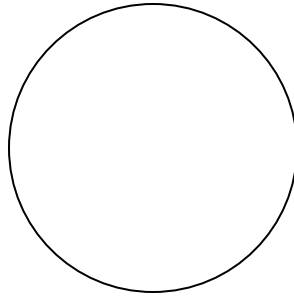


How Big is the Sun?

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

In front of you are many spheres of different diameters. To make sure you understand the word diameter, draw and label the following on the circle below:  
*radius, diameter, circumference.*



Your goal is to choose the two spheres that together make the most accurate model of the relative sizes of the Sun and Earth. Discuss and hypothesize with your group which two objects make the best pair. Record your choices below. Using a meter stick, measure the diameter of each sphere. Record your data below.

	Sun Sphere	Earth Sphere
Type of Sphere		
Diameter of Sphere (cm)		

Now take the diameter of your “Sun” and divide it by the diameter of your “Earth”. This will tell you how many times wider you think the Sun is compared to the Earth.

**$D_s/D_e$  for your group = \_\_\_\_\_**

The teacher will collect this number from each group and calculate the class average.

**$D_s/D_e$  for the class = \_\_\_\_\_**

Once you have the class average, it’s time for the truth. How many times bigger is the Sun than the Earth? Drum roll please.....

**True  $D_s/D_e$  = \_\_\_\_\_**

Now it’s time to analyze how far off you were. Divide your group’s  $D_s/D_e$  by the True  $D_s/D_e$  and multiply by 100. That will tell you how close you were to the correct number, as a percentage. The higher the percent, the closer you were.

**Your accuracy percentage = \_\_\_\_\_**

**Analysis:**

- 1) Was your “sun” sphere too small, too big or just right?
- 2) Was your “earth” sphere too small, too big or just right?
- 3) When choosing the spheres, was your group in agreement or was there a large range of ideas? How did you come to a consensus?
- 4) Compare your accuracy percentage to the class average. Were you more or less successful at predicting the sizes than the other groups? Answer with evidence.
- 5) Based on the information you have acquired, now think about the volume of the Sun. Remember that volume is a 3D measurement. How many times greater is the Sun’s volume than the Earth’s volume? In other words, how many Earths could you fit into the Sun? Make an educated guess.
- 6) What surprised you the most about the size of the Sun?
- 7) a) Look in your textbook and around the classroom for models, posters, etc. that show the Sun and the Earth. Are they to the correct scale? List each example.  
  
b) These misrepresentations lead to misconceptions about the Sun’s size. Why is it so hard to represent the Sun accurately?

**BONUS CALCULATION:** Determine how big the Moon would be on this scale. Then come up with a sphere that could represent the Moon.