

Projection Grades (end of year 11) 1-3	Projection Grades (end of year 11) 4-6	Projection Grades (end of year 11) 7-9
<ul style="list-style-type: none"> <input type="checkbox"/> State the meaning of: fuel, combustion, oxidation and hydrocarbon. <input type="checkbox"/> Identify the products and reactants using a word equation. <input type="checkbox"/> Describe the tests for carbon dioxide and water. <input type="checkbox"/> State what happens to mass in a chemical reaction. <input type="checkbox"/> Describe the reactions of metals and non-metals with oxygen. <input type="checkbox"/> Name the three sides of the fire triangle. <input type="checkbox"/> Recognise hazard symbols and be able to name them. <input type="checkbox"/> Use the idea of the 'fire triangle' to explain how to extinguish a fire. <input type="checkbox"/> Recall examples of non-metal oxide pollutants caused by burning fossil fuels and their impurities. <input type="checkbox"/> Recall some effects of global warming, climate change. <input type="checkbox"/> Recall reasons why the temperature on the Earth varies over time. <input type="checkbox"/> Describe how human activity affects the levels of carbon dioxide in the atmosphere. <input type="checkbox"/> Describe some common properties of metals and non-metals. And relate the uses of different elements to their properties. <input type="checkbox"/> Recall some reactions that happen slowly and some that happen quickly. <input type="checkbox"/> Describe the corrosion of metals by reactions with oxygen. <input type="checkbox"/> Identify and explain the products formed by the oxidation of metals. <input type="checkbox"/> State the meaning of: rusting and recall ways in which iron can be prevented from rusting. <input type="checkbox"/> Describe the reactions of different metals with water. <input type="checkbox"/> Describe the gas test for hydrogen. <input type="checkbox"/> Relate the uses of different elements to their chemical properties. <input type="checkbox"/> Describe the reactions of acids with metals. <input type="checkbox"/> Recall which salts are produced by which acids (Hydrochloric acid – Chlorides, Nitric acid – Nitrates, Sulphuric acid – Sulphates) <input type="checkbox"/> Describe what happens during changes of state. <input type="checkbox"/> State what happens at a material's melting, freezing and boiling point. <input type="checkbox"/> State what is meant by: pure. <input type="checkbox"/> State the meaning of: alloy. <input type="checkbox"/> Describe why metals are often alloyed with other elements. 	<ul style="list-style-type: none"> <input type="checkbox"/> Describe the combustion of hydrocarbons and be able to complete example word equations. <input type="checkbox"/> Recall the fuel used in a fuel cell. <input type="checkbox"/> Explain the formation of the products when hydrocarbons burn. <input type="checkbox"/> Describe the change in mass seen in reactions. <input type="checkbox"/> Describe what is meant by exothermic changes. <input type="checkbox"/> Compare the temperature rise of water when some fuels are burnt. <input type="checkbox"/> 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. <input type="checkbox"/> Describe the products formed by the complete and incomplete combustion of hydrocarbons. <input type="checkbox"/> Explain the problems caused by incomplete combustion. <input type="checkbox"/> Explain how sulfur dioxide and nitrogen oxides are produced in some combustion reactions. <input type="checkbox"/> Explain how sulfur dioxide and nitrogen oxides help to cause acid rain. <input type="checkbox"/> Explain how neutralisation can be used to reduce pollution from fossil fuel combustion. <input type="checkbox"/> Describe how vehicle catalytic converters work to reduce pollution from fossil fuel combustion. <input type="checkbox"/> Explain the effects of acid rain <input type="checkbox"/> Describe the meaning of the greenhouse effect. <input type="checkbox"/> Describe how catalysts affect the speed or rate of a reaction and describe some everyday uses. <input type="checkbox"/> Be able to complete word equations for reactions with metals and non-metals, metals reacting with water, metals reacting with acids and oxidation reactions. <input type="checkbox"/> Explain how barrier methods protect iron from rust. <input type="checkbox"/> Identify the products and reactants using a symbol equation. <input type="checkbox"/> Use information on the reactions of metals with water to place them in an order of reactivity. <input type="checkbox"/> State that a pure material has a fixed melting point and boiling point and describe how impurities alter melting, freezing and boiling points. <input type="checkbox"/> Describe why converting pure metals into alloys often increases the strength of the product. 	<ul style="list-style-type: none"> <input type="checkbox"/> Compare and contrast the oxygen and phlogiston theories for combustion. <input type="checkbox"/> Evaluate the evidence used to displace the phlogiston theory of combustion. <input type="checkbox"/> Describe how rocket engines obtain enough oxygen in space to explode using oxidising agents. <input type="checkbox"/> Model simple reactions using symbol equations. <input type="checkbox"/> Evaluate data on burning fuels to deduce the best energy per gram of fuel. <input type="checkbox"/> Evaluate ways in which pollution from non-metal oxides can be reduced. <input type="checkbox"/> Evaluate the contribution made by combustion to the amount of carbon dioxide in the air in the short, medium and long term. <input type="checkbox"/> Evaluate the link between global temperature and levels of carbon dioxide in the atmosphere. <input type="checkbox"/> Use valencies to deduce the formula of simple two-element compounds including transition metals. <input type="checkbox"/> Use ideas about reactivity to explain how sacrificial metals can protect iron from rusting. <input type="checkbox"/> Write and derive the formulae for common acids and simple salts, given the ratios of atoms or the formulae of reactants. <input type="checkbox"/> Plot and interpret graphs of melting point or boiling point for mixtures of varying compositions.