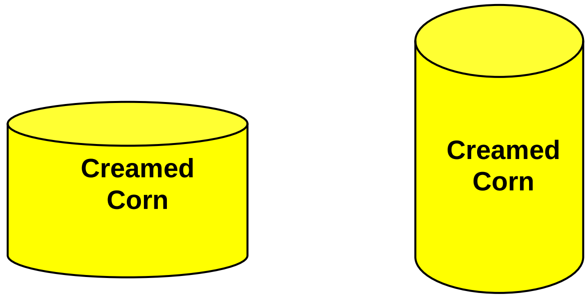
Canned Creamed Corn Volume Comparisons



Background

Cyrus C. Cylinder Creators is producing cans for creamed corn. They will be using a sheet of aluminum measuring 8.5 inches by 11 inches. The engineers want to know if different shapes will yield different volumes. They would like to have the largest volume possible with the sheet of aluminum. In this activity you will test which shape will give the largest volume.

Materials: cardstock, tape, large spherical cereal, ruler

Procedure

1. Using two sheets of card stock 8.5 inches by 11 inches. Roll one sheet into a cylinder length-wise. Tape the ends together overlapping as little as possible. Roll the other sheet into a cylinder width-wise and tape the ends together overlapping as little as possible.

   Predictions
   a. Which cylinder do you *think* will hold more creamed corn?

   b. Which cylinder appears to have the greater lateral surface area?

   c. Which cylinder appears to have the greater surface area?

   d. Which cylinder appears to have the greater volume?

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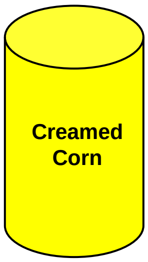
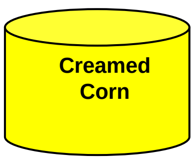
2. Measure the radius and height of each cylinder to the nearest tenth of a centimeter. Record the measurement in the table below.

Type of Cylinder	**Radius of Cylinder (cm)**	**Height of Cylinder (cm)**	**Area of One Circular Base (cm^2)**	**Lateral Surface Area (cm^2)**	**Surface Area (cm^2)**	**Volume (cm^3)**
						
						

3. Stand the cylinders on end. Fill each with cereal level to the top of the container. Count the number pieces of cereal in each cylinder. This represents the concrete measurement of volume found by experimentation.
   a. How much cereal does the tall, narrow can hold? ____________
   b. How much cereal does the short, wider can hold? ____________

4. Use the measurements in the table to calculate the area of one of the circular bases, the lateral area, the surface area (assume the cylinder has ends), and the volume of each cylinder. Complete the table.

5. According to the data in the table, which cylinder has the most lateral area? How does this compare to your prediction?

6. According to the data in the table, which cylinder has the most surface area? How does this compare to your prediction?

7. According to the data in the table, which cylinder has the most volume? How does this compare to your prediction?

8. Does changing the shape of the container affect the volume the container holds? Explain.