Topic

Volume of A Right Circular Cone

Objective

To get the formula for the volume of a right circular cone experimentally.

Previous Knowledge Required

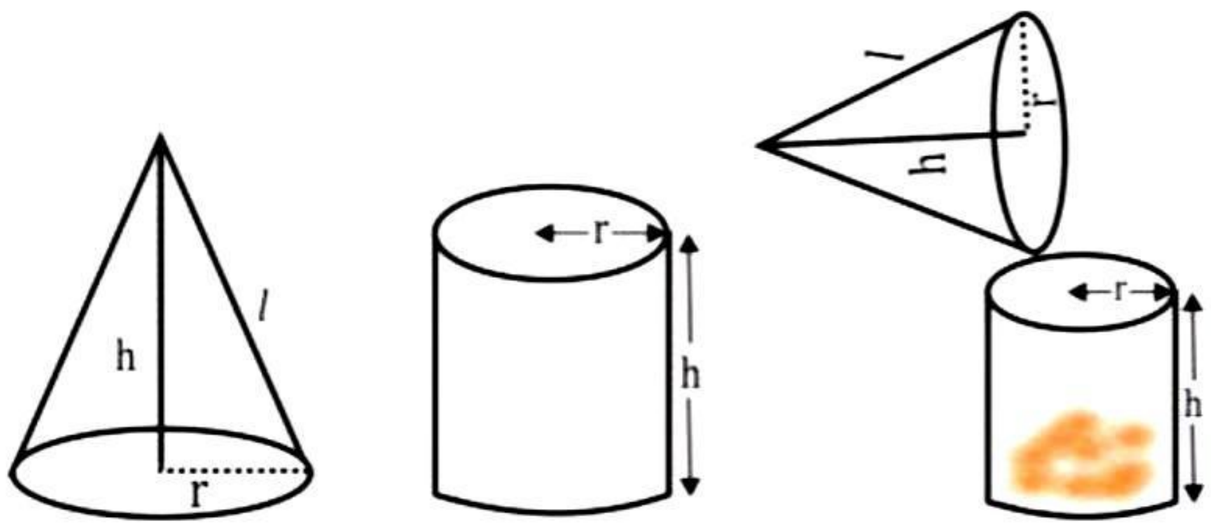
1. Formula for the volume of a cylinder.
2. Concept of volume and its proportionality to the quantity of matter.

Material Required

One cone and one cylinder have the same height and base radius, sand.

Procedure

1. Fill the cone with sand.
2. Pour the sand from the cone into the cylinder.
3. Fill the cone with sand again and pour it to the cylinder.
4. Repeat the same process until the cylinder fills completely with sand.



Observation And Result

Students will observe that the cylinder gets filled after pouring the sand three times from the cone.

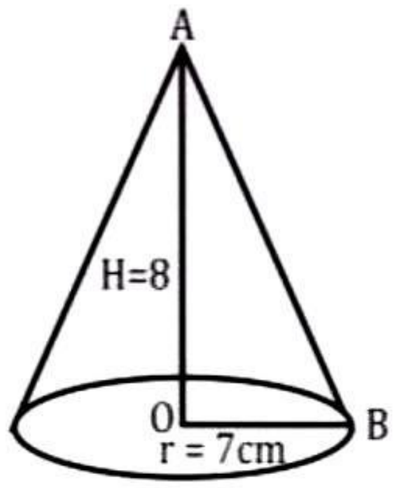
Volume of cone $= \frac{1}{3}$, Volume of cylinder $= \frac{1}{3}\pi r^2 h$

Learning Outcome

Through this experiment, students will learn the relationship between the volume of a cone and a cylinder.

Activity Time

1. Find the volume of the cone.
2. What will be the volume of the cylinder having the same height and radius given above?



VIVA VOCE

Q 1. Radius of a cone is halved, and height is doubled. What effect will be on its volume?

Ans. It will be half of original.

Q 2. Radii of two cones of the same heights are in the ratio 2:5. Find the ratio of their volume.

Ans. 4: 25

Q 3. What is the volume of a cone?

Ans. $\frac{1}{3}\pi r^2 h$

Q 4. Two cones have their heights in the ratio 1:3 and the radii of their bases are in the ratio 3:1. What is the ratio of their volumes?

Ans. 3: 1

Q 5. Base radii of two cones of the same heights are in the ratio 3:5. Find the ratio of their volumes?

Ans. 9: 25

MULTIPLE CHOICE QUESTIONS

Q 1. The height of a cone is 15 cm. If its volume is 1571. 4 cm^3. Then the radius of the base is:

(a) 10 cm (b) 15 cm (c) 5 cm (d) None of these

Q 2. The volume of the largest right circular cone that can be fit in a cube whose edge is 14 cm, is:

(a) 71.86 cm^3 (b) 718.6 cm^2 (c) 718.6 cm^3 (d) None of these

Q 3. Volume of the right circular cone with radius 3.5 cm, height 12 cm is:

(a) 145 cm^3 (b) 154 cm^3 (c) 622.4 cm^3 (d) None of these

Q 4. The radius and height of right circular cone are in the ratio 5 :12. If its volume is 2512 cm^3. Then the slant height is:

(a) 10 cm (b) 24 cm (c) 26 cm (d) None of these

Q 5. A heap of wheat is in the form of a cone whose diameter is 10.5 m and height are 3 m, then the volume is:

(a) 86.625 m^3 (b) 8.6625 m^3 (c) 866.25 m^3 (d) None of these

Answer Key

1.(a)	2.(b)	3.(c)	4.(d)	5.(a)