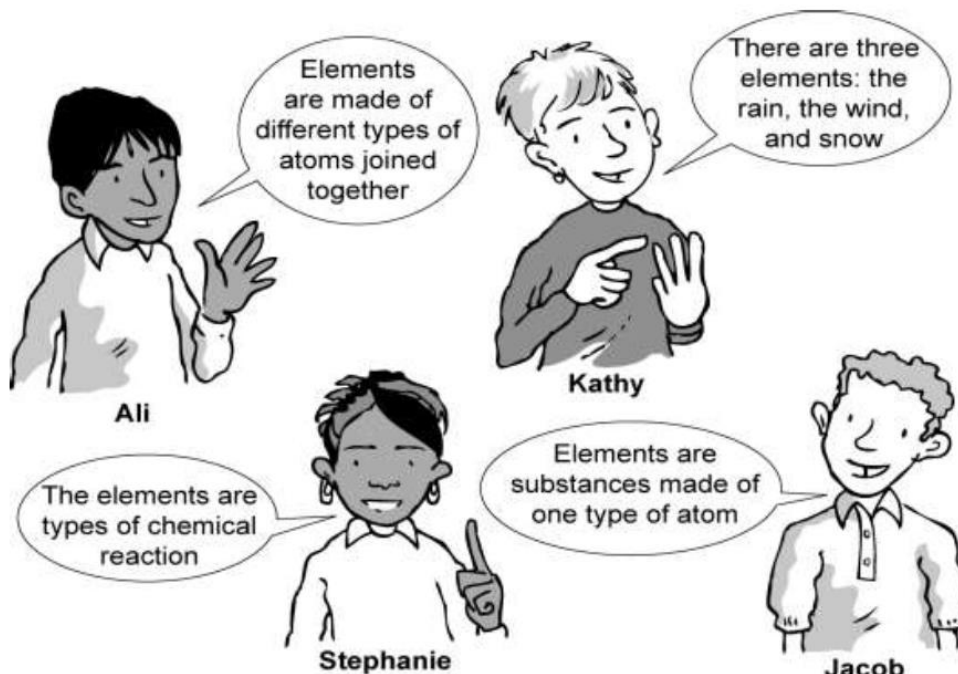


3. In a science lesson some students shared their ideas about elements.



a. Which student offered the best explanation of what an element is?

\_\_\_\_\_ 1 mark

b. Draw line to match the descriptions of the four different elements below to their names.

Description	Name
The most abundant gas in air	Iron
Takes part in combustion reactions	Sulfur
This element is a non-metal. It is a yellow solid	Oxygen
This element is a metal	Nitrogen

b. Alison and Liz heated some zinc over a Bunsen burner. Zinc is a shiny grey metal. After a while a white powder appeared in the crucible.

(i) Write down a visible change taking place in the above experiment.

\_\_\_\_\_ 1 mark

(ii) Is the white powder an element, a compound or a mixture?

\_\_\_\_\_ 1 mark

(iii) Zinc conducts electricity. Does this mean that the white powder will also conduct electricity? Give a reason for your answer.

\_\_\_\_\_ 2 marks

(iv) Put these 3 terms into a word equation to describe what happened in the above experiment.

**oxygen, zinc oxide, zinc.**

\_\_\_\_\_ 2 marks

11. The picture shows an old rusty bicycle.



a. Suggest the best way to prevent rusting in the bicycle's

(i) iron frame:

\_\_\_\_\_

(ii) iron chain:

\_\_\_\_\_

2 marks

b. Why is it beneficial to stop rusting?

\_\_\_\_\_ 1 mark

c. Complete the following word equation that shows the reaction of rusting.

Iron + \_\_\_\_\_  $\longrightarrow$  \_\_\_\_\_ 2 marks

d. Sometimes aluminium is used instead of iron. Give **ONE** advantage of using aluminium.

\_\_\_\_\_ 1 mark

11. Read this paragraph and then answer the following questions.

*Daniela is camping. She makes a wood fire to cook her food. Before Daniela goes to sleep, she pours water on the fire to put it out. In the morning, all that is left is a pile of ash. She has to collect more wood to cook food for breakfast.*



- a. Is the burning of wood a physical or a chemical change? \_\_\_\_\_  
Give a reason for your answer. \_\_\_\_\_

(2 marks)

5) Many changes take place everyday. Some of them are reversible and others are not.

a) What is the meaning of the word reversible?

\_\_\_\_\_ 1 mark

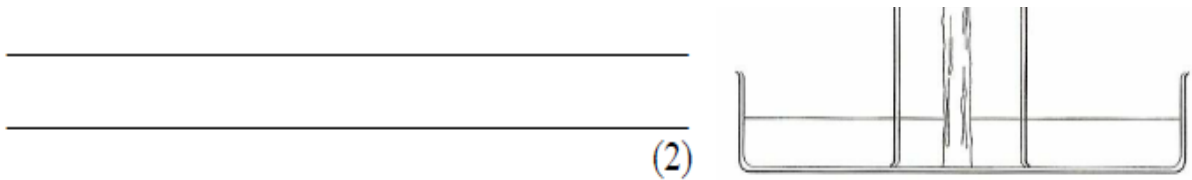
b) Are reversible changes called **physical** or **chemical** changes?

\_\_\_\_\_ 1 mark

c) Tick (✓) **three** boxes to show which changes are reversible.

- |   |   |
|---|---|
| <input type="checkbox"/> cooling water            | <input type="checkbox"/> baking bread     |
| <input type="checkbox"/> boiling an egg           | <input type="checkbox"/> boiling water    |
| <input type="checkbox"/> dissolving salt in water | <input type="checkbox"/> burning a candle |

3 marks



b) Why didn't the candle go out as soon as the beaker was put over it?

\_\_\_\_\_ (1)

b) i) What happened to the level of water in the beaker?

\_\_\_\_\_

ii) Why? \_\_\_\_\_ (2)

c) Complete the following word equation which shows the burning of a candle.

wax + \_\_\_\_\_ → water + \_\_\_\_\_ + [ENERGY]

(2)

9) Some materials can burn.

a) Underline the objects that can burn.

paper      water      tree      iron      limestone      coal      hydrogen

4 marks

b) What gas is needed for a material to burn?

\_\_\_\_\_

1 mark

c) Where does this gas usually come from?

\_\_\_\_\_

1 mark

d) What two gases are produced when a wax candle burns?

\_\_\_\_\_

2 marks

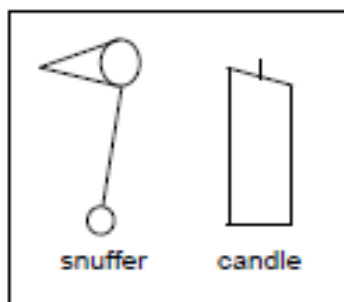
e) Explain why a candle doesn't burn unless it is lit by a match.

\_\_\_\_\_

\_\_\_\_\_

1 mark

f) Here is a picture of a candle and a snuffer, which is used to put out a candle.



Why does the snuffer put out the candle?

\_\_\_\_\_

\_\_\_\_\_

1 mark

g) i) Write one similarity between rusting and burning.

\_\_\_\_\_

1 mark

ii) Write one difference between rusting and burning.

\_\_\_\_\_

1 mark

3. The object shown below shows a gold mask from a tomb in Egypt. The gold is still shiny after thousands of years.



a) Tick (✓) the box which describes gold: (1 mark)

<input type="checkbox"/>	Compound	<input type="checkbox"/>	Element
<input type="checkbox"/>	Mixture	<input type="checkbox"/>	Solution

b) The list below shows some of the properties of gold:

- |                            |   |
|----------------------------|---|
| 1. It conducts electricity | 4. It is yellow                         |
| 2. It stays shiny          | 5. It is easily scratched               |
| 3. It conducts heat        | 6. It melts at $1064^{\circ}\text{C}$ . |

i) Choose any TWO of these properties which show that gold is a metal?

\_\_\_\_\_

\_\_\_\_\_ (2 marks)

ii) Underline a non-metal from the list below:

**aluminium**      **carbon**      **silver**      **magnesium**      (1 mark)

c) Iron objects thrown away in a field were found covered with rust. Iron reacts with oxygen when it rusts. Underline the correct word in each sentence below:

i) For iron to rust, it needs oxygen and (nitrogen, carbon dioxide, water).

ii) Rusting is a (physical, chemical, reversible) reaction.

(2 marks)

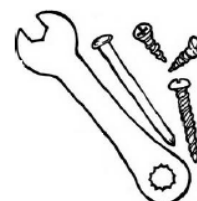
d) The chemical name for rust is iron oxide. Tick (✓) the correct box. Iron oxide is a:

Element       Compound       Mixture  (1 mark)

e) Give ONE reason for your answer in (d).

\_\_\_\_\_ (2 marks)

f) A box contains a collection of metal objects. What piece of apparatus would you use to separate iron objects from the other metal objects?



\_\_\_\_\_ (1 mark)