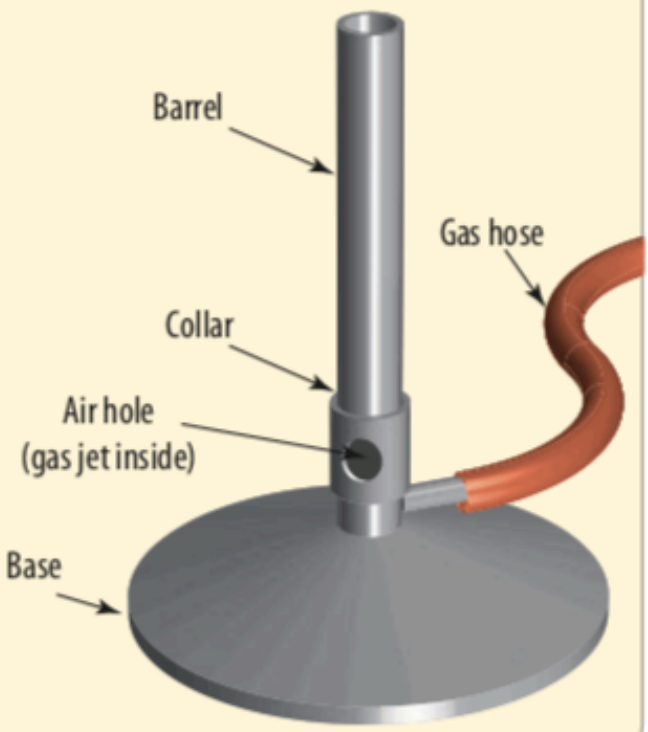
ACTIVITIES - BUNSEN BURNER

Remember the following sequence for lighting and using a Bunsen burner.

A GUIDE TO USING THE BUNSEN BURNER

1. Place the Bunsen burner on a heatproof mat.
2. Check that the gas tap is in the 'off' position.
3. Connect the rubber hose to the gas tap.
4. Close the air hole of the Bunsen burner collar.
5. Light a match and hold it a few centimetres above the barrel.
6. Turn on the gas tap and a yellow flame will appear.
7. Adjust the flame by moving the collar until the air hole is open and a blue flame appears.
8. Remember to close the collar to return the flame to yellow when the Bunsen burner is not in use.



Try the following activities. Remember to apply safety precautions.

Answer the questions for each activity on the following page.

INQUIRY: INVESTIGATION 1.2

Where is the hottest part of the flame?

KEY INQUIRY SKILL:

- processing and analysing data and information

Equipment:

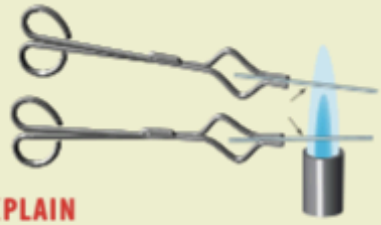
Bunsen burner
heatproof mat
matches
safety glasses
nichrome wire
tongs
pin

PART A

- Use a pin to hang an unburnt match over the barrel of a Bunsen burner.
- Light the Bunsen burner according to the guide on the opposite page.
- Turn the collar to produce a blue flame.
- Turn the Bunsen burner off and remove the match and pin with tongs.

PART B

- Re-light the Bunsen burner and turn the collar to produce a blue flame again.
- Use the tongs to hold the wire across the flame, close to the barrel of the Bunsen burner and observe the wire.
- Move the wire up a little and continue observing.



DISCUSS AND EXPLAIN

1 What happens to the match hanging over the barrel? Explain why.
2 What colour does the wire become when held across the flame?
3 Is the colour of the wire different when it is held at the top of the flame?
4 Draw a diagram of the Bunsen burner flame, labelling the parts that are hottest.
5 Students often heat substances in a test tube with a Bunsen burner. Why would it be unwise to:
(a) use a yellow flame rather than a blue flame
(b) position the test tube at the base of a blue flame?
6 Why is the yellow flame often called the safety flame?

INQUIRY: INVESTIGATION 1.3

Heating a substance in a test tube

KEY INQUIRY SKILL:

- processing and analysing data and information

Equipment:

100 mL beaker
matches
test tube
test-tube holder
Bunsen burner and heatproof mat
safety glasses
test-tube rack
food colouring

CAUTION: Before you start heating, check the following:

- *If you have long hair, is it tied back?*
- *Are you wearing safety glasses?*
- *Is the Bunsen burner on a heatproof mat?*


Pouring a liquid into a test tube

- Carefully pour water from a beaker into a test tube to a depth of about 2 cm as shown in the diagram above. Add a drop of food colouring to make it easier to see.
- Light the Bunsen burner correctly and heat the test tube gently in the blue flame as shown at right. Remember that the open end of the test tube should be pointing away from you and your fellow students. The base of the test tube should be moved gently in and out of the flame. This prevents the liquid from splashing out of the test tube.
- Once the water has started boiling, stop heating and turn off the gas to the Bunsen burner. Place the test tube in the test-tube rack. Leave it there until it has cooled before emptying it and cleaning up.

Heating a test tube

DISCUSS AND EXPLAIN

1 Why is the test tube placed in a test-tube rack rather than in your hand?
2 Make a list of any changes you observed inside the test tube as you heated the water.

Discuss and Explain