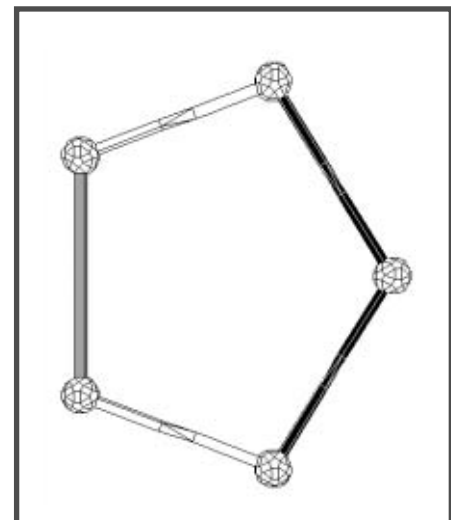
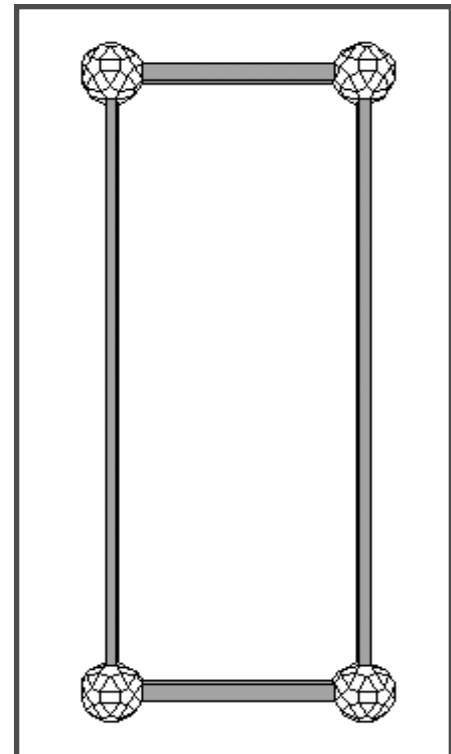
#### Materials Needed:

- One or two Zome System Creator Kits for 25-30 students
- Trays of pre-mixed, water-based paint
- One sheet of large construction paper per student

#### Procedure:

Prepare for the class by mixing the paint, and pouring it on styrofoam meat trays or paper plates. The paint should be on the runny side, as too thick paint may take longer to dry. A small amount of liquid soap can be added to the paint, as this aids the clean up. A nice effect is achieved if a different color paint is used for each of the shapes students will be printing with. Now build a number of Zome System polygons; squares, triangles, rectangles, and pentagons. The shapes should be constructed with either small or medium length struts to ensure that their imprints will fit on the particular paper being used. The activity can be planned to start before lunch or recess to allow prints to dry before the activity continues.

Divide the class into teams of 3-4 students. Distribute paint, paper, and a set of polygons to each team.



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Alternatively, students can build the models as an introductory exercise. Explain to the students that each of them will be dipping the shapes in paint and make imprints with it on the paper. The shapes should be placed flat in the tray so each node gets a small amount of paint on one side. Before starting, each group must establish rules on how they will work together. They must decide which direction the shapes will be passed around the table. In addition they must agree which shapes gets dipped in each color. Once a shape is dipped into a color, it remains that color for the entire group.

Each student should stamp each shape once on his or her paper. It is best if the shapes do not overlap. Circulate in the room and assist as necessary.

Once the paint has dried, students should “connect the dots” with a pencil and a ruler, drawing each shape. Finally they should label their printed polygons.

Materials can be set up at a center for later use. At this time students might enjoy making patterns or designs with the different shapes. If students place the shapes in soapy water to soak for a few minutes, clean-up is easy. When the Zome System pieces have been rinsed off they can be placed on paper towels to dry. Store mixed paint in air-tight containers for the “Printing Cubes and Pyramids” lesson.

### Assessment:

Observe students while they work, and question them individually and in groups to ensure that they can identify the different polygons by counting the sides of each shape. To meet the standard students must print and complete four polygons and name them correctly.

### Standards Addressed:

- \* Fine Arts standards that **identify and apply the elements of art in a variety of media.**
- \* Mathematics standards addressing **geometry and spatial sense** (NCTM Standard 9).

### Transfer Possibilities:

Expansion into more advanced printing (“Printing Cubes and Pyramids”) and other means of transferring patterns (“Triangle Tiles - II,” “Cubes - III”).

