Activity Sheet 3

MAKE MY SHAPE (CUBES AND TETRAHEDRONS)

Students construct and identify polygons and geometric solids (polyhedra) by counting the number of edges, faces, and vertices.

Materials (per student):
18 round toothpicks
12 miniature marshmallows
Pencil and paper for recording (or a chart designed by the teacher)

Procedure:

1. As a review, have each student use two toothpicks to demonstrate: parallel line segments, intersecting line segments, perpendicular line segments, and a right angle.

2. Demonstrate how to connect a toothpick to a marshmallow without pushing the toothpick all the way through the marshmallow.

3. Ask each student to construct a triangle from toothpicks and marshmallows. Explain that the toothpicks will serve as sides and the marshmallows as vertices. Ask some students to describe their procedure, noting the number of sides and angles.

4. Ask each student to construct a square from toothpicks and marshmallows. Have some students describe a square. Encourage the use of comments such as “opposite sides are parallel” and “there are four right angles.”

5. Have each student use the triangle as a base and construct a tetrahedron with three more toothpicks and one more marshmallow. This is a geometric solid with four triangular faces. On a piece of paper (or chart), have each student describe and record the shape of the faces and count the number of faces, edges, and vertices.

6. Have each student construct two squares and then construct a cube by connecting the two squares with four more toothpicks. On a piece of paper (or chart), have each student describe and record the shape of the faces and count the number of faces, edges, and vertices.

7. Have each student write a letter to someone describing how the shapes were constructed and how a cube is different from a tetrahedron.