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Geometric Shapes in Architecture

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At the present time, many school children in New Haven are unaware of the relation between the mathematics studied in their classrooms and the architecture that surrounds them throughout the city. They shop in the Chapel Square Mall without noticing the simple lines and planes that form the pattern of the building. On their way to concerts in the Veterans' Memorial Coliseum they pass the Supreme Headquarters of the Knights of Columbus and refer to its cylindrical columns as "tootsie rolls". The Ingalls Rink, commonly known as "the whale", stirs up lively conversations about ice skating and hockey without any thought that the backbone of "the whale" is a perfect sine curve. Many Saturday afternoons are spent enjoying football in the elliptical stadium known as Yale Bowl. History students, who visit the graves of notable men in Grove Street Cemetery, seem to be oblivious of the fact that the lovely entrance gate is a trapezoid. When they are visiting friends' homes, young people are too busy to see the wide variety of geometric shapes and designs that abound both outside and inside.

In this unit of study we will try to improve the students' understanding and appreciation of basic geometric shapes that are used in architecture. The unit will describe various plane geometric figures. It will discuss in detail the properties of several of these figures. Perimeters and areas of polygons and circles will be computed.

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

—appreciate and enjoy the beauty and charm that exist in the architecture that surrounds him. —identify simple geometric figures. —understand the properties of polygons and circles. —compute areas and perimeters of plane figures.

(Recommended for Grades 7 and 8 Arithmetic, 9th Applied Mathematics and 10th Geometry)

Key Words

Basic Principles Architecture Geometry Mathematics