

## VOCABULARY

prism

volume

base

pyramid

lateral edge

perpendicular

lateral face

apothem

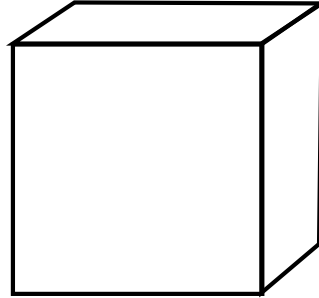
height

## 4-6 Volume of Rectangular Prisms and Pyramids

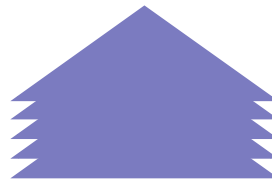
What happens when you stack several congruent shapes on top of each other?



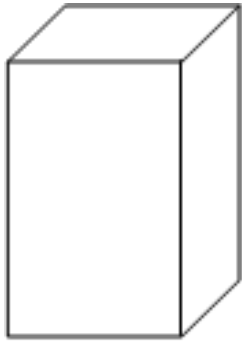
A PRISM is a polyhedron that has 2 congruent bases. A prism looks like a stack of congruent shapes.



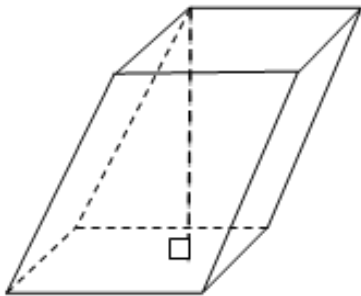
When we stack several congruent shapes, they each have an area and a thickness.



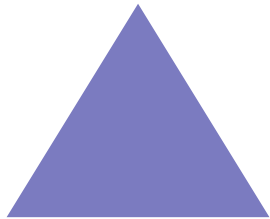
We can add the thicknesses to find the prism's VOLUME.



When the LATERAL EDGES are perpendicular to the bases, the prism is RIGHT.



When the LATERAL EDGES are not perpendicular to the bases, the prism is OBLIQUE.



A=

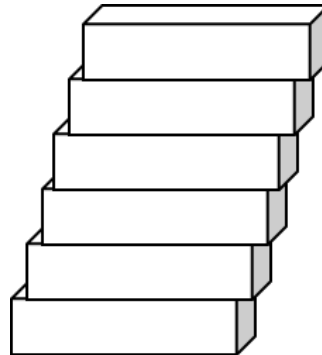
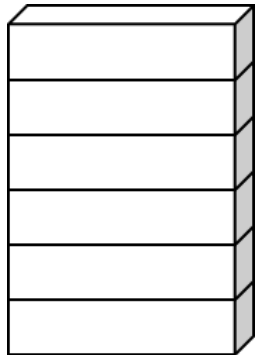
How can we use AREA to calculate VOLUME?

To find the volume of a prism, multiply the AREA of the base by the height.

Triangular Prism:

Rectangular Prism:

Which has more volume?

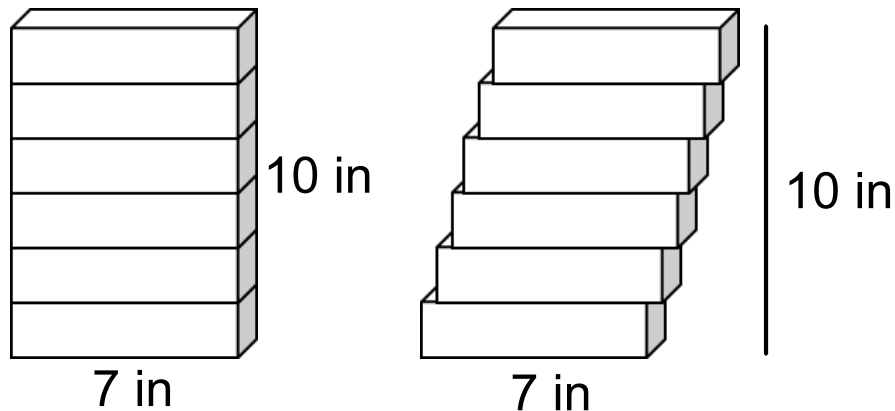


Why?

We've just used Cavalieri's Principle.

Cavalieri's Principle: given two solids included between parallel planes, if every plane cross section parallel to the given planes has the same area in both solids, then the volumes of the solids are equal.

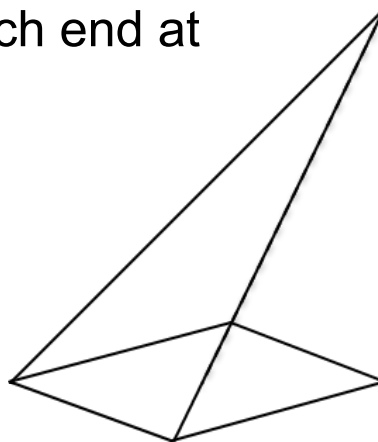
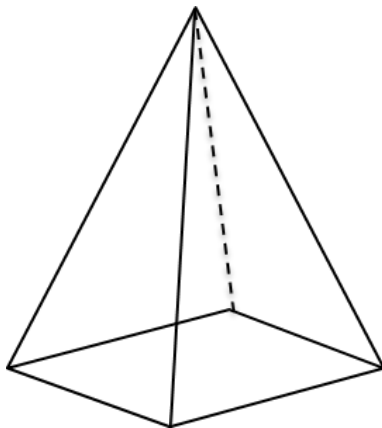
Example:



What if we stack similar shapes, largest to smallest?



A PYRAMID is similar shapes stacked, largest to smallest, which end at a point.



## Pyramid Task

1. Cut out your pyramid net
2. Fold and tape the flaps together
3. With 2 other people, put three pyramids together

## Questions to Answer

1. What form do you get when you put 3 pyramids together?
2. Can you use this to calculate the volume of a pyramid?

Volume Demonstration using plastic polyhedra set and water/rice

So what would the formula be to find the VOLUME of a pyramid?

Volume of Cube

Volume of Square Pyramid

Find the Volume.

