Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
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Mathematics in Architecture

Guide for Curriculum Unit 84.01.04
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Buildings are used by everyone for a variety of reasons. They serve as dwelling places and shelters for man. They also provide places in which one may conduct a business, care for the sick, teach young people, or spend leisure time. The building that is most familiar to each of us is our home. We all dream of having a home that is functional and beautiful.

To produce structures that are functional as well as models of architectural beauty, designers must apply principles of mathematics in their work. Scale drawings, commonly known as plans, are used as patterns in the construction of buildings. Proper ratios and proportions relate each feature of a building with every other one and with the whole structure to obtain a pleasing appearance.

In this unit of study we will try to improve the students' understanding and appreciation of basic mathematical principles used in architecture. The unit will discuss in detail the concepts of measurement, scale drawing, ratio, proportion, and symmetry.

There are several basic objectives for this unit of study. Upon completion of the unit, the student will be able to:

—use a ruler easily and accurately to determine measurements. —construct and interpret scale drawings. —understand the principles of ratio, proportion, and symmetry. —apply these principles in the solution of problems.

(Recommended for Arithmetic classes, grades 7 and 8; Algebra 1 or 2 classes, grades 9 and 11; Geometry classes, grade 10; and Applied Mathematics classes, grade 9)

Key Words

Teaching Mathematics Architecture