

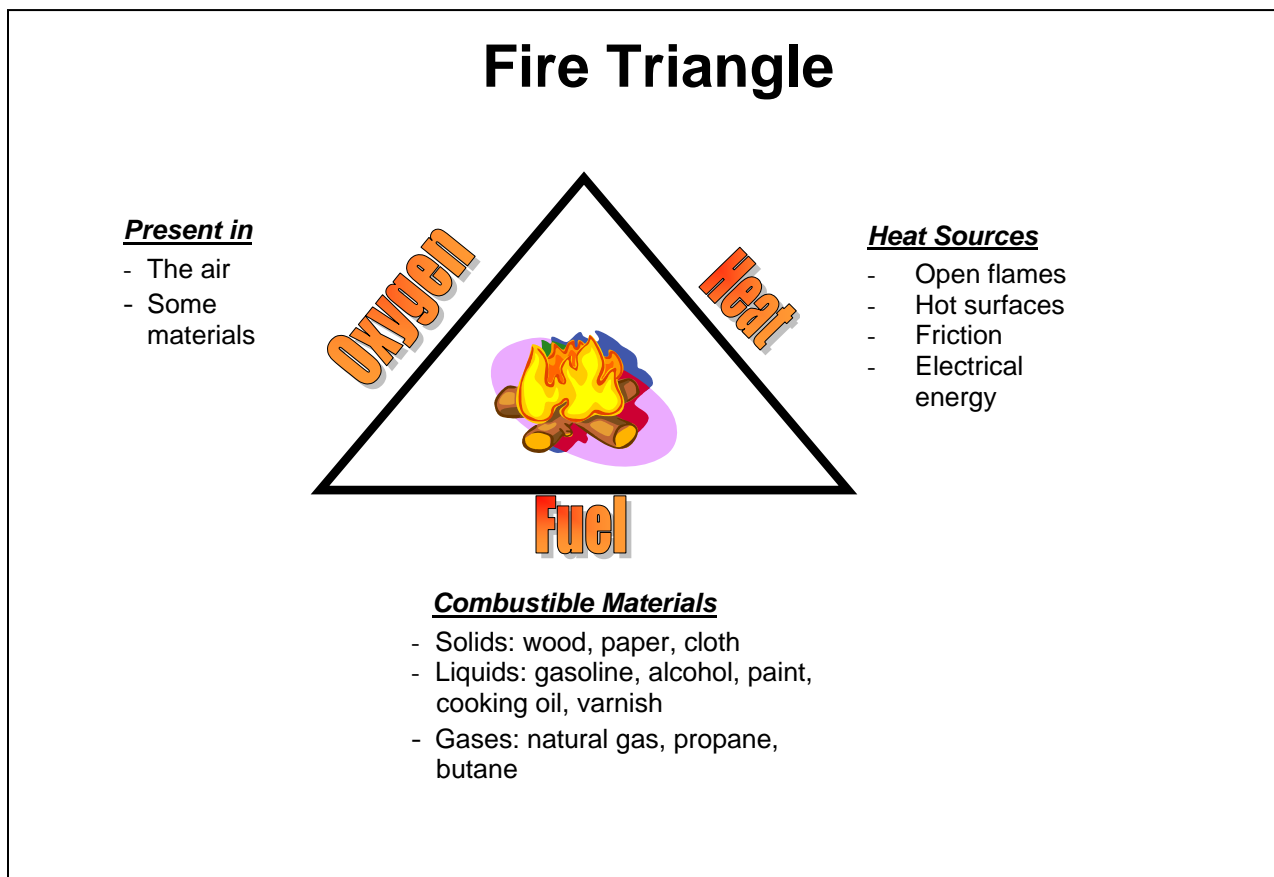
Fire Basics

What is fire?

- Flames, heat, light and smoke.
- Fire is a chemical reaction known as combustion (the rapid oxidization process usually accompanied by flames and heat).

How does fire happen?

- In order for a fire to occur, three elements (oxygen, a heat source, and a fuel source) must be combined, in the proper proportion at the same time.
- Most fires happen due to the involvement of people. People usually bring the 3 elements of fire together.
- In addition to the above fire elements, a fourth element - a 'chemical chain reaction', is also essential for a fire to occur. Inhibiting the chemical chain reaction will also put out or extinguish a fire.



Fire Basics

How do materials burn?

- Fuel materials will normally ignite and burn only when they are in a gaseous/vapour state and in the presence of oxygen. It is the gas/vapour that ignites and burns, not the material itself.
 - Solids become a gas through a process called pyrolysis (the chemical decomposition of a substance from the application of heat).
 - Liquids convert into a gaseous state through the process of vapourization (diffusion of a substance from the application of heat).
 - Gaseous fuels are already in a natural state for ignition.

How do we stop fire?

- Prevent fire before it starts. Fire prevention involves keeping the three fire elements apart or preventing the three fire elements from reaching their proportions required to start a fire.
- Extinguish a fire when it does start. Removing any of the three elements will extinguish a fire.
 - Smothering a fire - removes oxygen
 - Cooling a fire – removes heat
 - Eliminating the combustible material – removes the fuel, and
 - Inhibiting the chain reaction.