

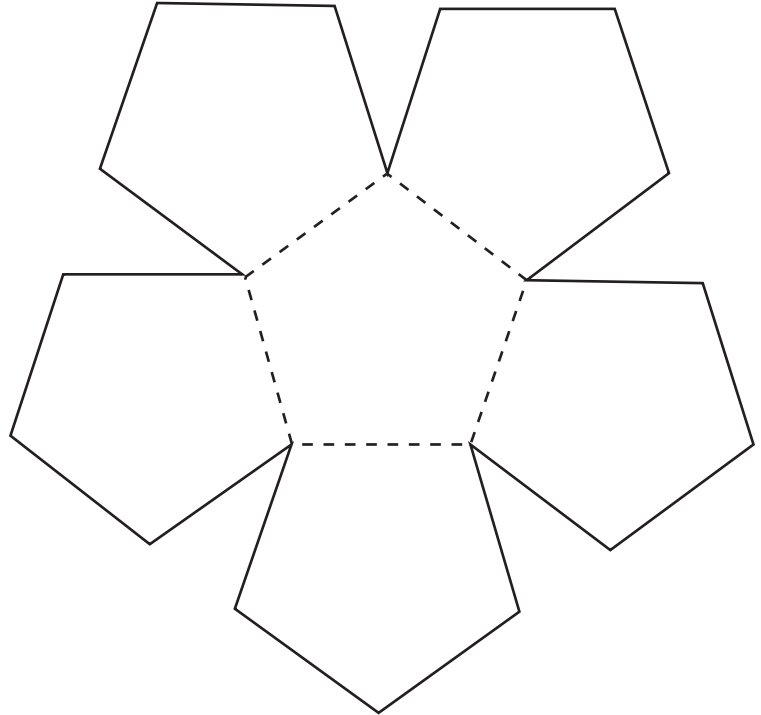
CHAPTER
10

Project
Solid Gold

Activity 1: Platonic Solids *Use after Lesson 10-1*

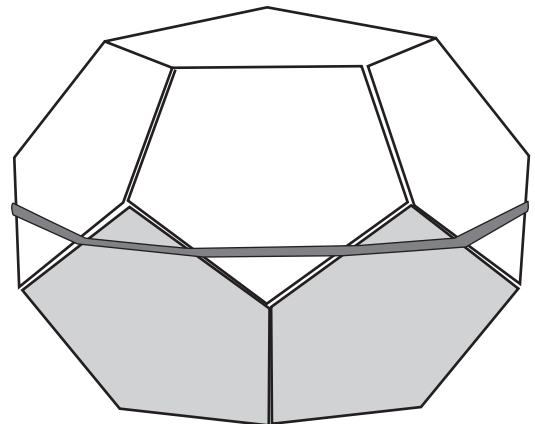
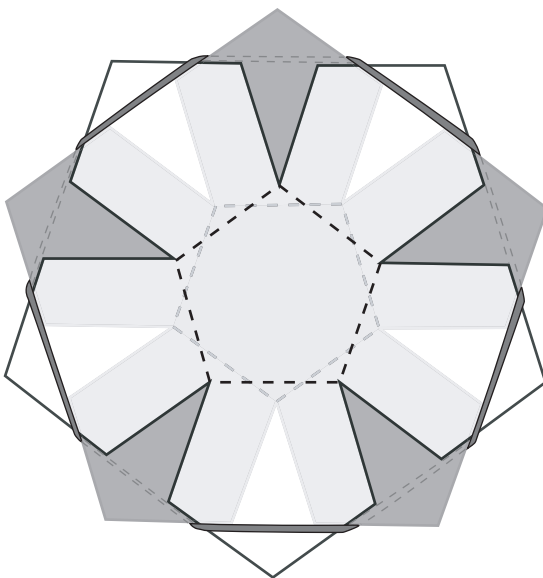
A *polyhedron* is formed by four or more polygons that intersect only at their edges. The faces of a *regular polyhedron* are all congruent regular polygons, and the same number of faces intersect at each vertex. Regular polyhedra are also called *Platonic solids*. One of the Platonic solids is a dodecahedron. Follow the steps below to make a model of a dodecahedron.

1. Make two copies of the net at right on heavy paper or cardstock. Cut out each net and fold along the dotted lines.



2. Flatten the two nets. Hold them so that one is on top of the other. Place a rubber band around the nets as shown below.

3. Release your hold on the pieces to form the dodecahedron.

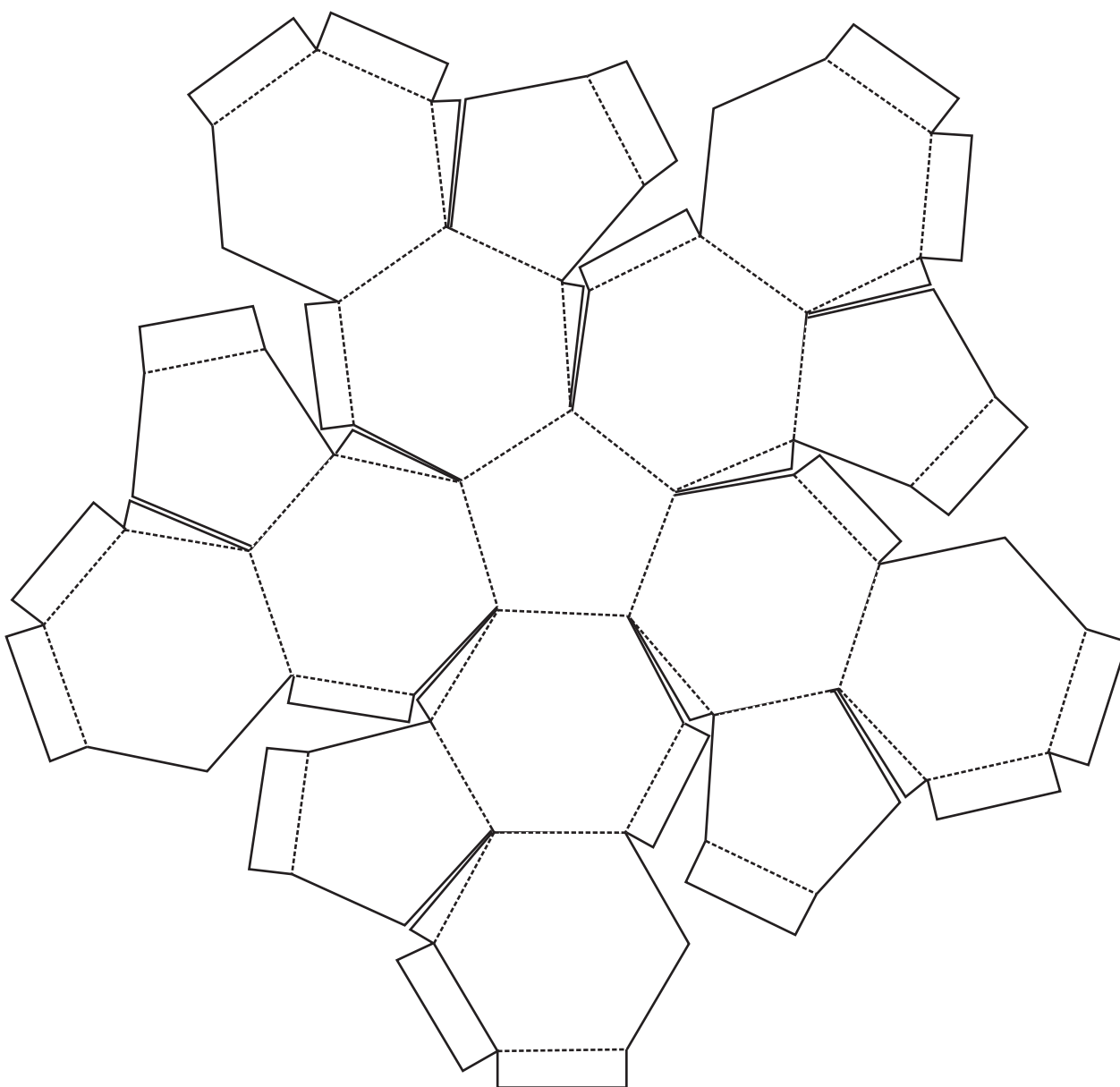


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Activity 2: Archimedean Solids *Use after Lesson 10-6.*

Archimedean solids are named after the Greek mathematician Archimedes. All the faces of an Archimedean solid are regular polygons, but two or more types of polygons are used. Also, each vertex must have the same exact arrangement of faces around it.

1. Make two copies of the net below on heavy paper or cardstock. Cut them out and fold each along the dotted lines. Use the tabs to help you assemble each net into half of a polyhedron. Then use the tabs to attach the two halves. The final polyhedron is an Archimedean solid.



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2. a. What shapes are found at each vertex? _____

b. How many of each shape are at each vertex? _____

3. What is the surface area of your polyhedron? Round your answer to the nearest square centimeter. _____

4. Cut a small hole at one of the vertices. Fill the polyhedron with puffed rice cereal. Pour the puffed rice cereal from the polyhedron into a cylinder. You may need to use more than one cylinder. Use the formula for the volume of a cylinder to calculate the volume of your polyhedron. Round your answer to the nearest cubic centimeter.
