

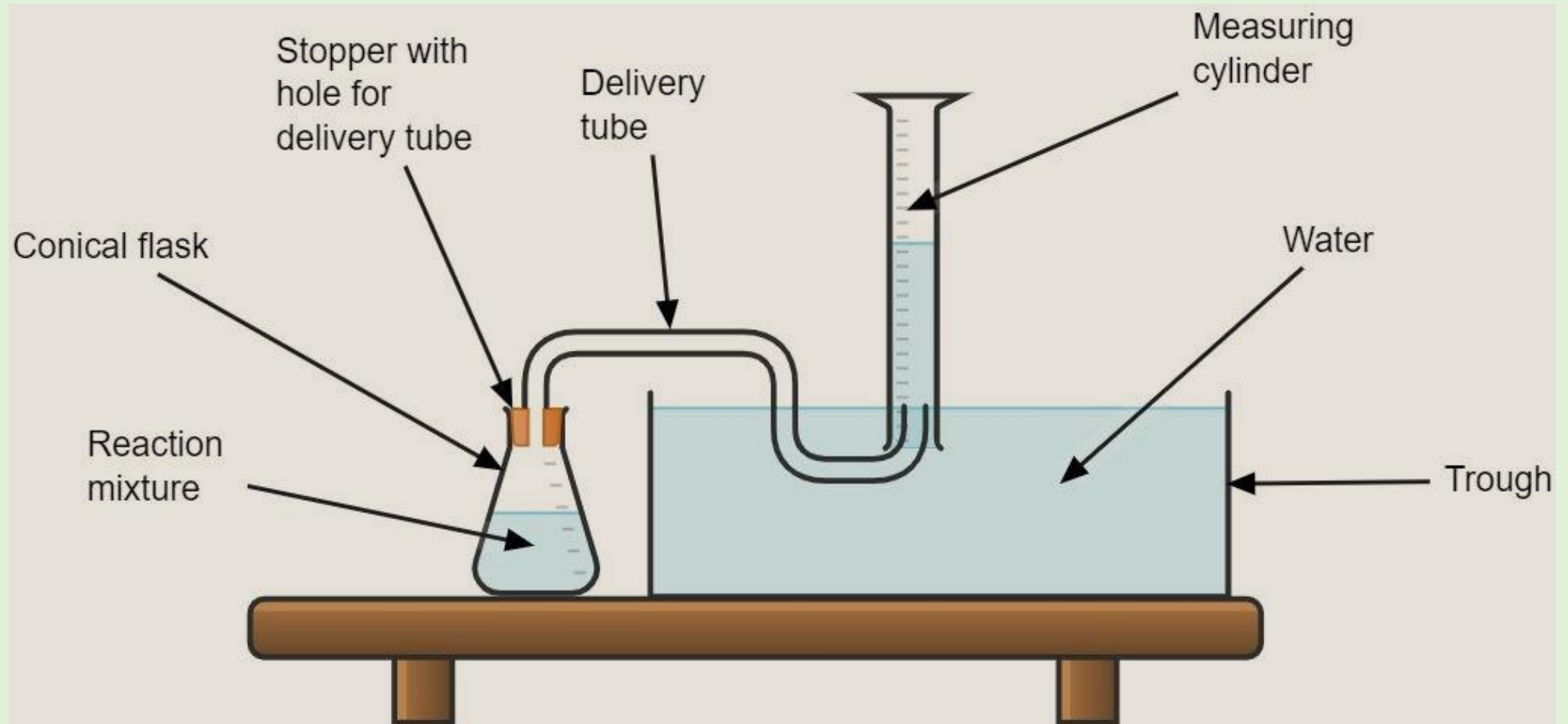
C4.2.1 Detecting gases

Learning Objectives

- Describe the tests for carbon dioxide, oxygen, hydrogen and chlorine
- Use test results to identify an unknown gas

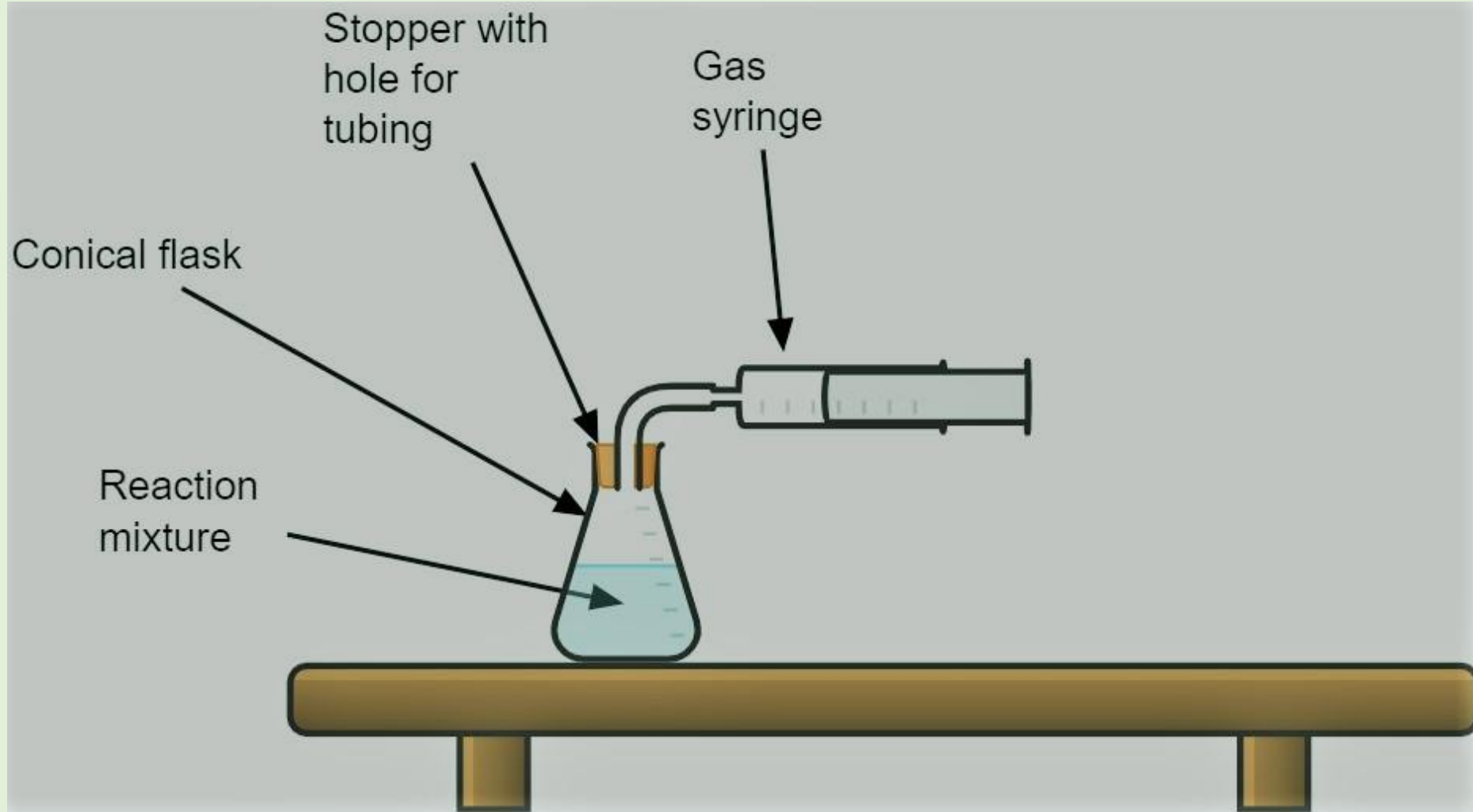
How to collect gases – displacement method

The gas produced displaces the water in the measuring cylinder
If we want small amounts for testing we would use a test tube instead



How to collect gases – gas syringe

This is the best method when we need to measure the amount of gas made



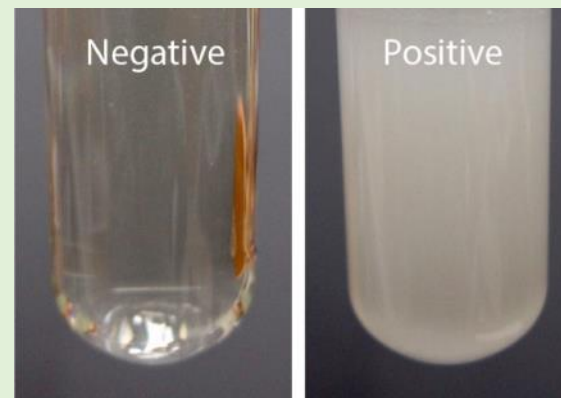
Testing for carbon dioxide



Very common exam mistake. Do NOT say colourless to cloudy

Limewater is a clear colourless liquid

When we bubble carbon dioxide gas through **limewater** it goes from **clear to cloudy**



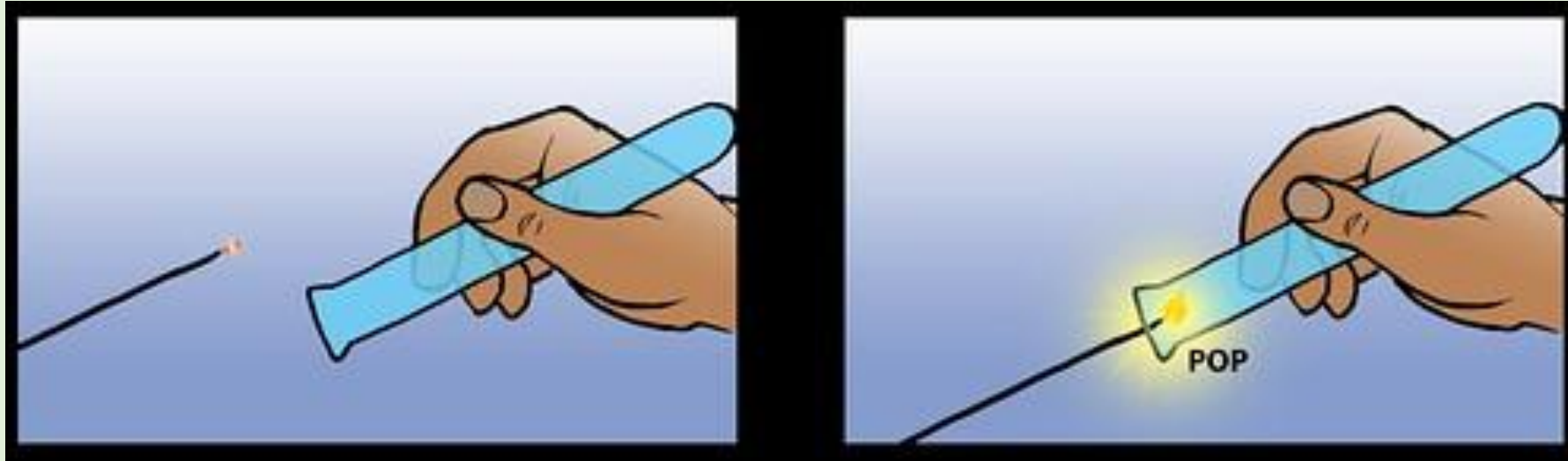
Extension task: Research what happened in Lake Nyos when 1700 people died. Can you explain why this happened and what could be done to prevent it happening again?

Testing for oxygen



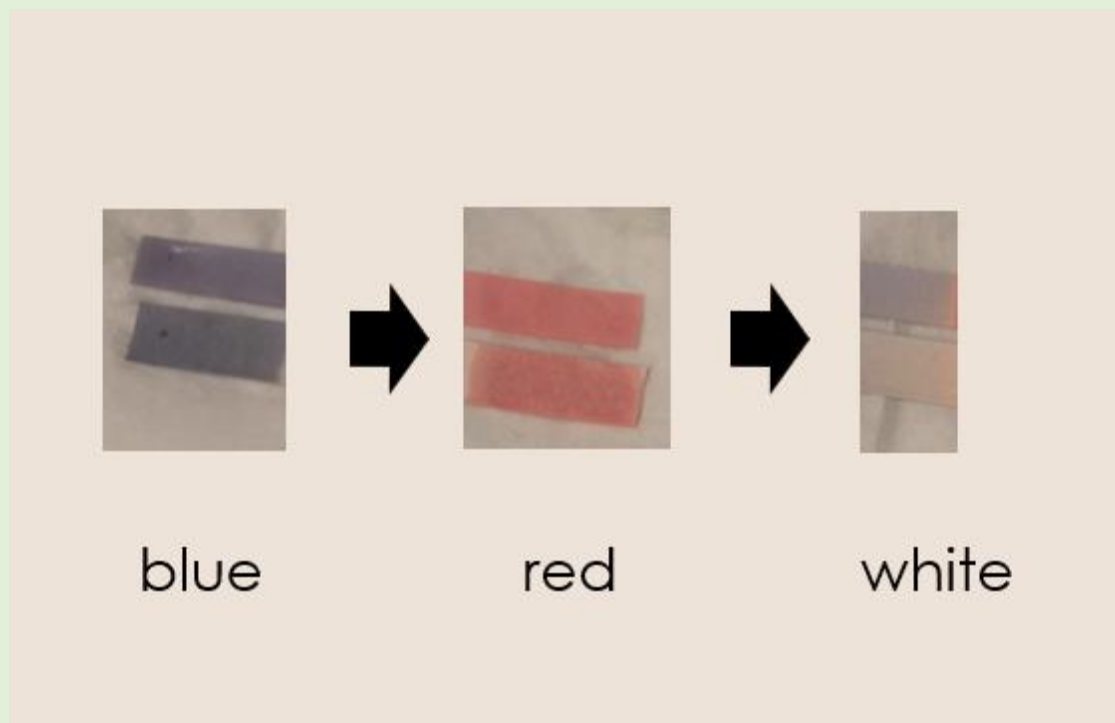
Oxygen relights a **glowing** splint

Testing for hydrogen



Hydrogen gives a **squeaky pop** with a **lit** splint

Testing for chlorine

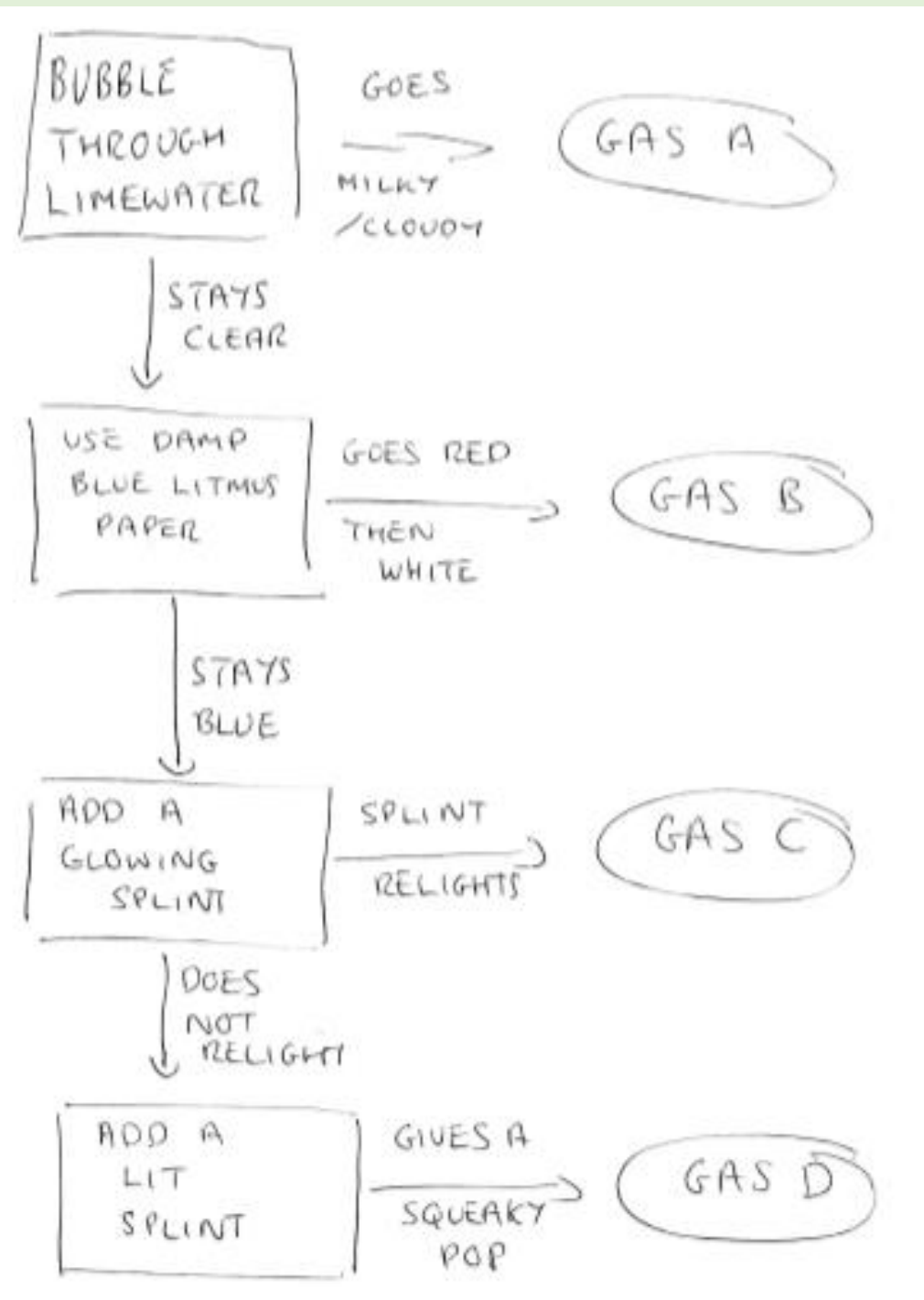


Chlorine turns damp blue litmus paper red then white

It goes red because chlorine acts as an acid

It goes white because chlorine acts as a bleaching agent

TASK 1: Use what you have learnt to identify the unknown gases



TASK 2: Use what you have learnt to find the **4 mistakes** and **4 pieces of missing information** in this work

A student has been asked to answer the exam question below.

Read through their answer and:

- tick where they have given a correct piece of equipment, substance, or result
- cross out any mistakes
- correct these mistakes
- add any information that is missing.

Q. Describe the tests to identify the following gases: chlorine, oxygen, hydrogen and carbon dioxide. Your answer should include:

- the names of any equipment or substances used
- the result that would indicate the presence of that gas.

(4 marks)

If you are testing for chlorine gas you need litmus paper. When you put it into chlorine gas it will turn blue. If there is oxygen get a lit splint and put it into the test tube and there will be a squeaky pop if there is oxygen. Hydrogen also needs a lit splint and a test tube of the gas. For carbon dioxide it's different as you need limewater (calcium oxide solution) and it will go cloudy.

Answer the quiz questions