

Lab

Name _____

*Using Spheres to Examine Changes
in Volume and Surface Area*

Introduction Activity: (answers rounded to nearest tenths)	
Circumference of the ball	
Radius of the ball	
Surface Area: $SA = 4\pi r^2$	
Volume: $V = \frac{4}{3}\pi r^3$	



Complete the following chart using the formulas stated above:

Radius	Surface Area of Sphere	Volume of Sphere
1		
2		
4		
6		
8		
12		
16		
x		
$2x$		
$3x$		

Questions: Using the information recorded in your chart, answer the following questions.

Surface Area:

1. What happens to the surface area of a sphere when the radius is doubled?

2. What happens to the surface area of a sphere when the radius is tripled?

3. If the radius of the sphere were multiplied by x , how would the surface area increase?

Volume:

4. What happens to the volume of a sphere when the radius is doubled?

5. What happens to the volume of a sphere when the radius is tripled?

6. If the radius of the sphere were multiplied by x , how would the volume increase?

Now that you have discovered how radius, surface area and volume are related, answer the following questions about the Introduction activity using these discoveries:

If the radius of the ball is doubled, what is the new surface area to the nearest tenth? (Label answer)

If the radius of the ball is doubled, what is the new volume to the nearest tenth? (Label answer)

