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W **BASIC LAB SKILLS:** **5**
B **WEIGHING BALANCE AND BUNSEN BURNER**

I. Using a Weighing Balance**A. Basic Weighing**

1. Turn on the balance.
2. Place the container on the balance.
3. Press “tare” on the balance. Read-out shows 0.
4. Transfer the sample to the container. Read-out shows the mass of the sample.

Notes

1. A weighing paper may be used as an intermediate container. Fold the weighing paper diagonally to make a triangle. Unfold, then place on the pan. The fold makes it easier to transfer the sample especially to a container with narrow opening.
2. Be careful not to take excess sample. Excess chemicals can not be returned to the bottles to avoid contamination.
3. Always keep chemical containers capped.

Let’s Practice

1. Fold a weighing paper diagonally and place on the balance
2. Press “tare” on the balance. Read-out shows 0.
3. Add ~1 g of NaCl. Record the weight of the NaCl.

B. Weighing by Difference

1. Turn on the balance
2. Press “tare” on the balance. Read-out shows 0.
3. Place the container on the balance. Read-out shows the mass of the container.
4. Transfer the sample to the container. Read-out shows the mass of the container with sample.
5. The mass of the sample is equal to the mass of container with sample minus the mass of the container.

Let’s practice

1. Press “tare” on the balance; display shows 0.
2. Place an Erlenmeyer flask on the balance. Record the mass of the flask shown in the read-out.

3. Add ~1 g NaCl to the flask by transferring NaCl from the chemical bottle until the readout displays a mass ~1 g more than the mass of just the flask. Record the mass of the Erlenmeyer flask + NaCl shown in the read-out.
4. Calculate the mass of the NaCl transferred from the chemical bottle to the flask.

II. The Bunsen Burner

A. Using a Bunsen Burner

1. Figures 1 and 2 show a Bunsen burner and a bench gas valve, respectively. Connect the rubber tubing from the gas inlet of the Bunsen burner to the outlet of the gas valve. Make sure the gas valve is off, with the handle of the valve perpendicular to the outlet, as shown in the gas valve to the left on Figure 2. The gas valve should always be off when the burner is not lit.

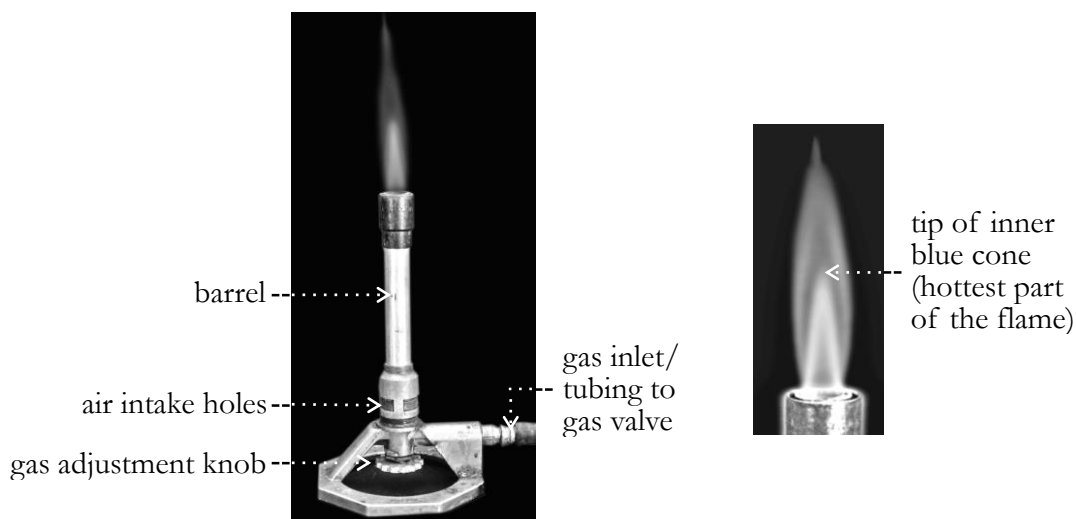


Figure 1. The Bunsen burner

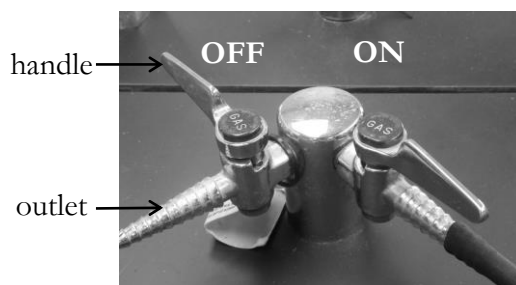


Figure 2. The gas valve

2. Controlling the gas and air supply is key to the operation of a Bunsen burner. Start with the gas adjustment knob closed or screwed all the way up and the air intake holes closed or the barrel screwed all the way down.

3. Turn the bench gas valve on by rotating the handle so it is parallel to the outlet as shown in the gas valve to the right on Figure 2.
4. Open the gas adjustment knob around one full turn. You will hear a gentle hiss of the barrel.
5. Bring the flame of a lighter to the top of the barrel. The burner flame will be yellow.
6. Rotate the barrel to open the air holes to intensify the flame and change its color to blue. The hottest part of the flame is the inner blue cone (see Figure 1).
7. Readjust the gas adjustment knob to change the size of the flame and the barrel to change the color of the flame, as needed. If the burner flows loudly, blows itself out, or has a detached flame, reduce the gas and then readjust the air flow.
8. Never leave a lighted burner unattended. Be careful around Bunsen burners as the flame could be nearly invisible.
9. To turn off the burner, screw the barrel down completely, screw the gas adjustment up completely, and turn the gas valve off.

B. Lighting a Wood Splint

1. Light the Bunsen burner.
2. Place a wood splint edgewise across the base of the flame at the top of the barrel. Observe.
3. Now place the splint to the tip of the inner cone. Observe.
4. The wood splint should be disposed in the beaker inside the hood.

C. Heating Substances in a Test Tube

1. Fill a test tube to about 1/3 full.
2. Light the Bunsen burner.
3. Hold the test tube with a test tube holder. The test tube must be at 45° and the open end is not pointing at yourself or other people as you bring it to the flame.
4. Move the test tube back and forth to prevent any one portion from being heated too strongly.

CLEAN-UP

- Dispose wood splint and NaCl to containers in the hood. Dispose weighing paper in trash can. Water goes down the drain.
- Wash glassware. Return materials where they belong.
- Make sure the Bunsen burner and gas valve are off, disconnect the tubing from the gas valve.

Name: _____

Date: _____

Partner's Name: _____

BASIC LAB SKILLS: WEIGHING BALANCE AND BUNSEN BURNER

DATA AND OBSERVATIONS

I. Using a Weighing Balance

A. Basic Weighing

Mass of the NaCl on the weighing paper (NaCl only) = _____

B. Weighing by Difference

Mass of the Erlenmeyer flask = _____

Mass of the Erlenmeyer flask + NaCl = _____

Mass of the NaCl on the Erlenmeyer flask (NaCl only) = _____

Show your calculation for the above mass of the NaCl on the Erlenmeyer flask in the weighing by difference exercise:

II. The Bunsen Burner

1. How do you adjust the size of the Bunsen burner flame?

