Name :\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Per \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Mass Lab**

**Objective:** Learn how to use the triple beam balance to measure the mass of different objects.

**Important…….Before you start:** Before you measure the mass of any object, be sure that the riders are moved all the way to the left and that the pointer rests on zero. If necessary, slowly turn the adjustment knob until the pointer rests on zero. This is called zeroing the balance.

**Procedure: Part A: Measuring Mass Directly**

1. Place a small, solid object on the balance pan. The beams will rise and the pointer will point above zero.

2. Move the rider on the middle beam one notch at a time until the pointer drops and stays below zero. Move the rider back one notch.

3. Move the rider on the back beam one notch at a time until the pointer again drops and stays below zero. Move the rider back one notch.

4. Slide the rider along the front beam until the pointer stops at zero. The mass of the object is equal to the sum of the readings on the three beams.

5. Record the mass accurately and precisely in Data Table 1.

6. Remove this object and repeat steps 1-5 with two other objects.

**Part B: Finding Mass by Difference**

1. Find the mass of an empty container. Record the mass in Data Table 2.

2. **Carefully** add three marbles to the container.

3. Find and record the mass of the container and marbles.

**Data Table 1: Data Table 2:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Object** | **Mass (g)** | **Mass of empty container(g)** | **Mass of container with 3 marbles (g)** |
|  |  |  |  |
|   |  |  |  |
|  |  |  |  |

**Analyze and Conclude (use complete sentences)**

1. What is the mass of the three marbles? How did you find this mass?

2. Which rider should always be moved first when finding the mass of an object? Why?

3. What is the mass of the largest object your balance is able to measure?

4. What is the mass of the smallest object your balance is able to measure accurately?

5. After using your balance how should it always be left?