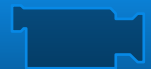


Oxygen and Hydrogen

O₂







Oxygen

- 🌍 Oxygen plays an essential role in the lives of humans and other living organisms.
- 🌍 As well as being important for health and medical treatments, it also helps us to burn fuels, treat water and even protects us from dangerous UV light thanks to the ozone layer.



Facts about Oxygen

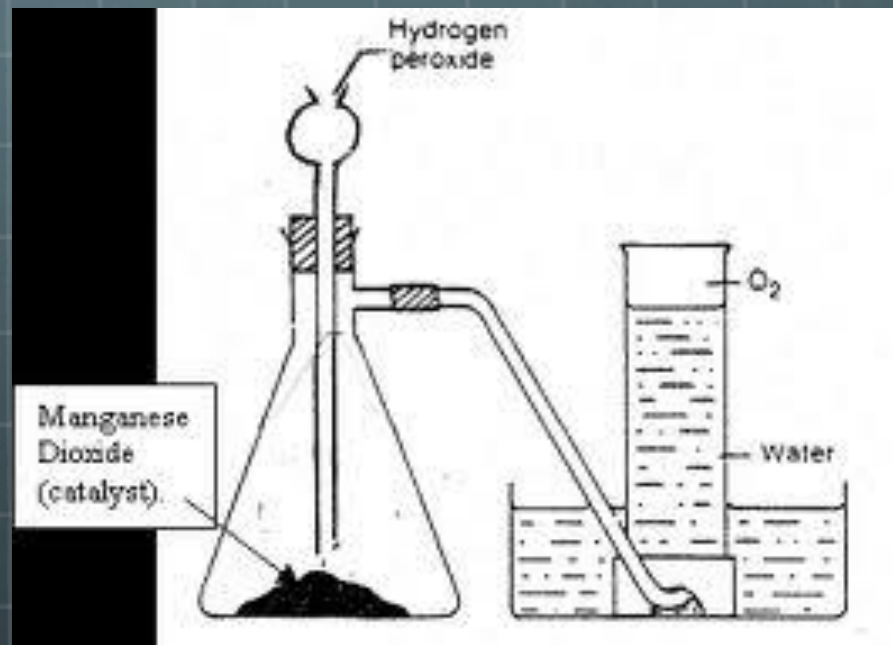
-  Oxygen is a diatomic element with the chemical symbol O, and is the 8th element in the periodic table.
-  It is a colourless and odourless gas.
-  Oxygen makes up 1/5 of our atmosphere.
-  Oxygen is essential to life. It is found in the air we breathe and in the water we drink (H₂O)

- 🌐 Ozone is a special form of oxygen as it has 3 oxygen atoms chemically combined together.
- 🌐 At ground level ozone is an air pollutant, whilst the ozone layer in the Earth's upper atmosphere provides protection from the sun's harmful rays by filtering UV light.
- 🌐 Oxygen is a very reactive element that easily forms compounds such as oxides.
 - 🌐 Ex: Magnesium + Oxygen \rightarrow Magnesium Oxide



Production of Oxygen

- 🌐 Oxygen can be produced by reacting Manganese (IV) oxide with hydrogen peroxide.
 - 🌐 Write down the word equation for the production of oxygen:
-



Testing for Oxygen

- 🌐 To test if a test tube contains oxygen, a red glowing splint is placed in the test tube. If oxygen is present, it will relight the glowing splint.



Test

Testing for Oxygen

- After observing the test for oxygen, write a set of instructions to explain to someone how we test for oxygen gas.
- Draw a diagram to help them!





The Fire Triangle





Burning

- ✧ Some materials burn easily. We call them **FLAMMABLE** materials.
- ✧ Flammable materials are labeled with a special hazard symbol.





Danger

**Highly flammable
material**





The Fire Triangle

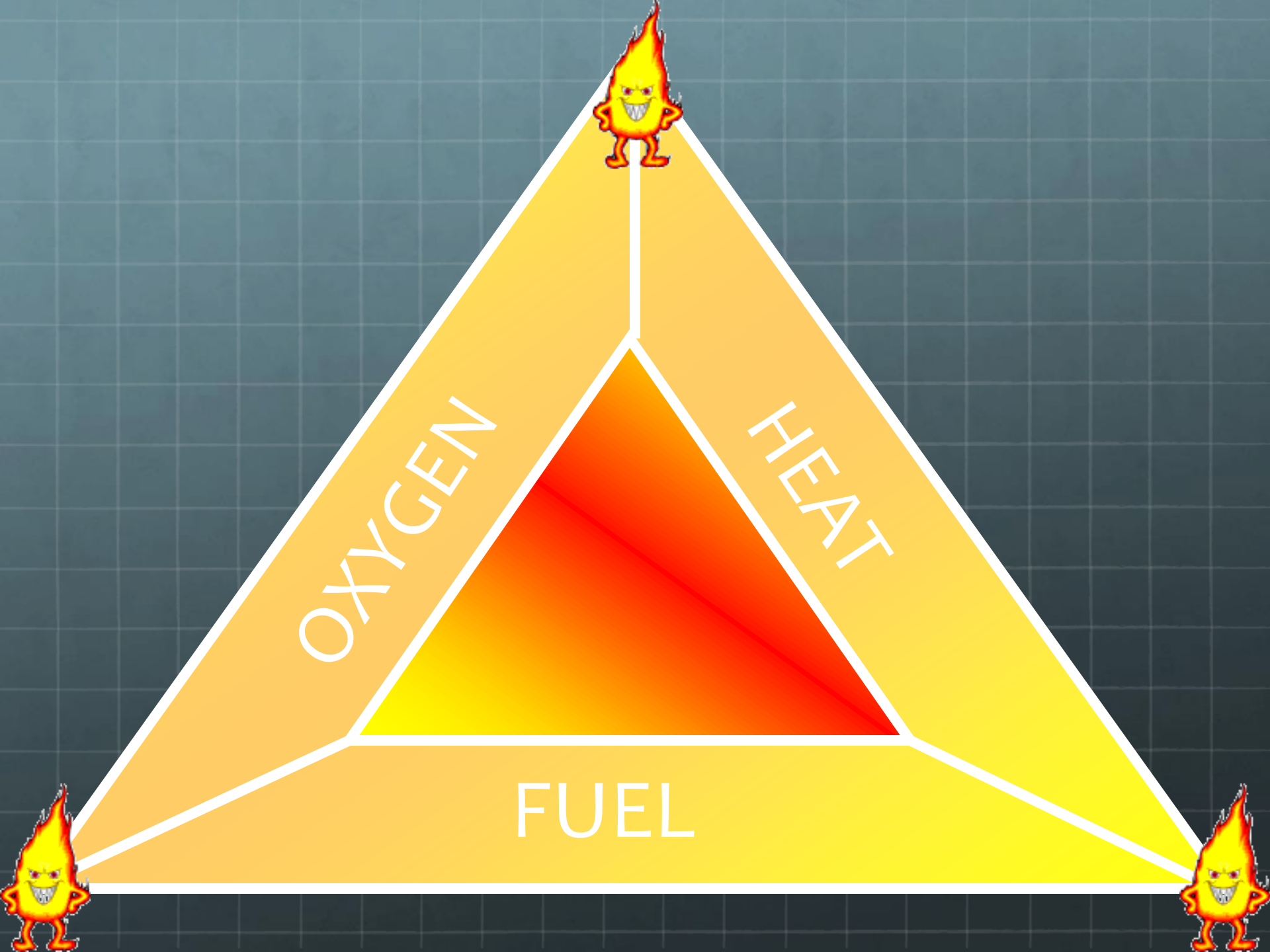
For something to burn, it
needs 3 substances;

OXYGEN

FUEL

HEAT





OXYGEN

HEAT

FUEL



To put out a fire, you get rid of one side of the fire triangle.



**Water cools and can be used on many fires.
Cannot be used on electric or petrol fires.**



**Sand covers the fuel and keeps oxygen away,
Can be used on any fire.**



**Foam covers the fuel and keeps oxygen away.
Can be used on most fires.**



Powder covers the fuel and keeps oxygen away. Can be used on ALL fires.



Carbon dioxide replaces the oxygen. Is safe on all fires.



Fire blankets keep oxygen away.



In your own words write about three different ways of putting out a fire, and how they work.

Hydrogen

- Hydrogen is a diatomic element with the chemical symbol H, and is the 1st element in the periodic table.
- It is the lightest element, and as a result will float upwards.
- It is a colourless and odourless gas.
- It is very explosive and that is why it is not used to fill balloons.
- It is very scarce in the atmosphere but it is very abundant on our planet and in the universe.



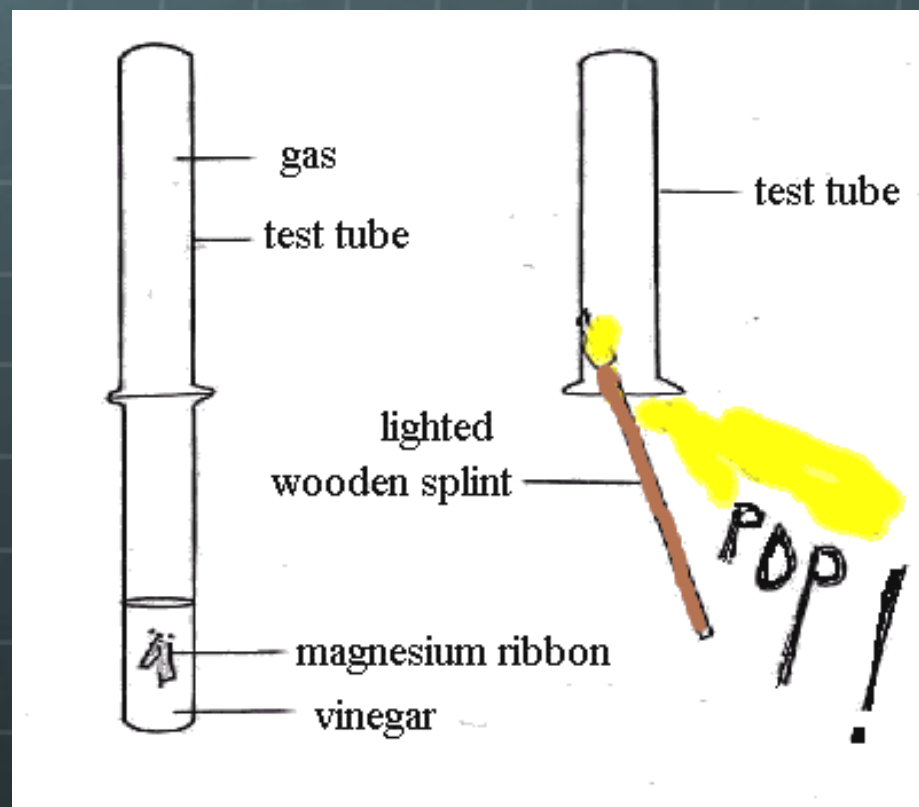
Production of Hydrogen

- Hydrogen can be produced by reacting zinc and hydrochloric acid.
 - Write down the word equation for the production of Hydrogen:
-



Testing for Hydrogen

- To test if a test tube contains hydrogen, a burning match is placed next to it. If it burns with a pop, then hydrogen is present.



H₂ test