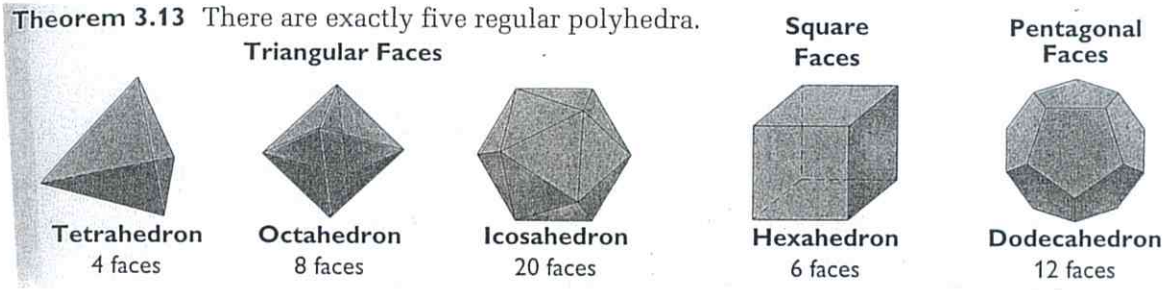
Geometry
SLOT Unit IV Volume

To go along with our final SLOT unit on volume, you will build a 3-dimensional space figure, known as a ***regular polyhedron.*** A regular polyhedron is a space figure whose faces are ***congruent regular polygons***. There are only 5 regular polyhedra (plural of polyhedron), as shown below:

REGULAR POLYHEDRA

Theorem 3.13 There are exactly five regular polyhedra.



You are to build a framework model of a polyhedron. You can use straws, toothpicks, popsicle sticks, dowels, etc., to create the edges of the regular polygons. ***THE REGULAR POLYGONS CANNOT PRE-EXIST, YOU MUST BUILD THEM YOURSELF, AND CONNECT THEM TO FORM YOUR CHOSEN POLYHEDRON.*** (Some toys are on the market that allow you to create polyhedra with plastic or magnetic pre-made shapes.)

Your project will graded on its sturdiness & stability. It must maintain its shape, not sag or lean. Your polygonal faces must be regular and all must be congruent. You will need to calculate the **surface area* and/or volume** for your figure(see below). Your computations for surface area and volume must be correct and must include proper units.

Your grade will depend on which polyhedron you decide to build. Some are more challenging to build than others and some have computations that are more challenging than others. Here is the breakdown:

Shape Chosen	Math Needed	Maximum Grade Possible
1. Hexahedron	1. Surface area & volume	1. 70%
2. Tetrahedron	2. Surface area & volume	2. 80%
3. Octahedron	3. Surface area & volume	3. 100%
4. Icosahedron	4. Surface area	4. 100%
5. Dodecahedron	5. Surface area	5. 100%

*Surface area is the sum of the areas of the polygonal faces of a space figure.

The project is due **Monday, June 6, 2016**. For each day the project is late, it will be marked down one full letter grade. If you are in school at all that day, you must turn it in! You will need to turn in the following:

-The model you've built

-On paper, a copy of the regular polygon you used, **DRAWN TO SCALE**, with lengths fully labeled.

-On a second sheet of paper, all volume and/or surface area computations, **WITH ALL WORK SHOWN**.