

# Sure-Strike Ping Pong Balls

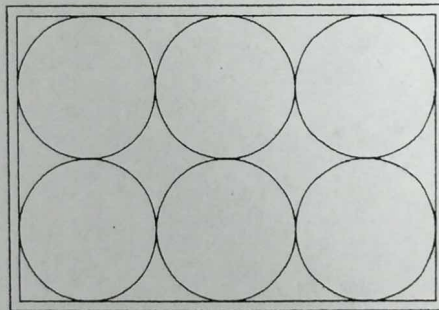
A Problem Solving Exercise

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## The Scenario

Sure-Strike brand premium ping-pong balls are the best balls to play with. Each ball is precision-molded with advanced machinery so that it's perfectly spherical. When you spike a Sure-Strike ball, you know exactly where it's going!

Each box of Sure-Strikes contains a dozen balls. The diagram below shows what you would see upon opening the top of the box. Twelve balls fit snugly in each box in two layers, and each ball has a radius of precisely 20 millimeters.



## The Problem

What is the volume of the factory air you release when the box is opened for the first time?

## Hints

- Remember to use your formulas for finding the volume of solids.
- You only have one measurement to go on, but it's enough to determine the measurements of everything else.

## Extra

Each ping-pong ball has a thickness of .5 millimeter. What is the total volume of just the plastic of the balls in one box?

## Performance Task

The Student Government is putting together ingredients for a fudge sundae eating contest. To make the contest fair, they are packaging the individual ingredients ahead of time with equal amounts. Each contestant will receive 4 maraschino cherries encased in a cylinder with cherry juice. The cherries are 2 cm in diameter. The cylinder has a height of 4 cherries and a radius of 1 cm. How much cherry juice will be in the cylinder?

Work in terms of  $\pi$ . Draw a picture to represent the problem and show all of your work.