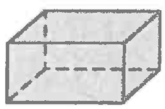
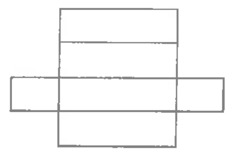
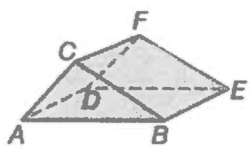
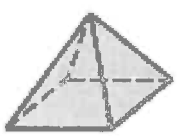
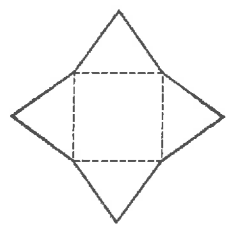
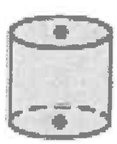
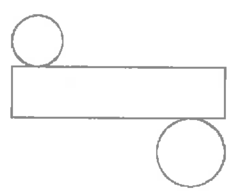
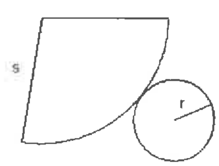
Activity 33 Notes
Overview of 3-D Solids

A solid with all flat surfaces that enclose a single region of space is called a polyhedron. Each flat surface, or face, is a polygon. The line segments where the faces intersect are called edges. The point where three or more edges meet is called a vertex.

Polyhedra can be classified as prisms or pyramids. A prism has two congruent faces called bases connected by parallelogram faces. A pyramid has a polygonal base and three or more triangular faces that meet at a common vertex. Polyhedra are named by their bases.

In an oblique prism, the edges of the faces connecting the bases are not perpendicular to the bases. In a right prism, those edges are perpendicular to the bases.

Figure	**Example**	**Euler's Theorem (F + V − E = 2)** (F+V=E+2)	**Net**	**Surface Area and Volume**
Rectangular prism		Faces = 6 Vertices = 8 Edges = 12		SA = $Ph+2B$ LA = Ph V = lwh
Triangular prism		Faces = 5 Vertices = 6 Edges = 9		SA = $Ph+2B$ LA = Ph V = Bh $(\frac{1}{2}bh)\cdot h$ ← not the same!!!
Pyramid		Faces = 5 Vertices = 5 Edges = 8		SA = $\frac{1}{2}Pl+B$ LA = $\frac{1}{2}Pl$ V = $\frac{1}{3}Bh$
Cylinder				($SA = 2\pi r^2 + 2\pi rh$) SA = $2\pi r(h+r)$ LA = $2\pi rh$ V = $\pi r^2 h$
Cone				SA = $\pi r(l+r)$ LA = πrl V = $\frac{1}{3}\pi r^2 h$

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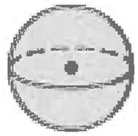
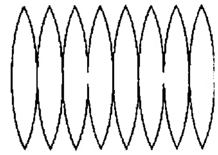
Sphere



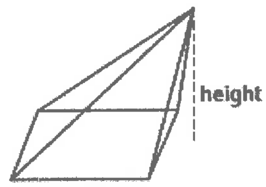


SA = $4\pi r^2$

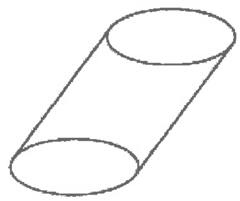
V = $\frac{4}{3}\pi r^3$

Other solids are a ____cylinder____, which has parallel circular bases connected by a curved surface, a ____cone____, which has a circular base connected by a curved surface to a single vertex, or a ____sphere____.

Oblique pyramid



Oblique cylinder



Oblique cone