

Nesting Platonic Solids Project:

◆ Objective:

Your job is to build a set of platonic solids which *nest* (just fit) inside each other. A platonic solid is a polyhedron where all the faces are congruent polygons.

◆ Guidelines:

1) The order in which the solids nest, from inner most to outermost is:

Octahedron \Rightarrow Tetrahedron \Rightarrow Cube \Rightarrow Dodecahedron

- 2) You will need to create “doors” so the solids can be opened and the smaller solids can be inserted.
- 3) The edge of the tetrahedron is 8 cm.
- 4) The edge of the tetrahedron is the same as the diagonal on the face of the cube.
- 5) The cube’s edge is the diagonal of one face of the dodecahedron.
- 6) The octahedron’s edge is the same as the tetrahedron face’s midsegment.
- 7) Your group may only use (2) file folders to complete project.

◆ Hints:

- 1) You should include tabs on the nets of polyhedrons to allow for gluing.
- 2) You may use paperclips for stability when gluing.
- 3) You may make templates of a shape to use for tracing your net.

◆ Final Product & Grading:

1) The attached worksheet which should include:

- a) **Your work** for calculating the side lengths of polyhedrons (2 pt ea)
- b) A sketch of the net you used (1 pt ea)
- c) The number of faces, edges and vertices for each polyhedron (1pt ea)

2) The constructed nesting polyhedrons (5 pt ea)

3) The Chapter 10 RWS (45pts)

worksheet = 45 points
polyhedrons & sheet = 42 points
87 point total

Penalties:

use tape = -1 per polyhedron
extra folder = -2 pt. ea.
not showing work

Names: _____

1. Tetrahedron

Calculations: OMIT

Net:

Side length: _____ 8 cm. _____

Faces = _____ # Edges = _____ # Vertices = _____

2. Cube

Calculations:

Net:

Side length: _____

Faces = _____ # Edges = _____ # Vertices = _____

3. Octahedron

Calculations:

Net:

Side length: _____

Faces = _____ # Edges = _____ # Vertices = _____

4. Dodecahedron

Calculations:

Net:

Side length: _____

Faces = _____ # Edges = _____ # Vertices = _____

Nesting Polyhedron Project:

Ch 10 worksheet: _____ / 45 possible

Poly worksheet: _____ / 22 possible

_____ / 87 = _____% **Overall Grade**

polyhedrons: _____ / 20 possible

Comments: Octa:

Tetra:

Cube:

Dodec:

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Comments: Octa:

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