

8E Combustion	Knowledge, Skills and Understanding
Higher	<p>Describe how rocket engines obtain enough oxygen in space to explode using oxidising agents</p> <p>Model simple reactions using symbol equations.</p> <p>Evaluate the evidence used to displace the phlogiston theory of combustion</p> <p>Justify methods of risk reduction</p> <p>Evaluate data on burning fuels to deduce the best energy per gram of fuel</p> <p>Evaluate ways in which pollution from non-metal oxides can be reduced</p> <p>Decide how responsibility for cutting emissions should be shared</p> <p>Evaluate the contribution made by combustion to the amount of carbon dioxide in the air in the short, medium and long term</p> <p>Evaluate the link between global temperature and levels of carbon dioxide in the atmosphere.</p>
Intermediate	<p>Recall the fuel used in a fuel cell</p> <p>Model reactions using word equations</p> <p>Explain the formation of the products when hydrocarbons burn</p> <p>Explain the change in mass seen in reactions</p> <p>Compare and contrast the oxygen and phlogiston theories for combustion</p> <p>Describe what is meant by exothermic changes</p> <p>Compare the temperature rise of water when some fuels are burnt</p> <p>Apply knowledge of explosive reactions to explain why they occur more/less rapidly when variables (proportion of fuel/oxygen mixture, the droplet size, the oxidiser) are changed</p> <p>Explain the products formed by the complete and incomplete combustion of hydrocarbons</p> <p>Explain the problems caused by incomplete combustion</p> <p>Explain how sulfur dioxide and nitrogen oxides are produced in some combustion reactions</p> <p>Explain how sulfur dioxide and nitrogen oxides help to cause acid rain</p> <p>Explain how neutralisation can be used to reduce pollution from fossil fuel combustion</p> <p>Explain how vehicle catalytic converters work (to reduce pollution from fossil fuel combustion)</p> <p>Explain the effects of acid rain on organisms, bodies of water.</p> <p>State the meaning of the greenhouse effect</p> <p>Explain how carbon dioxide helps to cause the greenhouse effect</p> <p>Explain how methods of controlling the levels of carbon dioxide work</p>
Foundation	<p>State the meaning of: fuel, combustion</p> <p>State the meaning of hydrocarbon</p> <p>Describe the combustion of hydrocarbons (in terms of reactants and products)</p> <p>Identify the products and reactants using a word equation</p> <p>Describe the tests for carbon dioxide and water</p> <p>State what happens to mass in a chemical reaction</p> <p>State the meaning of: oxidation</p> <p>Describe the reactions of metals with oxygen</p> <p>Identify and explain the products formed by the oxidation of metals</p> <p>Name the three sides of the fire triangle</p> <p>Describe how to stay safe in familiar situations.</p> <p>Recognise hazard symbols</p> <p>Use the idea of the 'fire triangle' to explain how to extinguish a fire</p> <p>Explain why different types of fire need to be put out in different ways</p> <p>Recall examples of non-metal oxide pollutants caused by burning fossil fuels and their impurities</p> <p>Describe the reactions of non-metals with oxygen</p> <p>Recall some effects of global warming, climate change</p> <p>Recall reasons why the temperature on the Earth varies over time</p> <p>Explain how human activity affects the levels of carbon dioxide in the atmosphere</p>