

Year Group: 8	Subject: Science	Term: Spring 2022
Topic	Key Learning points	Assessment
Biology: Respiration	<p><i>End Point: Understand that respiration is a biochemical process that plays a central role for all living organisms. Link this to the mechanical process of breathing and the cells, tissues, organs and organ systems involved.</i></p> <ul style="list-style-type: none"> Recap animal cells and organisation in animals including cells, tissues, organs and organ systems Recap the role of diffusion in the transport of substances in and out of cells Know that respiration is a biochemical process that releases energy from glucose Describe the structure of the respiratory system and thorax, including the lungs, diaphragm, ribcage, intercostal muscles, trachea, bronchi and bronchioles Explain the mechanical process of ventilation in the lungs Describe factors that affect lung health, such as asthma and smoking Compare aerobic and anaerobic respiration Know that fermentation is a type of anaerobic respiration that can be used in baking and brewing 	<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: Acids and Alkalis	<p><i>End Point: Have a secure knowledge of the properties of acids and alkalis and how to test for them using indicators, being able to predict the indicator results. Describe acid reactions and neutralisation.</i></p> <ul style="list-style-type: none"> Know the properties of acids and alkalis Determine whether a substance is an acid or alkali based on its properties Know that an indicator shows whether a substance is acid, alkali or neutral Know that acids and alkalis can have different strengths Describe acids and alkalis as either strong or weak dependent on their pH Know that Universal Indicator can be used to test for pH Define concentration of a solution Understand the difference between strength and concentration of an acid Know that an acid and an alkali react to produce a salt and water Know how to name salts produced in a neutralisation reaction Know that an acid and a metal react to produce a salt and hydrogen Know how to test for hydrogen gas 	<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: Heating and Cooling	<p><i>End Point: Understand how energy is transferred between stores of energy both by particles (conduction and convection) and by radiation.</i></p> <ul style="list-style-type: none"> Recap the particle model and how the arrangement/movement of particles changes during a state change Describe state changes in terms of energy and recap heating and cooling curves Recap energy stores and energy transfer mechanisms Know the difference between heat and temperature Know the thermal energy is transferred through solids by conduction Know that thermal energy is transferred through liquids and gases by convection Know that thermal energy is transferred through a vacuum by radiation Know that materials can be conductors or insulators of thermal energy Use practical work to determine how to reduce heat loss, relate this to everyday issues, such as insulating materials used in house building 	