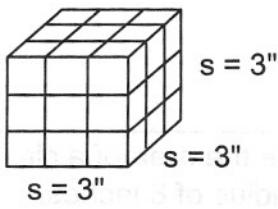
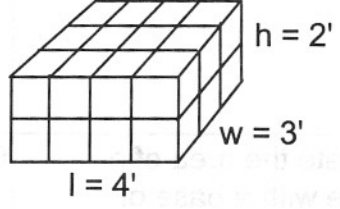
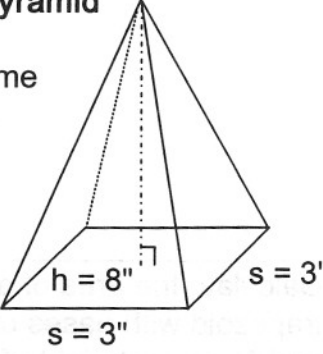
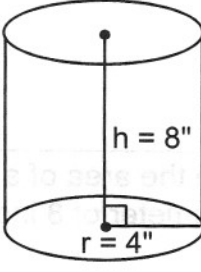
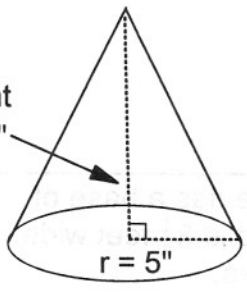
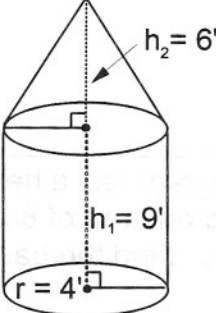


Unit 35 Measuring Volume

1. Volume

- A. **Volume** refers to the space inside a three-dimensional object.
- B. A flat surface, such as the top of a shoebox, does not have volume.
A shoebox does have volume.
- C. The bottom of an object is called its base (B). Volume equals (Base)(height) or $V = Bh$
- D. Important quantities: base (B), length (l), width (w), height (h), sides (s), and radius (r)

2. Examples:

<p style="text-align: center;">Cube</p> <p>Unknown: Volume</p>  <p>$s = 3''$ $s = 3''$ $s = 3''$</p> <p>$B = s^2 = 3(3) = 9$ sq. in.</p> <p>Formula: $V = (B)(s)$ $= 9(3)$ $= 27$ cubic inches</p> <p>Locate the 27 cubes.</p>	<p style="text-align: center;">Rectangular Solid</p> <p>Unknown: Volume</p>  <p>$h = 2'$ $w = 3'$ $l = 4'$</p> <p>$B = lw = 4(3) = 12$ sq. feet</p> <p>Formula: $V = (B)(h)$ $= 12(2)$ $= 24$ cubic feet</p>	<p style="text-align: center;">Pyramid</p> <p>Unknown: Volume</p>  <p>$h = 8''$ $s = 3''$ $s = 3''$</p> <p>$B = s^2 = 3(3) = 9$ sq. in.</p> <p>Formula: $V = \frac{1}{3}Bh$ $= \frac{1}{3}(9)(8)$ $= 24$ cubic inches</p>
<p style="text-align: center;">Cylinder</p>  <p>$h = 8''$ $r = 4''$</p> <p>$B = \pi r^2 = 3.14(4)^2$ $= 50.24$ sq. in.</p> <p>Unknown: Volume Formula: $V = Bh$ $= 50.24(8)$ $= 401.92$ cubic inches</p>	<p style="text-align: center;">Cone</p>  <p>height $h = 6''$ $r = 5''$</p> <p>$B = \pi r^2$ $= 3.14(5)^2 = 78.5$ sq. in.</p> <p>Unknown: Volume Formula: $V = \frac{1}{3}Bh$ $= \frac{1}{3}(78.5)(6)$ $= 157$ cubic inches</p>	<p style="text-align: center;">Two objects</p>  <p>$h_2 = 6'$ $h_1 = 9'$ $r = 4'$</p> <p>$B = \pi r^2$ $= 3.14(4)^2 = 50.24$ sq. feet</p> <p>Unknown: Volume Formulas: $V_1 = Bh_1 = (50.24)(9) = 452.16$ $V_2 = \frac{1}{3}Bh_2 = \frac{1}{3}(50.24)(6) = 100.48$ $V = V_1 + V_2$ $= 452.16 + 100.48 = 552.64$ cubic feet</p>