Year Group: 10	Subject: Combined Science	Term: Spring 2020
Topic	**Key Learning points**	**Assessment**
Biology: Genetics and Natural Selection	*End Point: To understand how sexual reproduction leads to genetic variation and explain how genetic variation is the key to evolution through natural selection.* • Know that organisms use meiosis to produce gametes for sexual reproduction • Know that DNA is the genetic code common to all living organisms and that it gives instructions for making proteins. • Know that sections of DNA form genes and that genes can come in different form called alleles. • Understand the interaction between dominant and recessive alleles during inheritance • Know that Meiosis and sexual reproduction generate genetic variation in a population • Understand the evidence for evolution, including fossil evidence of the pentadactyl limb showing a common ancestor for many animals. • Know the evidence for human evolution and how human tools give correlating evidence for an increase in intelligence over time. • Understand that overuse of antibiotics has led to the evolution of antibiotic resistant bacteria	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: Bonding, Types of substance and Electrolytic processes	*End Point: To understand how different substances are formed through ionic bonding, covalent bonding and metallic bonding. To be able to describe the process of electrolysis and it's applications.* • Know that when an atom loses or gains an electron it becomes a charged ion • Know that an ionic bond forms when electrons are donated or accepted leading to electrostatic forces holding molecules together • Know the properties of an ionic lattice including the fact that they have high melting and boiling points and cannot conduct electricity whilst solid. • Know that a covalent bond is formed when non-metal atoms share electrons to gain a full outer shell. • Understand how to draw diagrams of ionic and covalent bonds. • Know that metallic bonding arises from the electrostatic attraction of positive metal ions delocalised electrons. • Describe the process of electrolysis including the oxidation and reduction reactions that occur at each electrode.	
Physics: Forces and Motion	*End Point: To understand how motion can be calculated and represented graphically. To be able to apply knowledge of Newtons first three Laws to describe the interactions of different forces.* • Know that quantities that have a size and a direction are defined as vectors and that quantities with just a size are scalars. • Understand that acceleration is a vector that can be calculated if the change in velocity and time is known. • Know how to interpret a distance time graph including how to use it to calculate velocity. • Know how to interpret a velocity time graph including how to use it to calculate acceleration. • Understand the concept of resultant forces as the magnitude and direction of a combination of forces. • Understand Newton's first law in relation to balanced forces. • Know that acceleration depends on the size of the force acting on it and the mass of the object. • Understand the concept of action and reaction forces in the context of two objects touching or being influenced by a force-field. • Know how to calculate momentum given the mass of an object, change in velocity and time. • Apply knowledge of forces to real world scenarios such as stopping distances and car safety mechanisms.	