

Year Group: 9		Subject: Science	Term: Spring 2022
Topic	Key Learning points		Assessment
Biology: Genetics and Variation	<p><i>End Point: Describe how genetic information is organised in animal cells, including knowledge of chromosomes and DNA. Know about environmental and inherited variation in a species and how this leads to adaptation. Know how desirable characteristics can be selected through selective breeding, genetic modification and cloning.</i></p> <ul style="list-style-type: none"> Recap cell structure Know that genetic information in animals is stored in the nucleus, with DNA coiled as chromosomes Know that organisms in a species have different characteristics due to inherited and environmental variation Know that during fertilisation the fusing of the egg and sperm cell lead to a mixing of genetic information Describe how characteristics are passed onto offspring through dominant and recessive genes and use a Punnett square to demonstrate inheritance Know about reproductive health, contraception, choices related to pregnancy and menopause Know about IVF and fertility treatment Know that variation can lead to organisms becoming better adapted to their environment Describe the process of natural selection Know that desirable characteristics can be selected by selective breeding, genetic modification and cloning 		<p>Students will be formatively assessed during each topic by weekly multiple-choice tests in class:</p> <ul style="list-style-type: none"> Before each assessment students will complete a revision homework After each assessment there will be an opportunity for students to review their understanding Teachers will provide students with targeted feedback, based on their test performance <p>At the end of the term students will have a summative assessment. This will be a 45-mark exam paper (15 marks from each topic), which will be marked by their teacher</p>
Chemistry: Extracting Metals	<p><i>End Point: Understand the physical and chemical processes used to extract metals from their ores. Describe extraction techniques in relation to the reactivity of metals.</i></p> <ul style="list-style-type: none"> Recap metals and the reactions of metals Recap the rock cycle and composition of the earth Know that unreactive metals are found in their native states, whereas reactive metals are found in compounds as ores Describe the processes of mining and quarrying and evaluate their environmental impact Know that metals that are less reactive than carbon can be extracted by heating with carbon (smelting) Know that metals that are more reactive than carbon are extracted by electrolysis Write word equations and balanced symbol equations for the reactions involved in metal extraction Know what is meant by an alloy, compare the properties of alloys to pure metals Know the advantages and disadvantages of recycling metals 		
Physics: Electricity and Magnetism	<p><i>End Point: Understand how energy is transferred electrically in a circuit by the flow of electrons. Describe circuits by their current, potential difference and resistance. Know how electricity is generated using renewable and non-renewable sources. Describe magnetic fields and apply this to electromagnetism.</i></p> <ul style="list-style-type: none"> Recap circuit symbols and drawing simple circuits Know that electrical current is the flow of charge around a circuit and that potential difference is a measure of the energy given to the charge carriers in a circuit Know the difference between parallel and series circuits and how current and potential difference is affected Know Ohms law and what is meant by electrical resistance Know how electricity is generated Know that some metals are magnetic and draw a diagram of the magnetic field around a bar magnet Know how to make an electromagnet using a coil of wire 		