

Cubed Cans

NAME _____

Why do companies choose to pack cylindrical objects in rectangular prism containers? Do cylinders hold more or less volume than other objects with the same surface area? Food Containers Corporations has hired you to design a new container for various items they currently ship in cylinders. Your task is to take one of the cans provided and convert it to prisms with different dimensions, and then explore the volumes and surface areas of your cans.



Use the formulas below to help with your calculations:

SHAPE	VOLUME	SURFACE AREA
Cylinder	$\pi r^2 h$	$2\pi r^2 + 2\pi rh$
Rectangular Prism	lwh	$2lw + 2wh + 2lh$

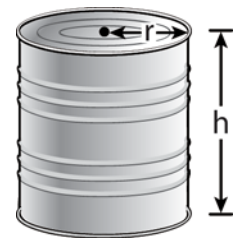
1. Record your measurements and dimensions for your cylinder below.

radius = _____

height = _____

volume = _____

surface area = _____



2. What rectangular prisms could you make with a volume approximately equal to the volume of your cylinder? For every possible prism, record the measurements in the table below.

LENGTH	WIDTH	HEIGHT	VOLUME	SURFACE AREA

3. Which dimensions would you recommend for the company to use?

4. Do you notice anything special about the dimensions in the prism you chose? What?

5. Would the company require more or less surface area for your prism than their cylinder?

6. Why would a company want to ship items in a box with less surface area?