

## Geometry – Standard G.GMD.3 – Intro and Explore

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Go to Moodle and open the link “Spinning Rings and Coins Problem”. Watch the short video and read the short bit of writing that appears there.

In the video, the hands spun a ring, a penny, and a big campaign coin from the 2008 presidential election.

1. Of the 3D shapes that we have explored so far, which type of shape did those objects most closely resemble when they were spinning? Explain your thoughts in at least two sentences.

By the end of this, you are going to find the volume and surface area of the “spinning” shapes. We will begin by focusing on the penny.

2. For the shape that you and your team agreed on for #1, write the formulas for volume and surface area.
3. What pieces of information from those formulas are you missing right now?
4. How can you use the penny to find the missing information?
5. Now, use the penny and find the missing information and calculate the volume and surface area of the shape made by the spinning penny.

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6. In order to fit them on the shelves of a newly-built grocery store, Coca-Cola realizes that it has to produce a special can that is 1 inch shorter than a standard can. They'd like to keep the same amount of soda in the can. Describe the necessary change to the radius that will not change the amount of soda in the can while shortening the can by 1 inch.
  
  
  
  
  
  
  
  
  
  
7. The Pennfield Candy Company is making a remarkable new kind of candy. They are going to take small pieces of chocolate and coat them with a colorful candy shell. To make sure that their candy is distinct from the rest of the candy, they are going to use a cone shape to package the candy.
  - a. Suppose that the cone-shaped package had a base radius of 5 cm and was 8 cm tall. Sketch a picture of that cone package and then find its volume.
  
  
  
  
  
  
  
  
  
  
  - b. It turns out that stores don't like stocking cones because of the circular base. So, the Pennfield Candy Company chooses to switch to a square pyramid-shaped package instead. Wanting to keep the height the same and the amount of candy they sell the same, they need to determine the dimensions of the base. Sketch the pyramid package and then figure the dimensions of the base so that they can sell the same amount of candy in the new package.