

Year Group: 12	Subject: Biology	Term: Spring 2021
Topic	Key Learning points	Assessment
Exchange Surfaces and Breathing	<p><i>End Point: To understand ventilation and gas exchange systems in mammals, bony fish and insects as examples of the properties and functions of exchange surfaces in animals.</i></p> <ul style="list-style-type: none"> • Calculate and compare SA:Vol for different organisms. • Understand the need for specialised exchange surfaces in multicellular organisms. • Describe the general features of specialised exchange surfaces. • Describe the mechanism of ventilation in mammals. • Describe structures and functions of gas exchange system in mammals, fish and invertebrates. 	<p>Students will be formatively assessed during each topic by past paper questions completed in lesson time.</p>
Transport in Animals	<p><i>End Point: To understand that as animals become larger and more active, transport systems become essential to supply nutrients to, and remove waste from, individual cell and that controlling the supply of nutrients and removal of waste requires the coordinated activity of the heart and circulatory system.</i></p> <ul style="list-style-type: none"> • Recall the need for transport systems in multicellular organisms. • Describe the structure of blood vessels and how they are adapted to function. • Describe the composition of tissue fluid, plasma and lymph. • Describe how tissue fluid and plasma are formed with reference to hydrostatic pressure and oncotic pressure. • Describe the external and internal structure of the heart and the flow of blood through the heart. • Know that cardiac output = heart rate x stroke volume. • Describe how heart contractions is coordinated and the use of ECG to identify abnormal function. • Describe the role of haemoglobin in oxygen. • Explain why the oxygen dissociation curve for adult and foetal haemoglobin is different. • Describe and explain the effect of carbon dioxide concentration on the oxygen dissociation curve (the Bohr effect). 	<ul style="list-style-type: none"> • Students will complete homework assignments as ongoing assessment of 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 60-mark exam paper which will be marked by their teacher.</p>
Transport in Plants	<p><i>End Point: To understand that as plants become larger and more complex, transport systems become essential to supply nutrients to, and remove waste from, individual cells and that the supply of nutrients from the soil relies upon the flow of water through a vascular system, as does the movement of the products of photosynthesis.</i></p> <ul style="list-style-type: none"> • Describe the structure and function of vascular systems in plants. • Describe the process of transpiration and understand the link with gaseous exchange. • Explain how environmental factors can affect transpiration rate. • Describe the mechanism of translocation. • Describe how plants have adapted to a range of habitats. • Explain how differing morphology or physiology allows plants to survive in extreme environments. 	