

# Soft Drink Container Lab

Name(s): \_\_\_\_\_

A conservation group is concerned about the wasted space in the packaging of certain items. They have asked you to investigate the unused space in the cardboard boxes that contain soft drinks.

**Be sure that each measurement is taken by at least two members of the group to ensure accuracy.**

1. Carefully measure to the nearest millimeter the length, width and height of the unopened cardboard container. Then determine the volume rounded to the nearest cubic centimeter.

Length \_\_\_\_\_ Width \_\_\_\_\_ Height \_\_\_\_\_

Volume \_\_\_\_\_

2. Carefully measure to the nearest millimeter the diameter and height of one soda can and then determine the volume rounded to the nearest cubic centimeter. You may measure as if the top and bottom are flat and fit flush to the side.

Diameter \_\_\_\_\_ Height \_\_\_\_\_

Volume \_\_\_\_\_

3. What is the total volume of wasted space in the carton? Show your work.

\_\_\_\_\_

4. What shape should the soda be packaged in so that the same number of cans would

take up the entire volume of the carton?

---

What would be the dimensions of the new 'cans'? Explain.

5. Carefully open the cardboard container and lay it flat. Taking the necessary measurements, determine the amount of cardboard used to construct the box. Keep in mind that the end flaps overlap when the box is closed. Draw a sketch indicating the measurements taken. What is the total surface area of the carton rounded to the nearest square centimeter? Show your work.

---

6. Using the measurements from #2 above, calculate the total surface area of a can rounded to the nearest square centimeter. Show all your work.

---

7. How many square centimeters of aluminum were used to make all the cans in the carton?

---

8. How much aluminum would be used in making the new 'cans' in #4?

---