**Day 8:**

**VOLUME AND CAPACITY OF CYLINDERS AND CONES**

The volume of a cylinder is calculated using the general formula for the volume of a prism: **V = Abase × *h***. In a cylinder, the area of the base is the area of a circle: **π*r2***. So the formula for volume of a cylinder combines these two formulas to make:

 ***V = π*r2h**

Example 1: A cylinder has a radius of 5.3 cm and a height of 14.8 cm. Calculate its volume and capacity.

Solution: Use the formula for volume to calculate the volume. Then use the conversion to calculate the capacity.

 ***V = π*r2h**

***Capacity*** =

The volume of a cone is equal to $\frac{1}{3}$ of the volume of a cylinder with the same base and height. The volume is calculated using the following formula:  **V =** $\frac{1}{3}$ **× Abase × *h***

For a cone, the formula is: **V =** $\frac{1}{3}$ ***πr2h or V =* 1 ÷ 3 × *π* × *r2* × *h***

Example 2: A paper cup is shaped like a cone. It has a radius of 5 cm and a height of 8 cm. Calculate its volume and capacity.

 ***Capacity***:

**ASSIGNMENT 12 – VOLUME AND CAPACITY OF CYLINDERS AND CONES**

1) Calculate the volume and capacity of a cylinder with a radius of 27 cm and a height of 45 cm.

2) A large cylinder has a capacity of 4.25 L. If the cylinder has a *diameter* of 13 cm, what is the height of the cylinder?

3) Find the volume of a cone with a radius of 5 inches and a height of 14.5 inches.

4) A cone has a radius of 15 mm and a volume of 5890.5 mm3. What is the height of this cone?

5) Which has a greater volume – a cylinder with a radius of 2.5 cm and a height of 16.7 cm or a cone with a diameter of 4 in. and a height of 6 in.? Hint: 1 inch = 2.54 cm.

Assignment: Fascinating Facts Sheet