Math Lab: Volume of a Cone

Print these instructions so you can record your answers. Keep this in your course folder (binder) to refer to later.

The volume of a cone is related to the volume of a cylinder. Perform the short investigation below to see how the volume of a cone and a cylinder with the same height and radius are related.

Purpose

The purpose of the investigation is to compare the volume of a cone to the volume of a cylinder.

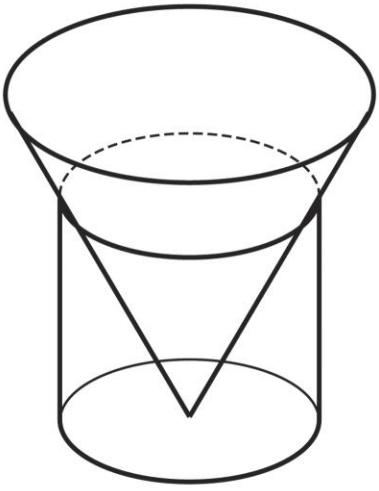
Materials

- dry, empty soup can
- cereal
- loose-leaf paper
- tape
- scissors
- crayon or pencil

Procedure

Step 1: Roll the loose-leaf paper into the shape of a cone so that its tip touches the bottom of the can. Ensure that the tip is pointed and does not have a large gap.

Step 2: Allow the cone to spread wider until the side is touching the opening of the can the way that the illustration below demonstrates.



Step 3: Holding the loose-leaf paper together, remove the cone from the can. Then use tape to hold the paper together.

Step 4: Place the cone back in the can, and use the crayon to draw a line all the way around the can where the lip of the can meets the cone.

Step 5: Use the scissors to cut along this line. You should now have a cone that has the same radius and height as the soup can.

Step 6: Fill the cone to the top edge with cereal. Do not fill to overflowing.

Step 7: Dump the contents of the cone into the can.

Step 8: Repeat steps 6 and 7 until the can is full.

Analysis

1. How many times could you fill up the cone before the soup can was full?

2. What fraction of the volume of the soup can is the volume of the cone?