

0	1
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Iron will rust in damp air.
Iron reacts with water and oxygen to produce rust.
As iron rusts there is a colour change.

0	1	.	1
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Draw a ring around the correct answer to complete the sentence.

[1 mark]

During the reaction iron changes from grey to

blue **brown** green

Rust is hydrated iron oxide.

0	1	.	2
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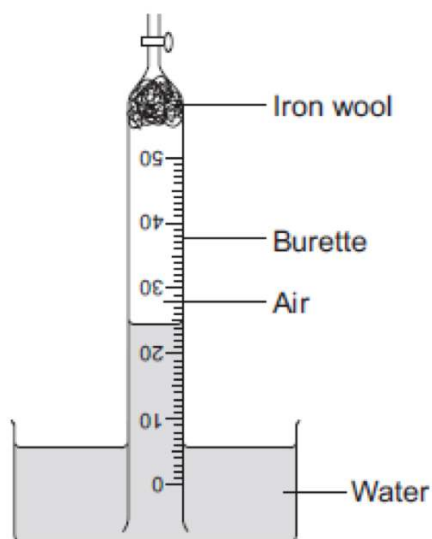
Write a word equation for the reaction of iron with oxygen and water.

[1 mark]

oxygen + iron + water → hydrated iron oxide / rust
allow correct symbol equation

A student set up the apparatus shown in **Figure 1**.

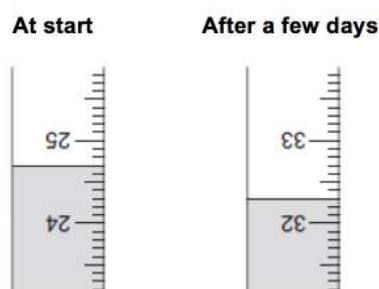
Figure 1



The student left the apparatus for a few days.
The water level in the burette slowly went up and then stopped rising.

Figure 2 shows the water level in the burette at the start of the experiment and after a few days.

Figure 2



0 1 . 3

Complete the table below to show the reading on the burette after a few days.

[1 mark]

Burette reading at start	24.7 cm ³
Burette reading after a few days	32.3cm ³

0 1 . 4

Calculate the volume of oxygen used up in the reaction.

[1 mark]

.....
32.3 - 24.7
ecf from (01.3)

Volume = *7.6* cm³

The percentage of air that is oxygen can be calculated using the equation:

$$\text{percentage of air that is oxygen} = \frac{\text{volume of air used up}}{\text{volume of air at the start}} \times 100$$

0 1 . 5

The student **cannot** use his results to calculate the correct percentage of air that is oxygen.

Explain why.

.....
do not know start volume of air [1] [2 marks]

.....
because the burette not graduated to the end [1]

.....
allow iron wool takes up some of the space
if no other marks awarded accept all iron may have rusted [1]

.....
or still some oxygen left / not all used up [1]

(Total 6 marks)

End