

## Beaker & Flask Accuracy Lab

NAME: \_\_\_\_\_ DATE: \_\_\_\_\_ PERIOD: \_\_\_\_\_

### Question:

Are the volume lines on beakers and Erlenmeyer flasks reliable enough to measure out liquids in a laboratory experiment?

### Hypothesis:

**Sketch and label a beaker, an Erlenmeyer flask and graduated cylinder below.**

### Procedure:

- 1) Obtain the following four beaker sizes: 50-mL, 100-mL, 150-mL, 250-mL
- 2) Obtain the following four flask sizes: 50-mL, 125-mL, 250-mL, 500-mL
- 3) Fill each one to the first listed volume line with water. For example, the first volume line from the bottom on the 50-mL beaker is 10-mL.
- 4) Record the value for the *first volume line* of each beaker or flask in the appropriate column. For the 50-mL beaker that value would be 10-mL.
- 5) Transfer the water from the flask or beaker into the 100-mL graduated cylinder and record this value in the graduated cylinder column.

### Data and Calculations:

Beaker or Flask	First Volume Line (OBSERVED)	Volume in Graduated Cylinder (ACTUAL)	Absolute Error	Percent Error	Percent Accuracy
50-mL Beaker					
100-mL Beaker					
150-mL Beaker					
250-mL Beaker					
50-mL Flask					
125-mL Flask					
250-mL Flask					
500-mL Flask					

**Useful Equations:**

$$\text{Absolute error} = |\text{Actual} - \text{Observed}|$$

Record to one decimal place.

$$\text{Percent Error} = \frac{|\text{Actual} - \text{Observed}|}{\text{Actual}} \times 100$$

Record to one decimal place.

Show work for Absolute Error for the 50-mL beaker.

Show work for Percent Error for the 125-mL flask.

What piece of glassware (beaker, flask, graduated cylinder) should be used to accurately measure out liquids? \_\_\_\_\_

**Conclusion:****Station # 1 Identification of Glassware**

Write the name of the glassware in the appropriate blank below.

1) \_\_\_\_\_ 2) \_\_\_\_\_ 3) \_\_\_\_\_ 4) \_\_\_\_\_ 5) \_\_\_\_\_

**Station # 2 Reading the Volume**

Read the volume of the colored water in each piece of glassware and list below.

GLASSWARE	READING
Beaker	
Erlenmeyer flask	
Volumetric flask	
Buret	
Graduated cylinder	

Give an appropriate laboratory use for each of the following:

Graduated cylinder

Beaker