

Techniques - Electronic Balance

The electronic top-loading balance is a convenient tool for measuring mass. These balances are used to weigh samples ranging from 0.5 grams to a few hundred grams, where an accuracy of ± 0.05 grams (50 mg) is acceptable. Whenever a balance is moved, it must be leveled, so check with your instructor before moving a balance.

Step-by-step Instructions

There are a number of different models of balance used in the Biology Department, but the operation is similar for all types. Each of these balances measures the difference in mass before and after addition of a sample.

$$\text{mass of object} = (\text{mass after}) - (\text{mass before})$$

Setting the mass to zero before you add your sample ensures that the balance displays the mass of the sample alone.

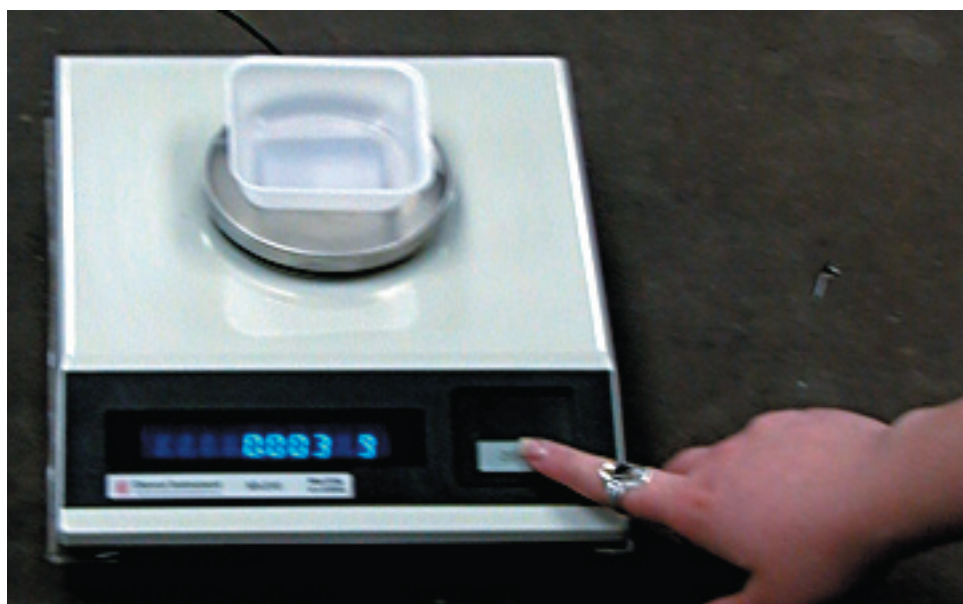
1. Make sure that the balance is set to display mass in grams. You will see a “g” at the right side of the

digital display (see photo). Some balances can also display weight in Newtons. If your balance is not reading mass in grams, contact your instructor.

2. Choose a clean, dry weigh boat, and place it on the balance pan (see photo).
3. Set the mass to zero before adding your sample (see photo).
4. Add your sample to the weigh boat, and read the mass on the display. If the thousandths of a gram digit fluctuates, ignore it and record your mass to the hundredths place.

When weighing chemicals, amounts added to the weigh boat in excess of the amount needed cannot be returned to the container. These chemicals must be thrown away. For this reason, it is best to add material to the weigh boat very slowly.

When you have finished, make sure that the balance is clean and dry. Wipe off any spilled powder with a damp towel.



The student has placed a weigh boat on the balance pan, and is preparing to press the “Zero” button.