

Year 10: Chemical World- Using Chemistry

	Check	Date
Revise assumed knowledge: SC4-16CW describes the observed properties and behaviour of matter, using scientific models and theories about the motion and arrangement of particles SC4-17CW explains how scientific understanding of, and discoveries about the properties of elements, compounds and mixtures relate to their uses in everyday life	□	
CW4 Different types of chemical reactions are used to produce a range of products and can occur at different rates and involve energy transfer. (ACSSU187)		
CHEMICAL REACTIONS AND ENERGY		
5CW4a. identify that chemical reactions involve energy transfer and can be exothermic or endothermic	□	
Define energy, exothermic and endothermic	□	
Recall the features of a chemical reaction	□	
Identify that chemical reactions involve energy transfer	□	
Compare and contrast exothermic and endothermic reactions	□	
Identify the generalised formula for synthesis ($A+B > AB$) and decomposition ($AB > A+B$) reactions	□	
Identify examples of a range of synthesis and decomposition reactions (Oxford pg152-156)	□	
CODE: 10CW20 First-hand investigation: Exothermic synthesis reaction	□	
CODE: 10CW21 First-hand investigation: Endothermic reaction	□	
CODE: 10CW22 First-hand investigation: Exothermic thermal decomposition	□	
CODE: 10CW23 First-hand investigation: Exothermic electrolysis decomposition	□	
LITERACY SET 1: COSMOS ARTCILE	□	
Assessment: Oxford online test- Chemical reactions and energy Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	□	
RATE OF REACTIONS		
5CW4b. compare combustion and respiration as types of chemical reactions that release energy but occur at different rates	□	
Recall the definition of an exothermic reaction	□	
Define reaction rate, ignition, combustion, incomplete combustion and respiration	□	
Explain why reaction rate is important with reference to specific examples e.g. controlled explosions, fireworks, rust, baking, fuel combustion	□	
Identify the word equation for basic combustion reactions	□	
CODE: 10CW24 First-hand investigation: Combustion of magnesium	□	
CODE: 10CW25 First-hand investigation: Combustion of different hydrocarbons	□	
Identify the word equation for respiration	□	
Compare combustion (exothermic, fast) and respiration reaction (exothermic, slow)	□	
5CW4c. describe the effects of factors, e.g. temperature and catalysts, on the rate of some common chemical reactions	□	
Define catalyst and collision	□	
Outline the collision theory	□	
Identify factors that affect rate of chemical reactions (temperature, amount of reactants, pH, amount of catalyst, surface area etc.)	□	

CODE: 10CW26 First-hand investigation: Effect of surface area on reaction rate	<input type="checkbox"/>	
CODE: 10CW27 First-hand investigation: Effect of concentration on reaction rate	<input type="checkbox"/>	
CODE: 10CW28 First-hand investigation: Effect of temperature on reaction rate	<input type="checkbox"/>	
CODE: 10CW29 First-hand investigation: Effect of catalyst on reaction rate	<input type="checkbox"/>	
Relate the factors that affect the rate of a chemical reaction to the collision theory	<input type="checkbox"/>	
LITERACY SET 2: MIXED ACTIVITIES	<input type="checkbox"/>	
Assessment: Oxford online test- Rate of reactions Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	<input type="checkbox"/>	
CHEMISTRY AND INDUSTRY		
5CW4d. analyse how social, ethical and environmental considerations can influence decisions about scientific research related to the development and production of new materials ⚙️🏭👤🌱	<input type="checkbox"/>	
Recall the definition of polymers (stage 4)	<input type="checkbox"/>	
Recall the difference between synthetic and natural polymers	<input type="checkbox"/>	
Describe how a range of synthetic and natural polymers are formed	<input type="checkbox"/>	
Describe the different types of polymers (natural and man-made) and how their properties determine their use	<input type="checkbox"/>	
CODE: 10CW30 First-hand investigation: Testing polymers	<input type="checkbox"/>	
CODE: 10CW31 Teacher demonstration: Making Nylon	<input type="checkbox"/>	
Analyse , in relation to a range of the above issues, how social, ethical and environmental considerations can influence decisions about scientific research related to the development and production of new materials	<input type="checkbox"/>	
5CW4e. describe examples to show where advances in science and/or emerging science and technologies significantly affect people's lives, including generating new career opportunities in areas of chemical science such as biochemistry and industrial chemistry (ACSHE161, ACSHE195) ⚙️🏭👤	<input type="checkbox"/>	
Describe how advances in science and technology have had a range of positive (e.g. new career opportunities) and negative (e.g. pollutants, acid rain) impacts on people's lives		
CODE: 10CW32 First-hand investigation: Effects of acid pollution on carbonates	<input type="checkbox"/>	
Outline , using examples, attempts that are being made to reduce human impacts such as pollution (i.e. pollution control in cars, alcohol and biofuels)	<input type="checkbox"/>	
Define green chemistry	<input type="checkbox"/>	
Outline the events that led to the development of green chemistry	<input type="checkbox"/>	
NUMERACY AND SKILLS SET	<input type="checkbox"/>	
Assessment: Oxford online test- Chemistry and Industry Students to achieve 100% in Support and Consolidate OR Consolidate and Extend	<input type="checkbox"/>	
Assessment: USING CHEMISTRY CHAPTER TEST	<input type="checkbox"/>	