



Topic	Learning Objectives	Key Vocabulary	Learning Sequence	Linked Learning	Home Learning
Fast and Furious	<p>Describe the collision theory</p> <p>Describe what is meant by activation energy</p> <p>Explain how the amount energy affects the success of a chemical reaction.</p> <p>Describe how changing the temperature changes the rate of a reaction</p> <p>Use collision theory to explain how changing temperature alters the rate of reaction.</p> <p>Calculate mean rates of reaction.</p> <p>Use collision theory to explain in detail how increasing concentration increases the rate of reaction</p> <p>Describe how changing the surface area changes the rate of reaction.</p> <p>Use collision theory to explain in detail how increasing surface area increases the rate of reaction.</p> <p>Use a graph to calculate the rate of reaction at specific times in a chemical reaction.</p> <p>Investigate how a catalyst affects the rate of reaction</p> <p>Use collision theory to explain how adding a catalyst alters the rate of reaction.</p>	Collision, particles, activation energy, temperature, concentration, surface area, rate, catalyst, reversible, irreversible, exothermic, endothermic	<p>In this topic pupils will cover the concept of chemical reactions. They will investigate key factors that can impact on the rate of a reaction, explain Collision theory and the requirement of activation energy.</p> <p>Pupils will also be introduced into Exothermic and Endothermic reactions.</p>	<p>Skills – This topic offers opportunities for practical work and investigations</p> <p>WSB Experimental skills and investigations</p> <p>WSC Analysis and evaluation</p> <p>Links to the programme of study:</p> <p>Chemical reactions : what catalysts do</p> <p>Energetics: exothermic and endothermic chemical reactions (qualitative).</p> <p>AQA specification links:</p> <p>5.6 The rate and extent of chemical change</p> <p>5.6.1.3 Collision theory and activation energy</p> <p>5.6.1.4 Catalysts</p> <p>5.6.2.1 Reversible reactions</p> <p>Maths skills</p> <p>MS 4b Drawing and interpreting appropriate graphs from data to determine rate of reaction.</p> <p>MS 4c Plot two variables from experimental or other data.</p>	This will be set as either a Vocabulary test or as consolidation questions on a weekly basis.



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Fast and Furious	<p>Use a reaction profile diagram to explain in detail the effect of adding a catalyst.</p> <p>Explain, using a familiar example, how a reaction can be reversible.</p> <p>Describe a familiar reversible reaction using a balanced symbol equation.</p> <p>Describe the difference between exothermic and endothermic reactions.</p> <p>Recognise exothermic and endothermic reactions by measuring the temperature changes involved.</p> <p>Display endothermic and exothermic reactions in a graph format</p>				<p>This will be set as either a Vocabulary test or as consolidation questions on a weekly basis.</p>



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Living Together	<p>Explain how a change in a biotic / abiotic factor could affect a community</p> <p>Extract and interpret information relating to the effect of biotic and abiotic factors on organisms in a community</p> <p>Explain the effect of competition on the individual or population</p> <p>Explain how adaptations help an organism survive in their environment and the importance of having great biodiversity</p> <p>Explain how organisms are adapted to seasonal changes</p> <p>Explain how an extremophile is adapted to their environment</p> <p>Explain how a sudden increase/ decrease in the number of a particular species can affect a food web and evaluate the use of each pyramid</p> <p>Explain how the population of a prey species would be affected by changes in its predator numbers</p> <p>Explain how toxic substances may accumulate in human food</p> <p>Explain how human activities are reducing biodiversity, land use, deforestation and global warming</p>	<p>Abiotic, biotic, community, ecosystem, adaptations, food chain, food web, pyramid of numbers, pyramid of biomass, population, producer, predator, prey, consumer, herbivore, carnivore, omnivore, extremophiles, global warming, biodiversity, deforestation, species, competition</p>	<p>In this topic pupils will cover Ecosystems, within this topic pupils will learn about the relationship between plants and animals within an ecosystem, linked to Food chains and webs.</p> <p>Pupils will also cover the importance of biodiversity and this needs to be maintained in the future to prevent extinction.</p>	<p><b>Science skills:</b></p> <p>WSC Analysis and evaluation</p> <p>WSC12 interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions</p> <p><b>Interactions and interdependencies</b></p> <p>Relationships in an ecosystem</p> <p>The interdependence of organisms in an ecosystem, including food webs and insect pollinated crops</p> <p>The importance of plant reproduction through insect pollination in human food security</p> <p>How organisms affect, and are affected by, their environment, including the accumulation of toxic materials.</p> <p><b>Genetics and evolution</b></p> <p>the importance of maintaining biodiversity</p> <p>AQA GCSE specification</p> <p>4.7. Ecology</p> <p>4.7.1.2 &amp; 4.7.1.3 Abiotic factors &amp; biotic factors</p> <p>4.7.1.4 Adaptations</p> <p>4.7.3.1 Biodiversity</p> <p>4.7.3.3 land use,</p> <p>4.7.3.4 Deforestation,</p> <p>4.7.3.5 Global warming</p> <p><b>Maths skills</b></p> <p>MS 2c, 4a Extract and interpret information from charts, graphs and tables.</p>	<p>This will be set as either a Vocabulary test or as consolidation questions on a weekly basis.</p>



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