Bunsen burner lab
Pre lab

1. How is using a Bunsen burner different from using a candle?
2. What safety precautions must you always take before lighting a Bunsen burner?
3. What immediate action should you take when the flame of your burner is burning inside the barrel?
4. What kind of flame is preferred for lab work?
5. How is using a Bunsen burner different from using a candle?
6. Label the diagram using the diagram in your lab handout.
What are the parts of a Bunsen burner?

Label the diagram using these words.

air hole barrel collar tubing gas tap
Precautions

1. Follow all lab safety rules
2. Protect eyes and skin – wear aprons and goggles.
3. Tie back loose clothing and hair, remove dangling jewelry.
4. Report all accidents and glass breakages to the teacher.
5. Remove notes and papers or any other flammable materials from the lab table.
6. Know the location of the fire extinguisher and fire blanket.
7. Make sure that the opening of the burner is free of any debris.
8. Make sure the burner tube is not cracked or damaged and is securely in place before you start the next step.
9. Make sure the burner is on level and flat on the surface.
10. Coordinate turning the gas valve on only when you and your partner are ready to light the striker.
11. Shut off gas supply if unable to light and try again.
12. Close the air vents by rotating the barrel to the right (Clockwise) until it stops.
13. Get ready to turn the gas on at the stopcock. Light the striker then turn on the stopcock. Bring the striker to the top of the barrel.
14. Rotate the barrel counterclockwise to open the air vents. (If you open the vent too far, the flame may blow out again. If this happens, turn off the gas, close the gas control valve a little bit more, then light the flame again.)
15. If the gas pressure is too high, the flame will blow out and you will hear the gas escaping. Turn off the gas immediately. Reduce the gas flow by partially closing the gas control valve on the burner. Then try again to light the flame.
1. If the flame is too large, slowly turn down the flame.
2. Turn off the burner as soon as you no longer need it.
4. Now adjust the air vents until your flame distinctly produces an inner blue cone.
Fire polishing precautions

- **Fire polishing**
- Fresh cut ends can be sharp do not touch the ends until fire. Fire polish by heating and *rotate* the tube until the edges are smooth.

- Glass is a bad conductor of heat so the part of the glass that was in the flame is extremely hot for a long time.

- Do not put fire polished tubing directly on the table place on wire gauze.

- Do not fire polish the second end of the tubing until the previous fire polished end is cool.
Bending

• Hold the tubing at the ends and rotate continuously while keeping the middle part of the tube at the top of the inner blue cone.
• When the tubing gets soft, it will start to sag due to gravity. Quickly bend tube at the right angle .
• Do not place the tube directly on the table. Place the bent tube on a wire gauze.
• Do not touch the bend as it will be hot.
4.2.2

file

glass tubing

4.2.3

poor bends

a good bend

4.2.3.1

5 cm

hot blue cone

4.2.2.1

fire-polishing the end

4.2.3.2

bending the glass tubing
How do we use a Bunsen burner?

1. Join the burner to a gas tap.
How do we use a Bunsen burner?

3. Light a match and hold it over the chimney.
   Turn on the gas tap.
The Bunsen flame I

• What will be the colour of the flame when the air hole is closed?

This is a luminous flame.
The Bunsen flame II

- Open the air hole slowly.
- What will be the colour of the flame when the air hole is opened?

This is a non-luminous flame.
Post lab

1. Describe the Flame of a properly burning Bunsen burner.
2. How does adjusting the barrel on the Bunsen burner affect the flame?
3. What happens to the flame if the air holes are opened too much?
4. What is the substance that appeared on the bottom of the evaporating dish after it was heated?
5. Where did this substance come from?
6. Using any resources that you need to use, define complete combustion. What are the products of combustion? Define incomplete combustion and combustion of methane gas. [use text]
7. Why is the non-luminous (blue) flame preferred over the luminous (yellow)
8. You are trying to light your burner but when you turn on the gas at the lab bench valve the flame of your burner disappears explain why it happened and what immediate action you have to take.
How do we use a Bunsen burner?

2. Close the air hole.