Measurement Lab   Name _____

Purpose: To use common laboratory tools to measure familiar objects.

Materials:
     Ruler   Balance   Beaker   Graduated cylinder
     Test Tubes   Block   Ball   Irregularly shaped object
     String   Sodium chloride

Safety:
     Goggles will be worn throughout the laboratory period

Procedure:
1. Measure the length, height, and width of the small block in centimeters. Using the volume equation below, calculate the volume in cubic centimeters (cm^3) Record the measurement and answers in the table below.
$$V = l \text{ x } w \text{ x } h$$
$$V = ? \text{ cm}$$

	Length (cm)	Width (cm	Height(cm)	Volume (cm^3)
Trial 1				
Trial 2				
Trial 3				
			AverageVolume	

2. To measure the circumference of the ball, wrap a piece of string around the ball and mark the end point. Measure the length of the string. Make two more measurements of the circumference of the ball and record you data in the table.
3. Find the average of the three measurements from the average

	Circumference (cm)	Difference from average(cm)
Trial 1		
Trial 2		
Trial 3		
Average		

4. Place a small beaker on the balance, and measure the mass. Record the value in the data table below. Measure to the nearest .01 gram.
5. Move the rider to a setting that will give you a value 5 grams more than the mass of the beaker. Add sodium chloride (table salt) to the beaker a little at a time until the balance begins to move. You now have about 5 grams of salt in the beaker. Measure the mass of the beaker and the salt and record it in your data table. Subtract the mass of the beaker from the mass of the sodium chloride and beaker to determine the mass of sodium chloride.

6. Repeat steps 4 and 5 two more times, and record the data in you data table. Find the averages of you measurements as indicated in the table

	Mass of sodium chloride and beaker (g)	Mass of beaker (g)	Mass of sodium chloride (g)
Trial 1			
Trial 2			
Trial 3			
Average			

7. Fill one of the test tubes with water. Pour the water into a graduated cylinder.
The top of the graduated cylinder will have a downward curve. The curve is called a meniscus. Record the capacity of the test tube in the data table below. Measure the capacity of the other test tubes, and record them. Find the average capacity of the test tubes.

	Volume (mL)
Trial 1	
Trial 2	
Trial 3	
Average	

8. Pour about 10 mL of water into the graduated cylinder. Record the volume of the water as precisely as possible.
9. Gently drop a small object into the graduated cylinder. Be careful not to splash any water out of the cylinder. You may find it easier to tilt the cylinder slightly and let the object slide down the side. Record the volume on your table. Determine the volume of the object by subtracting the volume of the water from the total volume.
10. Repeat steps 9 and 10 two more times and find the average volume of the object

	Total Volume (mL)	Volume of water only (mL)	Volume of object (mL)
Trial 1			
Trial 2			
Trial 3			
		Average	