Name:

Measuring Mass

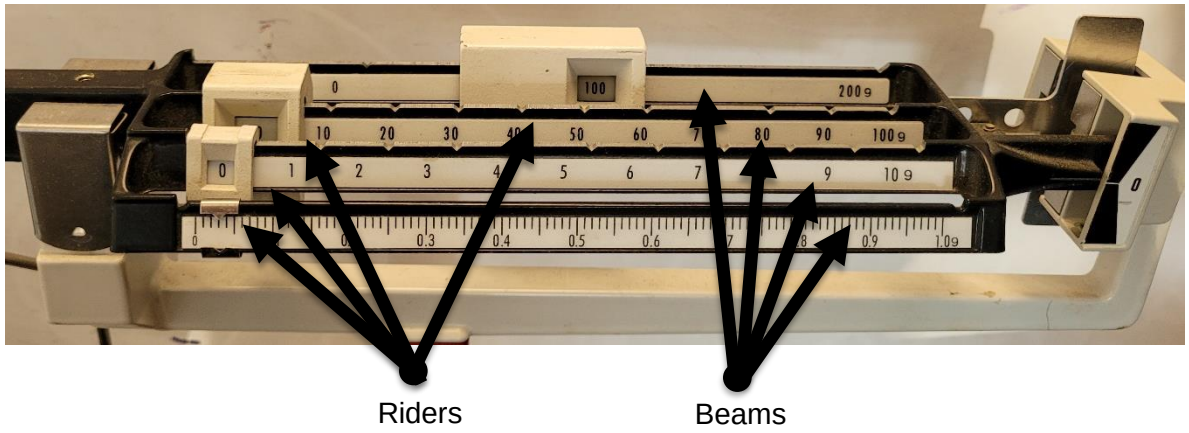
Learning Standards:
To learn the names of common objects found in the science lab
To observe, measure, and record data using science equipment

Determining mass using triple beam balances.
Tips: Add up the numbers on each of the four scales. Measure to two decimal places.

i) Practice:



1) In the metric system the unit of mass is the _____

meter, kilogram, pound

2) Mass and weight _____ the same.

are, are not

3) _____ is a measure of the amount of matter in an object.

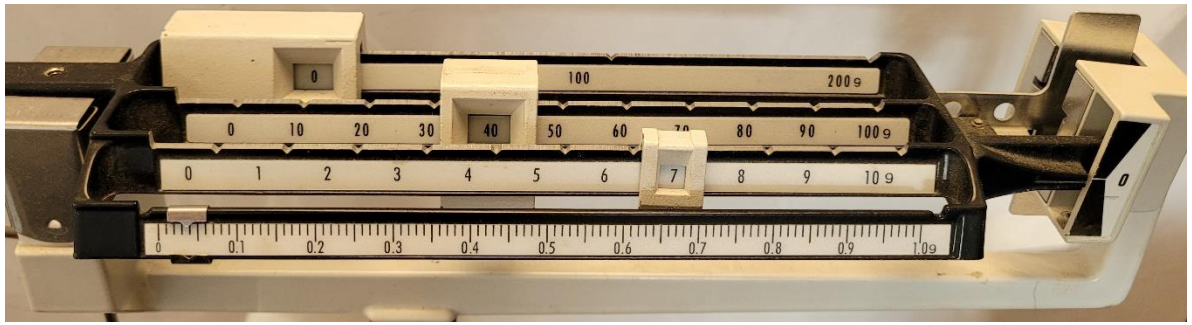
mass, weight

4) How can you tell if a triple beam balance is “balanced” (reading the correct mass)?

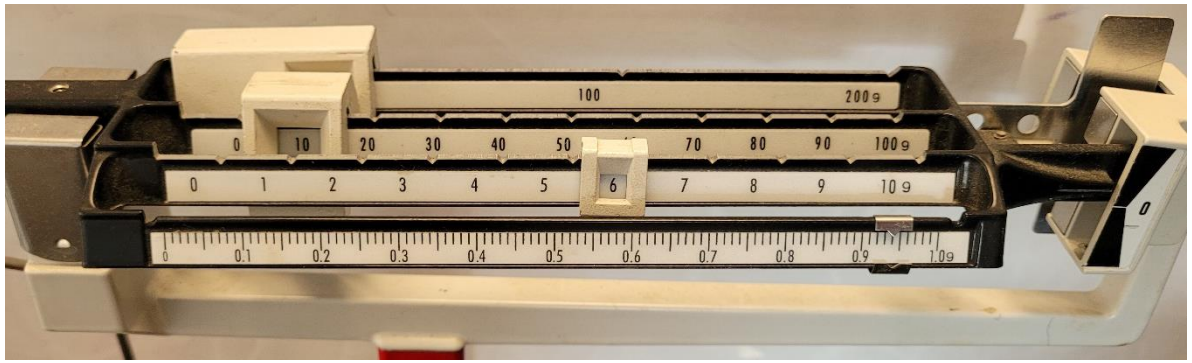
5) Is the triple beam balance above “balanced”? _____

6) What is the mass of the object shown above? _____

Mass of above scale: _____



Mass of above scale: _____



Mass of above scale: _____

Your lab partner did this measurement but clearly wasn't listening to the instructions. How can you tell?

Is this measurement an over or under measurement?

What mass is shown in the above (unbalanced) scale: _____

ii) Measure Mass with Different Scales:

Select masses to create the four different amounts (If exact masses are not available just try to get close). Measure each amount with the three different scales and record the information in the proper column. Make sure you have the correct number of decimal places for each balance/scale *Careful! Different scales/balances have different measurement scales.

	Amount 1: 50g	Amount 1: 120g	Amount 1: 600g	What do you notice (Similarities/ Differences)	Which do you think is most accurate and why
Mass on kitchen scale					
Mass on triple beam balance					
Mass on quad beam balance					

iii) Find the mass of 4 objects of your choice:

Measure the mass of four objects of your choice. For each object measure the two ways indicated to ensure you are correct. Make sure you have the correct number of decimal places for each balance/scale.
Make sure to record your data in the appropriate column.

	Object 1	Object 2	Object 3	Object 4
Mass on kitchen scale				
Mass on triple beam balance				
Mass on quad beam balance				

What are some differences you noticed between triple and quad beam balances?
(Which one did you feel you could read more accurately, why?)

When would we use a quad beam balance instead of a triple beam balance?

When would we use a kitchen scale?

iv) Mini Experiment:

Problem: What is the relationship between the mass and volume of water at 0 °C?

Procedure:

1) Measure out a volume of water as close to 0 °C as possible using what you believe to be the most appropriate tool to maximize accuracy and precision.
2) Come up with a way to determine the mass of this water.

Questions:

1) What tool did you use to measure the volume of the water? Why?

Temperature of water: _____

2) What tool did you use to measure the mass of the water? Why?

3) Explain how you measured the mass of the water.

4) What do you believe is the relationship between 1 mL of water and 1 g of water?