

Using a Bunsen Burner

Level: S1

Topic: Proper handling of a Bunsen burner (Section 1.3 of Unit 1)

Introduction:

This ELA is a laboratory activity for a single period. It will be easier for students to follow teacher's explanation if the teacher describes the procedures and at the same time demonstrates how to light a Bunsen burner. Moreover, students will benefit more by providing them opportunities to practise giving instructions orally and to follow the instructions to complete a laboratory activity. The prerequisite items, such as laboratory safety rules and names of common laboratory apparatus, should have been learned in Chinese.

The ELA consists of three parts: introducing a Bunsen burner, the teacher demonstrating how to light a Bunsen burner, and students practising how to light a Bunsen burner. Students are asked to complete a worksheet while they examine the structure of a Bunsen burner and after they observe the demonstration. Then they are asked to give oral instructions to their classmates by reading aloud the steps on the worksheet and follow the instructions to light a Bunsen burner.

Acknowledgement

The worksheet in this set of materials is adapted from the worksheet produced by Lok Sin Tong Leung Chik Wai Memorial School.

Lesson Plan – Using a Bunsen burner

Content After completing the activity, students should be able to:

Objectives:

- identify the major parts of a Bunsen burner
- follow the correct procedure to light a Bunsen burner
- to set up a blue and a yellow Bunsen flame

Language After completing the activity, students should be able to:

Objectives:

- understand and use the English terms related to the major parts of a Bunsen burner (e.g., air hole, chimney, collar, gas tap, rubber tubing, heat-proof mat)
- give oral instructions to classmates to light a Bunsen burner, e.g.,
 - *First, close the air hole.*
 - *Next, light a match.*
 - *Then, hold the match above the chimney.*
 - *After that, turn on the gas tap.*
 - *Finally, open the air hole to obtain a blue flame.*
- state the colour of the Bunsen flame when the air hole is open/closed, e.g.,
 - *The flame is blue when the air hole is open.*
 - *The flame is yellow when the air hole is closed.*

Activities:

1. Introducing the Bunsen burner and its structure – group work(8 minutes)
2. Demonstrating lighting a Bunsen burner – whole class (12 minutes)
3. Practising lighting a Bunsen burner – group work (20 minutes)

Materials: Bunsen burner, matches, heat-proof mat, worksheet

Steps:

Introducing the Bunsen burner and its structure – group work (8 minutes)

1. The teacher shows the class a Bunsen burner, which is connected to a gas tap and placed on a heat proof mat, and tells them that it is the apparatus used in the laboratory for heating.
2. The teacher should go through the laboratory safety rules related to heating with the class using questioning. (Depending on the language ability of students, the teacher may go through the rules in Cantonese.)
3. The teacher asks students to examine the Bunsen burner of their group and complete Part A of the worksheet. They are reminded not to touch the gas tap while they are examining the Bunsen burner.
4. The teacher checks the answers and has students read out the names of the parts of a Bunsen burner.

Demonstrating how to light a Bunsen burner – whole class (12 minutes)

5. The teacher demonstrates the steps for lighting a Bunsen burner. He/she should describe aloud the steps while lighting the Bunsen burner. (The description should be simple.)
6. The teacher turns off the gas tap and asks one student to come out and try to light the Bunsen burner. He/she should give oral instructions for the student to follow.
7. After lighting the Bunsen burner, the teacher should open and close the air hole and ask students the colour of flame. He/she then summarize the different flame colour as follows:

When the air hole is:	Colour of the flame
open	blue
closed	yellow

The teacher could ask students the colour of the flame when the air hole is open or

closed followed by asking them under what condition will the flame be blue or yellow. In this way, students will be given the opportunity to practise all the relevant vocabulary items.

8. Students complete Parts B and C of the worksheet.
9. The teacher checks the answers. He/she may point out that *first, next, then, after that, and finally* are linking words that tell students the order of doing things. He/she may briefly give another example of using the linking words. For example:

How do we get good results for a test?

First, go back home after school.

Next, take a bath.

Then, take out your book and study.

After that, go to bed early.

Finally, try your best to do the test.

10. Students are asked to give oral instructions to the teacher by reading aloud the steps on the worksheet, and the teacher performs the steps.
The teacher may deliberately act wrongly in one to two steps, and let students correct him/her.

Practising how to light a Bunsen burner – group work (20 minutes)

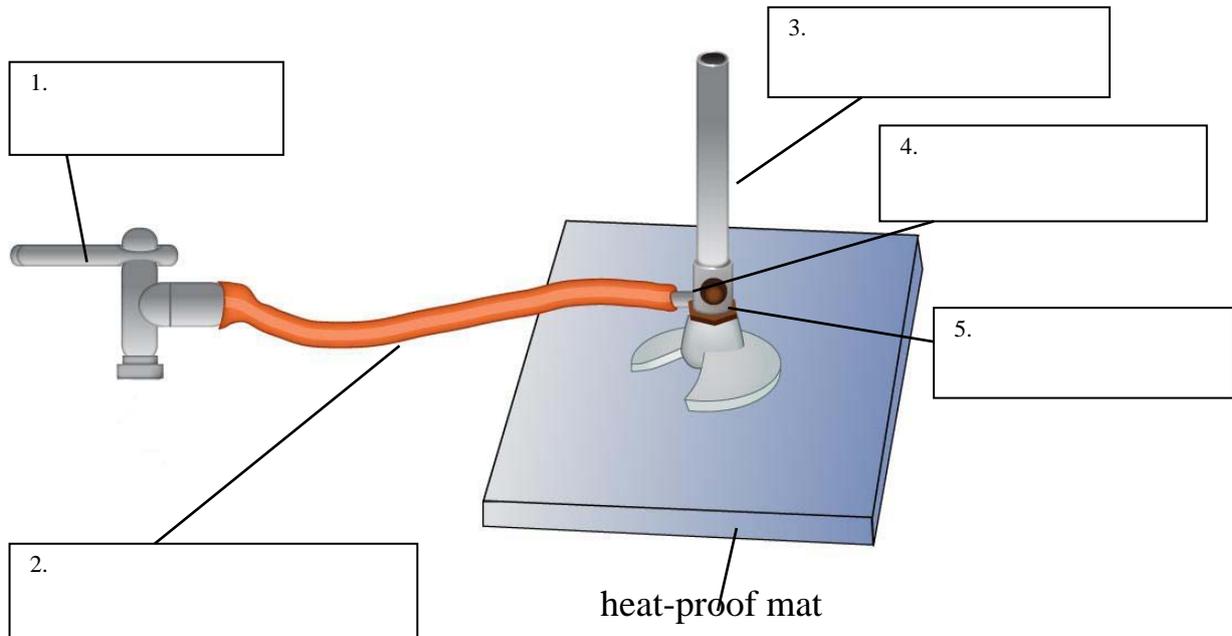
11. In groups, each student takes turns to give oral instructions and follow the instructions to light a Bunsen burner. The student who gives instructions should be responsible for checking whether his/her classmate acts correctly.
12. The teacher points out any mistakes the class made during the practice and rounds up the lesson.

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A. What are the parts of a Bunsen burner?

Label the diagram with the words provided below.

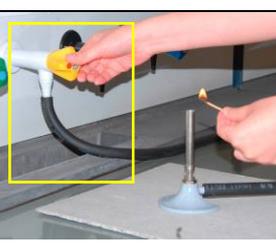
air hole 氣孔	chimney 燈管	collar 調節環	gas tap 煤氣掣	rubber tubing 橡膠管
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B. How do we light a Bunsen burner?

Complete the steps by arranging the words provided in the correct order.

Steps:

1		First, _____ (air hole/ the / close)
2		Next, _____ (a/ match/ light)
3		Then, _____ (hold/ the chimney/ the match/ above)
4		After that, _____ (the/ turn on/ gas tap)
5		Finally, _____ (the air hole/ open/ to/ a blue flame 火焰/ obtain 得到)

C. What is the colour of the Bunsen flame when the air hole is

a. open?

b. closed?

(You should write in complete sentences.)

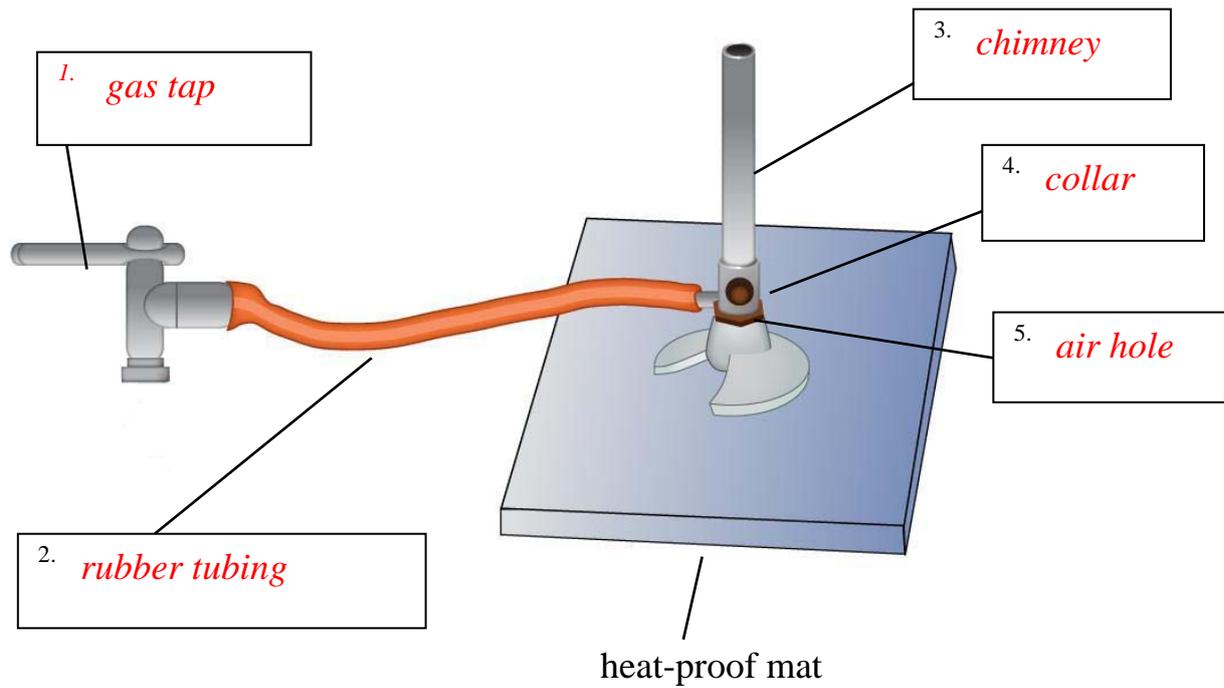
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Answers

A. What are the parts of a Bunsen burner?

Label the diagram with the words provided below.

air hole 氣孔	chimney 燈管	collar 調節環	gas tap 煤氣掣	rubber tubing 橡膠管
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B. How do we light a Bunsen burner?

Complete the steps by arranging the words provided in the correct order.

Steps:

1		First, <u>close the air hole.</u> (air hole/ the / close)
2		Next, <u>light a match.</u> (a/ match/ light)
3		Then, <u>hold the match above the chimney.</u> (hold/ the chimney/ the match/ above)
4		After that, <u>turn on the gas tap.</u> (the/ turn on/ gas tap)
5		Finally, <u>open the air hole to obtain a blue flame.</u> (the air hole/ open/ to/ a blue flame 火焰/ obtain 得到)

C. What is the colour of the Bunsen flame when the air hole is

- open? The flame is blue.
- closed? The flame is yellow.

(You should write in complete sentences.)