

Keeping Safe – Fire triangle

Learning Objective: To be able to outline the components of the fire triangle.

Believe it or not humans and fire need the same elements to live.

Oxygen



Fuel



Heat



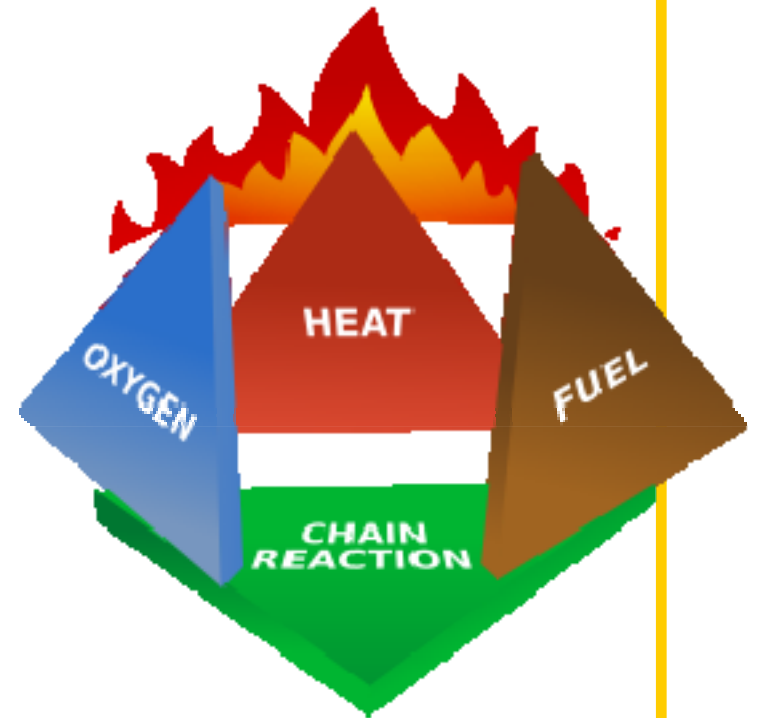
How does it all work?

Fire is a chemical reaction which needs three things to be present so it can happen:

OXYGEN + HEAT + FUEL = FIRE

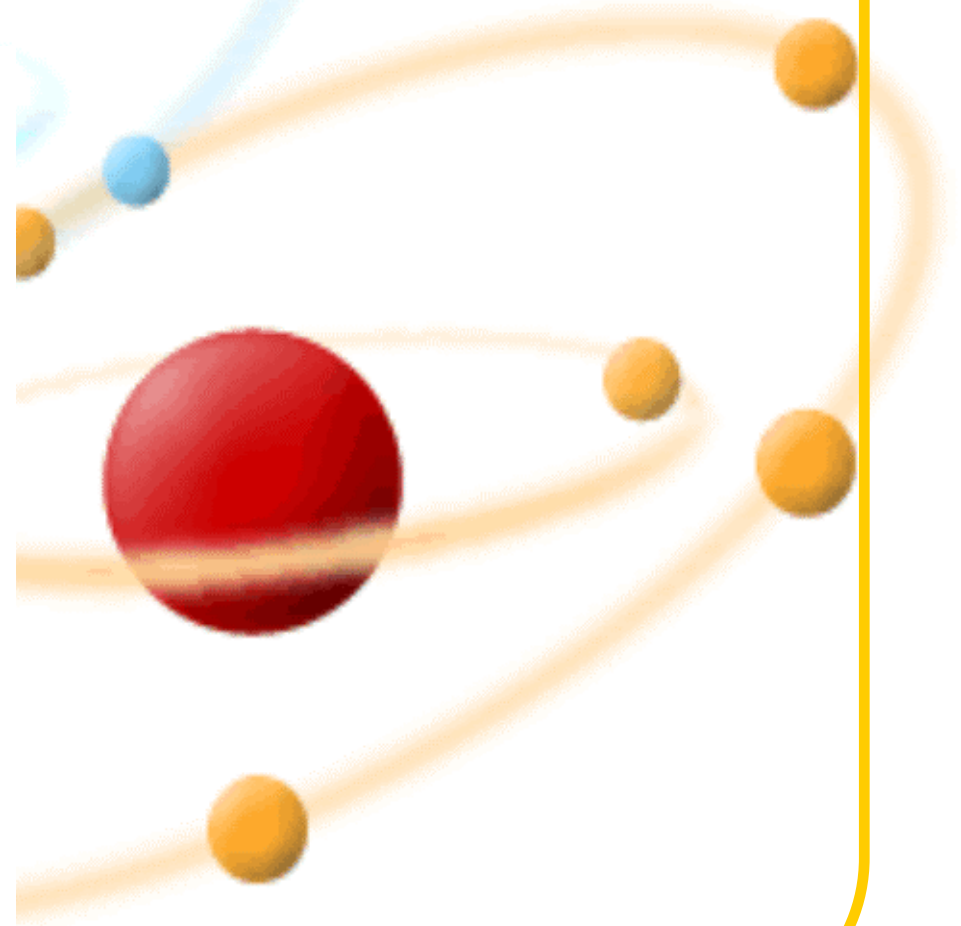
If one of these is not present, the fire cannot start. If one of these is taken from a fire it will go out.

But how does this all work?



Oxygen – to breathe just like us!

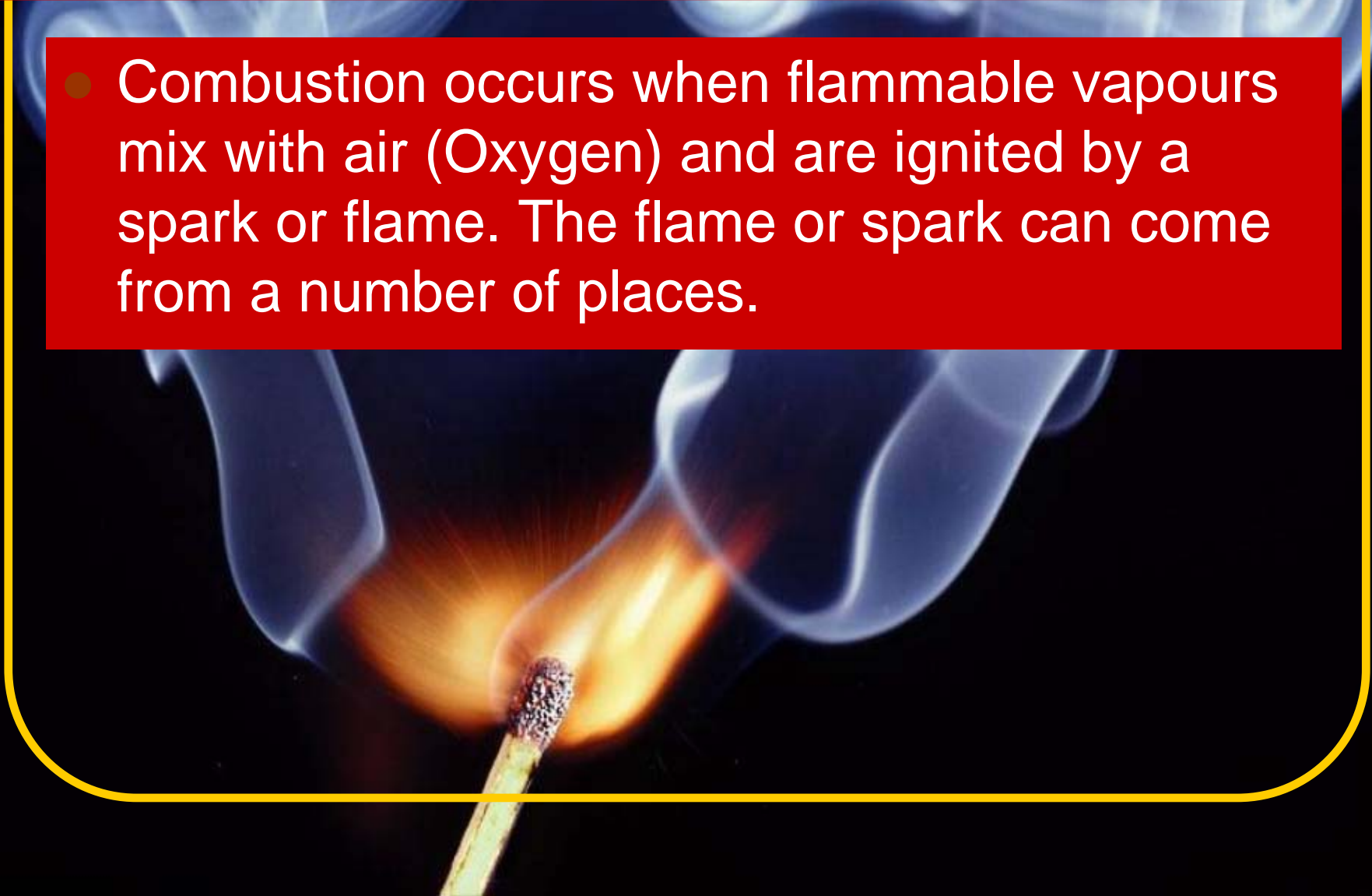
- When Oxygen in the air combines with flammable vapours given off by fuels they create a form of heat at a molecular level. Then, a source of ignition (a match or spark, say) can cause it to combust.



an oxygen molecule: O_2

Heat

- Combustion occurs when flammable vapours mix with air (Oxygen) and are ignited by a spark or flame. The flame or spark can come from a number of places.



Sources of heat ...



These are just a few, there are plenty more. Can you think of any?



We need something to burn – fuel!

Fuels can take almost any form:

Wood



Plastics

Solids

Rubber



Fabric



We need something to burn – fuel!

Fuels can take almost any form:

Petrol



Cooking Oil



Liquids



Nail Vanish Remover

We need something to burn – fuel!

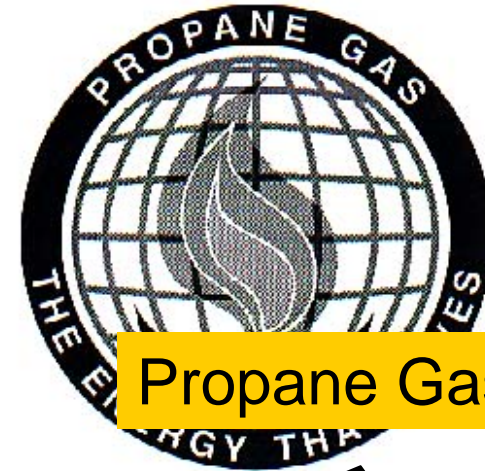
Fuels can take almost any form:



Butane



Natural Gas



Propane Gas



Gases

Put out that fire.....

- If one element is removed the fire will go out. Look at the following pictures and explain how the fire is stopped.

Fire Doors

Study this picture carefully – can you make 3 observations?

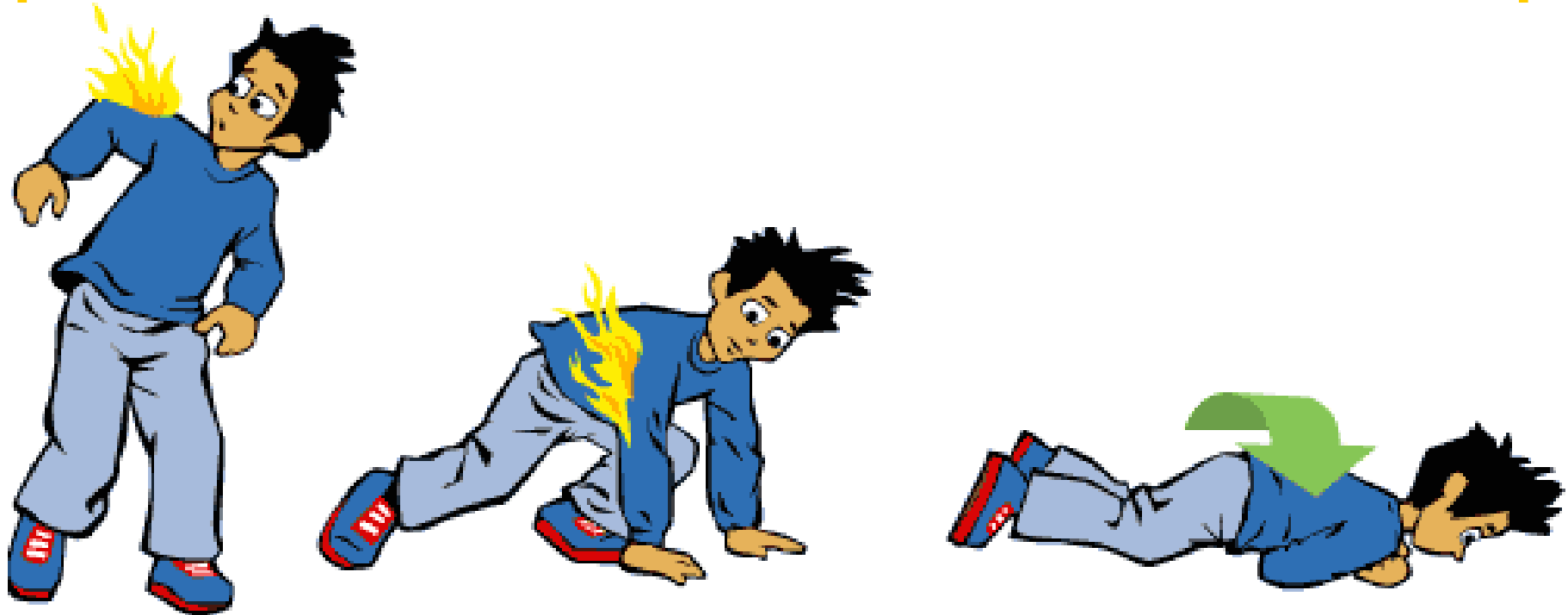
How does a fire door work?

Where have you seen fire doors?



Stop, drop and roll ...

- Again this smothers the fire – taking the oxygen element away.



Spraying water

How does spraying water on a fire help extinguish it?

What element is taken away?



Why has this thatch been removed?



What element is taken away?

Where else might you have seen gaps like this to help prevent / stop fire spreading?