What Makes Structures Stand Up?

Application of Architectural Concepts

Age Level:

Third grade and up

Subjects:

Math
Science
Visual Arts
Language Arts
Social Studies

Time:

One and one-half hours.

Materials:

- 9" x 12" and 12" x 18" construction paper in a variety of colors. Preferably 80 lb. cover weight or poster-board.
- Cut the 9" x 12" paper in 1" x 12" strips, enough for at least a dozen for each student.
- Cut the 12" x 18" paper into 6" squares-enough for each student to have at least nine.
- Scissors, tape and glue.
- Hand out packets to each student, or have the materials at each table.

Learning Objectives:

- To develop an understanding of geometric structural forms.
- To understand the concepts of loads and tensions within a structure.
- To learn to listen and follow directions.

Architect:

Most students enjoy this activity very much. It requires a lot of listening and following directions, so your instructions should be as clear and simple as possible. It will be essential that you construct a sample of each example before you introduce it in the classroom, so that you have actually experienced the process.

In introducing this activity in the classroom, one good method is to have all the materials on the shelf of a projector cart. Then, as you start each demonstration on the top of the cart, bring up the necessary materials, exhibit your sample, and do each step with the students.

After each demonstration, go around the room helping the students complete each piece before going on to the next.

Teachers:

Students usually become pretty involved in making these examples, but it does require careful listening and staying on task. You can be of great assistance to the architect in making the instructions clear and seeing that the students are working correctly.

Rationale:

Students love to build things, but often know very little about what makes structures stand up. By constructing the basic structural shapes, combining them and then experimenting with putting loads on them, they see something about how structures work. On a walking tour around the school or the neighborhood, have the students look for examples of these shapes and speculate on how they are carrying loads.