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| ***Topic Name*** | Term | Skills Developed | Link to NC Subject Content and beyond | Next link in curriculum | Other Notes |
| **Chemical Reactions** | *Autumn* | * Estimating risks * Test hypotheses * Collecting data * Presenting data * Draw conclusions * Constructing explanations * Justifying opinions * Draw conclusions * Construct explanations | * Chemical reaction or Physical change * Representing chemical reactions using formulae and using equations * The chemical properties of metal and non-metal oxides with respect to acidity * Chemical reactions as the rearrangement of atoms * Conservation of mass changes of state and chemical reactions * Combustion, thermal decomposition, oxidation and displacement reactions * Exothermic and endothermic chemical reactions * Reactions of acids with metals to produce a salt plus hydrogen * Making clean, dry soluble salts * Reactions of metal compounds with acid * The tests for oxygen, carbon dioxide and hydrogen gas | * Y9 Spring: **The** **Earth & Materials**   Links to GCSE Topic 3 –  **Quantitative Chemistry**  **Year 10:**   * Conservation of mass   Links to GCSE Topic 4 – **Chemical Changes**  **Year 10:**   * Reactions of metals and acids   **Year 10:**   * Strong and weak acids * Titrations   Links to GCSE Topic 5 –  **Energy Changes**  **Year 11:**   * Endothermic and Exothermic reactions * Catalysts   Links to GCSE Topic 8 –  **Chemical Analysis**  **Year 10:**   * Testing for gases   Links to GCSE Topic 9 –  **Year 10:**  **Chemistry of the Atmosphere**   * Combustion | **Prior Knowledge from KS2**  Students should be able to:  Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution  use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating  demonstrate that dissolving, mixing and changes of state are reversible changes  explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda  **Prior Knowledge from KS3**  Y8 Separating Mixtures   * Filtration * Evaporation   Y8 Atoms, Elements & Compounds  Y8 Introduction to Bonding  Y8 The Periodic Table |
| **The Earth & Materials** | *Spring* | * Analyse patterns * Review theories * Discuss limitations * Draw conclusions * Construct explanations * Collect data * Present data * Communicate Ideas * Justify Opinions * Estimate risks * Examine consequences * Review theories | * The identification of pure substances * Carbon is recycled through natural processes in the atmosphere, ecosystems, oceans and the Earth’s crust (such as photosynthesis and respiration) as well as human activities (burning fuels). * Crude oil is a mixture of hydrocarbons resources that are used as a fuel and to make other materials. The burning of hydrocarbons releases carbon dioxide * Greenhouse gases reduce the amount of energy lost from the Earth through radiation and therefore the temperature has been rising as the concentration of those gases has risen. * Scientists have evidence that global warming caused by human activity is causing changes in climate. * Sedimentary, igneous and metamorphic rocks can be inter converted over millions of years through weathering and erosion, heat and pressure, and melting and cooling. | Links to GCSE Topic 9 –  **Chemistry of the Atmosphere**  **Year 10:**   * Combustion * Composition of the atmosphere * Climate change * Greenhouse effect   Links to GCSE Topic 10 –  **Using resources**  **Year 11:**   * Finite resources * Crude oil * Materials | **Prior Knowledge from KS2**  Students should be able to:  compare and group together different kinds of rocks on the basis of their appearance and simple physical properties  describe in simple terms how fossils are formed when things that have lived are trapped within rock  recognise that soils are made from rocks and organic matter  identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature |