

Year Group: 8	Subject: Science	Term: Autumn 2021
Topic	Key Learning points	Assessment
<b>Biology:</b> Food and Digestion	<p><i>End Point: Understand the difference between a healthy and unhealthy diet. Know how to carry out basic chemical tests for the main groups of nutrients. Know the main digestive organs and describe their role in the digestive process.</i></p> <ul style="list-style-type: none"> <li>• Know the five food groups; fruit and vegetables, carbohydrates, proteins, dairy, fats</li> <li>• Know the relative proportion of each food group that constitutes a balanced diet</li> <li>• Know that energy is measured in calories and calculate energy requirements from food</li> <li>• Know the risks of an unhealthy diet, such as starvation, obesity or deficiency diseases, such as anaemia</li> <li>• Know how to carry out chemical tests for carbohydrates, protein, fats and sugar</li> <li>• Know that the digestive system breaks down and absorbs food molecules</li> <li>• Know how to label the mouth, oesophagus, stomach, small intestine, large intestine, rectum and anus on a diagram of the digestive system &amp; describe the role of each digestive organ</li> <li>• Know that food molecules and water are absorbed into the blood stream in the small intestine</li> <li>• Know that carbohydrate, protein and fat molecules are too large to be absorbed into the bloodstream</li> <li>• Know that digestive enzymes break down large food molecules into smaller food molecules</li> <li>• Know that bacteria in the intestines produce some vitamins, break down substances that humans cannot digest</li> </ul>	<p>Students will be formatively assessed during each topic by weekly multiple-choice tests in class:</p> <ul style="list-style-type: none"> <li>• Before each assessment students will complete a revision homework</li> </ul>
<b>Chemistry:</b> The Periodic Table	<p><i>End Point: Have a secure knowledge of particles, atoms, elements and compounds and understand how elements are displayed on the periodic table. Describe the trends within the groups and periods of the periodic table.</i></p> <ul style="list-style-type: none"> <li>• Recap atoms, elements, compounds and mixtures</li> <li>• Recap chemical formulae and be able to identify elements by their formulae using the periodic table</li> <li>• Know how the periodic table is arranged into periods and groups</li> <li>• Know that elements can be categorised as metals &amp; non-metals and identify them on the periodic table</li> <li>• Know the history of the periodic table, including Mendeleev's periodic table</li> <li>• Know the properties of metals, including thermal and electrical conductivity, hardness and malleability</li> <li>• Know that group 1 elements are called the alkali metals and write word equations to show their reactions with water</li> <li>• Describe the reactivity of alkali metals</li> <li>• Know that group 7 elements are called the halogens and describe their reactivity through displacement reactions</li> <li>• Know that group 0 elements are called the noble gases and are inert (unreactive)</li> </ul>	<ul style="list-style-type: none"> <li>• After each assessment there will be an opportunity for students to review their understanding</li> <li>• Teachers will provide students with targeted feedback, based on their test performance</li> </ul>
<b>Physics:</b> Waves	<p><i>End Point: Know that waves transfer energy without transferring particles. Know how to draw a waveform and describe how light and sound travels as a wave.</i></p> <ul style="list-style-type: none"> <li>• Know that sound is caused by the vibration of particles &amp; the auditory range of humans is between 20 and 20,000 Hz</li> <li>• Know that the loudness of sounds is measured in decibels (Db) and know that the ear detects sound</li> <li>• Know how to draw a waveform and label the amplitude, wavelength, peak, trough and distance</li> <li>• Define the key terms amplitude and wavelength (measured in m)</li> <li>• Know that the frequency (measured in Hz) is the number of waves passing a point per second</li> <li>• Know that sound travels fastest through solids, then liquids, then gases</li> <li>• that an echo is caused by sound waves reflecting off of a surface</li> <li>• Know that sounds with a frequency greater than 20,000 Hz are called ultrasound</li> <li>• Know that water waves produce vibrations that are at 90° to the direction that they are travelling</li> <li>• Know that light waves are the vibration of an electromagnetic field &amp; define transparent, translucent and opaque</li> <li>• Know that white light is a combination of the colours red, orange, yellow, green, blue, indigo and violet</li> <li>• Know that the retina of the eye detects light and transmits signals to the brain</li> </ul>	<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>