

Using the Bunsen Burner

PURPOSE:

To learn how to safely use the Bunsen burner

PROCEDURE:

1. Wear safety goggles at all times.
2. Lighting the burner:
Attach the rubber tubing of the burner to the gas tap. Close the air inlet hole by turning the barrel of the burner counter clockwise. Turn the gas tap on fully and when you can hear the gas being emitted, ignite the gas with a striker. This flame is luminous, not very hot, and sooty. It is not to be used unless told otherwise.
3. Nonluminous flame:
With a luminous flame coming from the burner, gradually open the air inlet lever. You should have a quiet, nonluminous flame with an inner blue cone. This is the type of flame used for heating.
4. Quickly thrust the head of a match, unlit, into the inner blue cone of the flame for a couple of seconds and then remove it. The match should not ignite.
5. Hold a piece of glass tubing, at a 45° angle with the lower end inside the inner blue cone. Put a lit match to the upper end of the glass tube and remove the match. There should be a small flame at the upper end.
6. Increase and decrease the gas supply using the gas tap.
7. Increase and decrease the air supply using the air inlet lever.
8. Produce a scorch pattern using a piece of a file folder. Hold the card in the flame and remove it just before it ignites. Good luck.

OBSERVATIONS:

1. Draw a luminous and nonluminous flame.
2. Why did the match not light in the inner blue cone?
3. What does the small flame indicate about the gas in the inner blue cone?
4. Describe the effect of opening and closing the gas valve has on the flame.
5. Describe the effect of opening and closing the air valve has on the flame.
6. Make a sketch of the scorch pattern, and explain the pattern.

INTERPRETATIONS:

1. Why would a luminous flame in a furnace be inefficient?
2. How would you produce a higher flame?
3. How would you produce a hotter flame?
4. Where are the hottest and coldest areas of a nonluminous flame?

