

Year Group: 9	Subject: Science	Term: Summer 2021
Topic	Key Learning points	Assessment
Biology: Ecosystems and Material cycles.	<p><i>End Point: To know the components of an ecosystem and be able to describe how they interact.</i></p> <ul style="list-style-type: none"> • Know that ecosystems are made up of biotic (living) and abiotic (non-living) components. • Know how biotic factors such as predation, parasitism and competition affect living organisms. • Know how abiotic factors such as water availability, light intensity and temperature affect living organisms. • Know how to correctly sample different organisms in order to estimate distribution patterns. • Understand the importance of biodiversity for the stability of the world's ecosystems. • Know the different methods for preserving biodiversity, including the restoration and protection of habitats and breeding programs. • Know the components of the water cycle and how human activity can influence it. • Know the components of the carbon cycle and how human activity has led to increased levels of atmospheric carbon dioxide. • Know the components of the nitrogen cycle and how agriculture can benefit from this knowledge. 	<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
Chemistry: States of matter, atomic structure and separating substances.	<p><i>End Point: To know the structure of an atom, the features of different states of matter and how to separate substances.</i></p> <ul style="list-style-type: none"> • Know the three states of matter: solid, liquid and gas and how their properties are linked with their structure. • Know that a mixture is two or more elements not chemically joined. • Know how filtration can be used to separate insoluble solids from a liquid. • Know how crystallisation can be used to separate a solute from a solution. • Know that paper chromatography can be used to separate a mixture of liquids. • Know that distillation involves evaporation and condensation of a mixture of liquids and separates them according to their boiling points. • Know how to purify water using separating techniques such as distillation, sedimentation and chlorination. • Know the structure of an atom including the subatomic particles (proton, neutron and electron), their relative mass, charge and position in the atom. • Know the mass number of an element to be the total number of protons and neutrons in an atom. • Know the atomic number of an element to be the total number of protons in an atom. • Know that an isotope is a form of an element with more or less neutrons making it unstable. 	<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>
Physics: Waves	<p><i>End Point: To understand the properties of waves and how they interact with objects.</i></p> <ul style="list-style-type: none"> • Know that transverse waves oscillate perpendicular to the direction of wave travel and include examples from the electromagnetic spectrum such as light or radio waves. • Know that longitudinal waves oscillate in the same direction of wave travel and include sound waves. • Know that wavelength is distance between two like points on a wave such as two peaks. • Know that amplitude is the maximum distance of a wave away from its rest position. • Know that wave speed can be calculated by dividing distance travelled by time and is measured in m/s. • Know that frequency is the number of times a wave passes a fixed point per second and is measured in Hz. • Understand how to use a ripple tank to investigate speed, frequency and wavelength of a wave. • Know that refraction of a wave occurs when a wave crosses a boundary of varying density, thus changing the speed of the wave. 	

