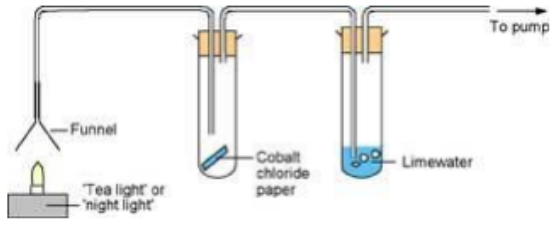


TOPIC 1 SUMMARY NOTES

LEVEL 3

Key Area: Fuels and energy	😊	😐	😞																																										
Fuels are substances which, when burned, give out energy.																																													
Different substances can be used as fuels.																																													
Fossil fuels • coal • oil (petrol and diesel come from oil) • gas Fossil fuels are finite (they will run out)																																													
Food based fuels • starch, • sugars, • proteins • alcohol • oils.																																													
When a fire is extinguished oxygen, heat or the fuel must be removed. 																																													
Different types of fires require specific methods of treatment in order to be extinguished safely. Fire Extinguisher Chart<table><tr><th colspan="2">Extinguisher</th><th colspan="5">Type of Fire</th></tr><tr><th>Colour</th><th>Type</th><th>Solids (wood, paper, cloth, etc)</th><th>Flammable Liquids</th><th>Flammable Gasses</th><th>Electrical Equipment</th><th>Cooking Oils & Fats</th></tr><tr><td></td><td>Water</td><td>✓ Yes</td><td>✗ No</td><td>✗ No</td><td>✗ No</td><td>✗ No</td></tr><tr><td></td><td>Foam</td><td>✓ Yes</td><td>✓ Yes</td><td>✗ No</td><td>✗ No</td><td>✓ Yes</td></tr><tr><td></td><td>Dry Powder</td><td>✓ Yes</td><td>✓ Yes</td><td>✓ Yes</td><td>✓ Yes</td><td>✗ No</td></tr><tr><td></td><td>Carbon Dioxide (CO2)</td><td>✗ No</td><td>✓ Yes</td><td>✗ No</td><td>✓ Yes</td><td>✓ Yes</td></tr></table>	Extinguisher		Type of Fire					Colour	Type	Solids (wood, paper, cloth, etc)	Flammable Liquids	Flammable Gasses	Electrical Equipment	Cooking Oils & Fats		Water	✓ Yes	✗ No	✗ No	✗ No	✗ No		Foam	✓ Yes	✓ Yes	✗ No	✗ No	✓ Yes		Dry Powder	✓ Yes	✓ Yes	✓ Yes	✓ Yes	✗ No		Carbon Dioxide (CO2)	✗ No	✓ Yes	✗ No	✓ Yes	✓ Yes			
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A hydrocarbon is a substance containing only hydrogen and carbon			
When a hydrocarbon burns carbon dioxide and water are produced.  Both products can be tested for in a laboratory. • Water has a pH of 7 and turns blue cobalt chloride paper pink. • Carbon dioxide turns lime water milky.			
As fossil fuels cause pollution and are running out, alternative sources of energy which are sustainable need to be developed • solar power, only works during the day • wind turbines, expensive, take up a lot of space, need wind to work and can't work in high winds • wave machines, need a lot of space and needs to be away from shipping lanes • biomass, may cause extinction of animal species. Ground used to produce it cannot be used for food crops • biodiesel, uses harmful chemicals to make it • hydrogen Made in fuel cells which are expensive, plus hydrogen is explosive, and difficult to store • ethanol The main disadvantage of using cropland for the production of ethanol will drive up the cost of other foods that could be harvested from the same acreage, such as corn.			
Fuels such as alcohols and carbohydrates produce water and carbon dioxide when burned but they are considered to be carbon neutral as they release the same quantity of carbon dioxide when they burn as they absorbed when they were growing.			