400 YEARS OF EXCELLENCE

SUBJECT: Curriculum Overview

Year 9

Term	Topic studied	What will I learn?	How will I be assessed?
Year 9 Autumn	Chemistry of the atmosphere Atomic structure and the periodic table	The composition and evolution of the Earth's atmosphere. Greenhouse gasses, what they are, and how human activity has led to an increase in them. Global climate change. The carbon footprint Common atmospheric pollutants, their sources and their effects on the atmosphere. A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes Development of the periodic table Metals and non-metals, groups 0, 1 and 7.	End of topic test.
Year 9 Spring	Bonding structure and the properties of matter Chemical Change	Properties of transition metals Ionic covalent and metallic bonding Structure and bonding of carbon Bulk and surface properties of matter including nanoparticles. Acids and bases, including what ions makes solutions acidic or alkaline and explain what happens in neutralisation reactions. Why some acids are string acids and be able to explain the strength of an acid on the basis of concentration of hydrogen ions. Making soluble salts including explaining these reactions in terms of gain or loss of electrons and that these are redox reactions. How to make pure, dry, crystalline, samples of named soluble salts from metals, metal oxides, metal hydroxides or metal carbonates.	End of topic test. End of topic test End of topic test
Year 9 Summer	Chemical Changes (cont)	Metal oxides. Define and explain reduction and oxidation in terms of loss or gain of oxygen. The reactivity of a metal is related to its tendency to form positive ions. Reactivity of metals and the reactivity series. Includes being able to write ionic equations for displacement reactions and identify which species in a given reaction is oxidised and which is reduced. Unreactive metals are found in the Earth as the metal itself, but most metals are found as compounds. Extraction of metals less reactive than carbon from their ores can be obtained by reduction with carbon. The process of electrolysis and the conditions under which it occurs and what happens at the electrodes. The electrolysis of molten compounds and how to work out which ion would be discharged at the electrodes. Be able to represent reactions at the electrodes as half-equations.	End of topic test