Year Group: 10	Subject: Triple Science	Term: Autumn 2021

Topic	Key Learning points	Assessment
Biology: Key Concepts in Biology	*End Point: To understand the structure of cells, the action of enzymes and the mechanism of substance transport. To know how growth of organisms occurs and how the nervous system allows the body to respond to stimuli.* • Know the structure of plant, animal and bacterial cells and the function of the sub-cellular structures. • Know how substances are transported in cells via diffusion, osmosis and active transport. • Know how to use a microscope to obtain clear images of microscopic specimens and understand how to calculate the actual size and magnification of an image. • Know how enzymes work to catalyse reactions and the effect temperature and pH can have on enzyme activity. • Know how plants and animals grow through cell division, cell differentiation and, in plants, cell elongation. • Know the process of mitosis and be able to describe what is happening to the chromosomes in each stage. • Know the structure of the nervous system, neurones and synapses. • Know how neurotransmission occurs in a coordinated response and reflex arc as well as how an electrical impulse is transmitted across a synapse.	Students will be formatively assessed during each topic by past paper question end of topic tests completed in lesson time. • Students will complete a variety of consolidation homework throughout the term • After each end of topic test there will be an opportunity for students to review their understanding • Teachers will provide students with targeted feedback, based on their test performance At the end of the term students will have a summative assessment. This will be a 60-mark exam paper (20 marks from each discipline), which will be marked by their teacher.
Chemistry: The periodic table and acids and alkalis.	*End Point: To understand how the periodic table is organised and reactions involving acids and alkalis.* • Know the origin and organisation of the periodic table including the rationale behind periods and groups. • Know how to identify the mass number and atomic number of an element and be able to explain what these numbers mean. • Know how to construct electron shell diagrams of the first 20 elements and be able to write the electron formula for each. • Know the properties of group 1, group 7 and group 0 in the periodic table linking their electron shell structure to their reactivity. • Know that acids produce excess hydrogen ions when dissolved and alkalis produce excess hydroxide ions in water. • Know the difference between a concentrated acid or alkali and a strong acid or alkali. • Know that bases neutralise acid to form a salt and water. • Know that metal carbonates react with acids to produce a salt, water and carbon dioxide.	
Physics: Radioactivity and the Electromagnetic Spectrum	*End Point: To understand how wavelength and frequency relate to the properties and uses of waves on the electromagnetic spectrum. To know the structure and properties of different ionising radiations.* • Know that electromagnetic waves are transverse waves travel at the speed of light. • Know that electromagnetic waves have different wavelengths and frequencies and are therefore used for different things in human society. • Know that the longer electromagnetic wavelengths, like radio waves and microwaves are used in communication. • Know that shorter electromagnetic wavelengths, such as X-rays and Gamma rays, are used in medicine. • Know that high frequency waves have an ionising affect and can cause damage to cells. • Know that background radiation is the harmless levels of radiation we are exposed to all the time. • Know the structure and penetrating power of alpha, beta and gamma radiation. • Know what the half-life of a radioactive sample is and be able to calculate it using equations or graphs.	