

Mathematics Basic Concept

Lesson Objective:

Students will learn the concept of **perimeter**. For young students, perimeter is not going to be an exact measurement. Understanding the basic concept of perimeter is more important at this point.

Prerequisite Skills:

Knowledge of basic geometric shapes ("Geometric Shapes").

Time Needed:

One class period of 45-60 minutes.

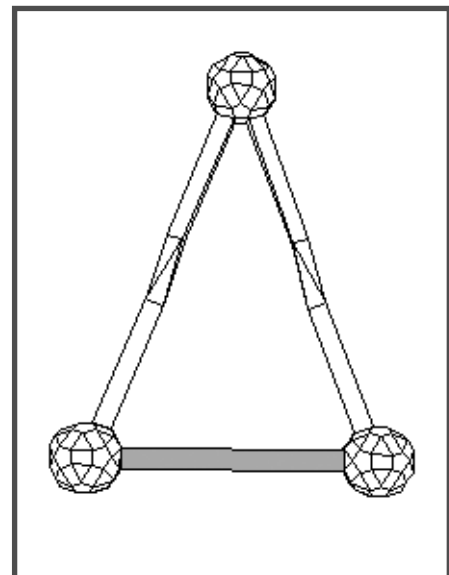
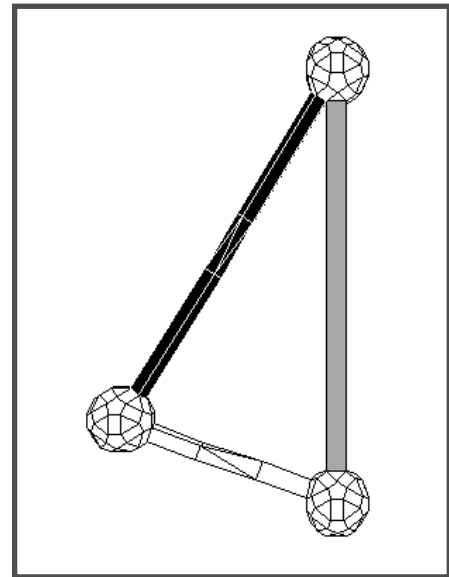
Materials Needed:

- One or two Zome System Creator Kits for 25-30 students.
- String
- One scissors for each team of 3-4 students

Procedure:

Introduce the term perimeter. Explain that the perimeter is a measurement of how far it is around an object. *Why is it useful to know how to measure perimeter? In what kind of situations do we need to know the perimeter* (when building a fence, making clothing, etc.)? *How could we decide the perimeter of a geometric shape like a triangle?* Brainstorm ways determining the perimeter of a triangle. Explain that that it is possible to use string to measure perimeter, and model how this is done using a Zome System triangle.

Divide the class into teams of 3-4 students, and distribute Zome System pieces and other materials. Each team will be responsible for making a designated shape; square, triangle or rectangle. Once the teams have made a few different sizes of their shape, they are to measure their perimeters with the string. Encourage discussion about



What Is Perimeter?

Zome System

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the differences in perimeter between shapes made with long struts and shapes made with medium or short struts. Have each group save one string they used to measure the perimeter of one of their shapes to present to the class.

Bring the class back for presentations of findings, and a large group discussion. Presentations can be made either by a team representative, or jointly. *What did they discover? Which shape has the longest perimeter? Do all triangles have the same perimeter? Do shapes with more struts always have a longer perimeter than those using fewer struts?* Ask the students to compare the strings to one another to see which shape had the largest perimeter and which had the smallest. Pose the question why one shape has a longer perimeter than other.

For younger students, the activity is intended to expose them to the perimeter concept. Older students (i.e., second graders) can write in their math journals about perimeter.

Assessment:

Observe the students while they work in their teams, and question them on their findings. To meet the standard students must build simple polygons and be able to measure their perimeter with the string. To exceed the standard they must point to practical uses of perimeter measurement, and be able to determine which shapes have the longest perimeter.

Standards Addressed:

- * Mathematics standards addressing mathematical connections (NCTM Standard 4).
- * Mathematics standards addressing geometry and spatial sense (NCTM Standard 9).
- * Mathematics standards addressing measurement (NCTM Standard 10).

Transfer Possibilities:

Continued exploration of polygons and 3-dimensional forms ("2-D Polygons," "Try the Triangle," and "2-D and 3-D Shapes"). More advanced work on applications for perimeter and other measurements ("Perimeter Puzzles," "What is Area?" and "Volume for Beginners").

