

# Zome System

*Builds Genius!*

## *The Livable City*

### Civics / Economics / Architecture Intermediate Concept

#### Lesson Objective:

To develop a model from which students can explore issues of city organization, social issues, economics, and industry.

#### Prerequisite skills:

Prior experience building with Zome System.

#### Time Needed:

3-4 hours for building and 1-2 hours for discussion.

#### Materials Needed:

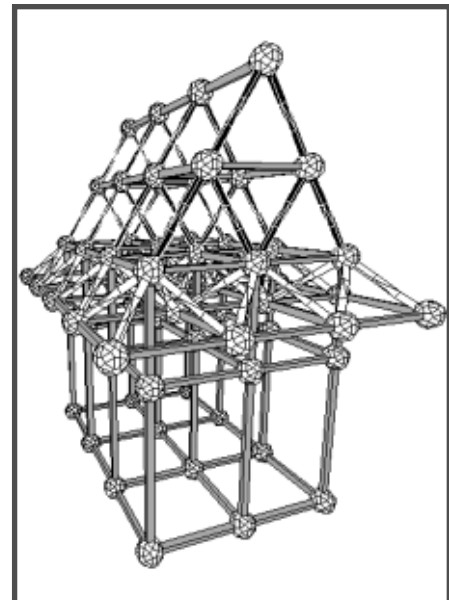
One Zome System Creator Kit per 10-12 students

#### Procedure:

Begin with a discussion of the town your students live in. *How is our city laid out? Are the streets neatly organized into rows? Where are the stores and industries and homes located? How did our town come to be laid out the way it is?* Explain that this lesson is to explore how cities are organized.

Mark out an area of the floor, about 25 square feet. This is the land area for the city. The goal of this activity is for everyone to have a place to live. A place to live is defined as a space completely enclosed by the Zome System nodes. One way to begin the game is to randomly assign the resources available to the students. Give some students space on the floor but no pieces, some students pieces but no floor. Those with material resources can decide how they are going to be used but cannot build with them. For that they must recruit students who have no materials. A goal of the game can be that each person must have a place to live by the end of the unit. This goal is of course open for discussion.

*Was anyone left without a home? Why were they homeless (ask both them and those who were not)? If anyone was homeless, how*



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*did that make them feel? Did anyone build themselves a bigger house than they needed to? Why? How did other people react to it? How do you think you might be able to provide for everyone? Do you think that this is possible in the outside world? What was the most efficient means of housing everyone? Individual houses or large complexes? Is it desirable to house everyone? How does their city compare to the one the students live in? Discuss differences and similarities and why those may be as they are. How does this activity relate to economics? Were basic economic principles used in the exchange of land for supplies? What social issues were encountered in the exercise?*

### Variations:

Older students can have a more complex range of features to deal with, for instance by including the concept of industry. The teacher can also suggest that in order for a space to be livable it must have a power source. Students can build each building with a power source, or build a centralized plant, or several decentralized plants. Everything must be physically represented by some combination of tools. This brings out the ideas of resource use, intelligent design, and economic problems. Students should have the time and space to develop their own world as the game unfolds.

### Assessment:

Take notes during both building phase and the group discussion. If possible assign a reflective essay. To meet the standard, each student should end up with a home (or should they?) and a basic understanding of the economic and social issues involved in the activity.

### Standards Addressed:

- \* Mathematics standards addressing **mathematical problem solving as a method of inquiry and application** (NCTM Standard 1).
- \* Social science standards addressing **societal resource distribution, economics, and ethics of government**.
- \* Language Arts standards requiring students to **write and speak for a variety of purposes**.
- \* Language Arts standards requiring students to **apply thinking skills to their reading, writing, speaking, listening, and viewing**.

### Transfer Possibilities:

Continued work on architecture and building economics ("Bridge Building Unit," and "3-D Triangle Tiles"). Discussions on city planning, resource distribution and taxation, ethics and philosophy of societal organization.

