Name:_____ Date:_____ **Measurement Lab**

Directions: By the end of this lab, you should be able to measure objects to the correct number of significant figures. Each lab station has a wide array of lab equipment out for you. For each item, write the information down below, **recording with the correct number of significant figures and units.** Note that each measuring device has a different amount of markings, and as such, will require a different amount of digits/decimals.

Figure 1: *Note the different amount of markings on each of the rulers used for measuring in this lab. The Sargent-Welch ruler also uses cm.*

Prelab Question 1: What does the word "precision" refer to in chemistry, and how will you know which of the rulers in the lab is the most precise? Explain.

Prelab Question 2: Can you have a set of data be accurate but not precise? Alternatively, can data be precise but not accurate? Explain.

Part I: Distance- You must measure the copper wire. Then, choose 5 other objects around the room.

Item Name	Measured with Blue Lowe's Ruler	Measured with Orange Home Depot Ruler	Measured with "real" ruler
Diameter of copper wire			
Diameter of penny			
Diameter of an Erlenmeyer flask			
Diameter of a marble			
Length of red container			
Length of the side of one (any) metal cube			
Height of the tall CHS Chem test award			
Height of the small CHS chem test award			

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Part II: Volume and Mass- Measure all of these objects.

Item	Volumes	Item	Mass
10 mL Cylinder A 10 mL Cylinder B 10 mL Cylinder C		Golf Ball A (pink)	
25 mL Cylinder A 25 mL Cylinder B 25 mL Cylinder C		Golf Ball B (blue)	
50 mL Cylinder A 50 mL Cylinder B 50 mL Cylinder C		Golf Ball C (grey)	

Post Lab Questions:

1. Say you meet a person who has never heard of significant figures before, and they are trying to measure the diameter of a dime with a 30 cm long ruler that only has markings at every 10 cm. Explain how their choice in rulers will impact the certainty of their measurement. (3 sentence minimum)

2. Suppose you have a ruler with markings at every 10 cm, 1 cm and also every 0.5 cm. How many decimals would your measurement have if you measured with this ruler? Explain.