

## Key Stage 4 – Triple award

	Year 10	Year 11
<b>Autumn 1</b>	<p>P1 The Earth in the universe</p> <ul style="list-style-type: none"> <li>• The sun and the solar system</li> <li>• The expanding universe</li> <li>• Alfred Wegener and continental drift</li> <li>• Plate tectonics</li> <li>• Earthquakes and waves</li> <li>• Structure of the earth</li> </ul> <p>B1 You and your genes</p> <ul style="list-style-type: none"> <li>• Inherited and genetic variation</li> <li>• Genes</li> <li>• Genetic testing</li> <li>• Issues of genetic testing</li> <li>• Cloning</li> </ul> <p>C1 Air quality</p> <ul style="list-style-type: none"> <li>• Air pollution</li> <li>• The history of the atmosphere</li> <li>• Interpreting the quality of data</li> <li>• How are pollutants formed?</li> <li>• Improving the quality of air</li> </ul>	<p>C5 Chemicals of the natural environment</p> <ul style="list-style-type: none"> <li>• Bonding</li> <li>• Detecting ions in salt</li> <li>• Chemicals in the lithosphere</li> <li>• Extracting metals</li> </ul> <p>B5 Growth and development</p> <ul style="list-style-type: none"> <li>• Cells tissues and organs</li> <li>• Animal and plant growth</li> <li>• Cloning plants</li> <li>• Phototropism</li> <li>• Mitosis</li> <li>• Gametes</li> <li>• Gene switching</li> <li>• Stem cells</li> </ul> <p>P6 Radioactive materials</p> <ul style="list-style-type: none"> <li>• Atoms and isotopes</li> <li>• Alpha, beta and gamma radiation</li> <li>• Background radiation</li> <li>• Uses of radioactive materials</li> <li>• Radioactive waste</li> <li>• Nuclear fission and fusion</li> </ul>
<b>Autumn 2</b>	<p>P3 Sustainable energy</p> <ul style="list-style-type: none"> <li>• Energy transfers and Sankey diagram</li> <li>• Efficiency of an appliance</li> <li>• Generating electricity using fossil fuels</li> <li>• Generating electricity using nuclear power</li> <li>• Renewable energy</li> </ul> <p>B2 Keeping healthy</p> <ul style="list-style-type: none"> <li>• Fighting Infection</li> <li>• Immunity and vaccines</li> <li>• Antibiotics</li> <li>• Drug testing</li> <li>• The circulatory system</li> <li>• Heart disease</li> <li>• Homeostasis</li> <li>• The kidneys</li> </ul> <p>C2 Properties of materials</p> <ul style="list-style-type: none"> <li>• Properties of materials</li> <li>• Polymers</li> <li>• Polymerisation</li> <li>• Hydrocarbon molecules</li> </ul>	<p>C6 Chemical synthesis</p> <ul style="list-style-type: none"> <li>• Acid and alkalis</li> <li>• Neutralisation</li> <li>• Endothermic and exothermic reactions</li> <li>• Rates of reaction</li> <li>• Yields</li> </ul> <p>B6 Brain and mind</p> <ul style="list-style-type: none"> <li>• Receptors and effectors</li> <li>• Drugs and the nervous system</li> <li>• Brain structure</li> <li>• Learning and behaviour</li> <li>• Memory</li> </ul> <p>P7 Observing the Universe</p> <ul style="list-style-type: none"> <li>• How do the Sun, Stars and moon move?</li> <li>• Solar and lunar eclipses</li> <li>• Lenses and telescopes</li> <li>• Reflector Vs Refractor telescopes</li> <li>• Diffraction effects</li> <li>• Measuring the distance to stars using parallax</li> </ul>

	<ul style="list-style-type: none"> <li>Refining crude oil</li> <li>Nanotechnology</li> </ul>	<ul style="list-style-type: none"> <li>Hubble's law</li> <li>Cepheid variable stars</li> <li>Life cycle of stars</li> <li>Gas behaviour</li> </ul>
<b>Spring 1</b>	<p>P2 Radiation and Life</p> <ul style="list-style-type: none"> <li>Electromagnetic radiation</li> <li>Greenhouse effect</li> <li>Carbon cycle</li> <li>Analogue and digital signals</li> <li>Health studies</li> </ul> <p>C3 Chemicals in our life</p> <ul style="list-style-type: none"> <li>Rocks in Britain</li> <li>Extracting salt</li> <li>Salt in the diet</li> <li>Alkalis and salts</li> <li>PVC</li> <li>Life cycle assessment</li> <li>Chlorine chemicals</li> <li>Risks and benefits of chemicals</li> </ul> <p>B3 Life on Earth</p> <ul style="list-style-type: none"> <li>The variety of life</li> <li>Carbon cycle</li> <li>Nitrogen cycle</li> <li>Evolution of life</li> <li>Biodiversity</li> </ul>	<p>C7 Further chemistry</p> <ul style="list-style-type: none"> <li>The chemical industry</li> <li>What are the characteristics of green chemistry?</li> <li>Organic chemistry and functional groups</li> <li>Alcohols</li> <li>Carboxylic acids</li> <li>Esters</li> <li>Why are there energy changes during chemical reactions?</li> <li>Introducing dynamic equilibrium</li> <li>Analytic procedures</li> <li>Chromatography</li> <li>Quantitative analysis by titration</li> </ul>
<b>Spring 2</b>	<p>P4 Explaining motion</p> <ul style="list-style-type: none"> <li>Interaction forces</li> <li>Friction</li> <li>Describing motion – speed, acceleration, velocity</li> <li>Travel graphs</li> <li>Momentum</li> <li>Car safety</li> <li>Potential and kinetic energy</li> <li>Work done</li> </ul> <p>C4 Chemical patterns</p> <ul style="list-style-type: none"> <li>Elements and periodic table</li> <li>Alkali metals</li> <li>Halogens</li> <li>Atomic structure</li> <li>Ionic theory</li> </ul>	<p>B7 Further biology</p> <ul style="list-style-type: none"> <li>Movement and exercise</li> <li>Circulation</li> <li>Energy Balance</li> <li>What can we learn from natural ecosystems?</li> <li>New technologies</li> </ul>
<b>Summer 1</b>	<p>B4 Processes of life</p> <ul style="list-style-type: none"> <li>Role of enzymes in the body</li> <li>Gas exchange</li> <li>Osmosis</li> <li>Active transport</li> </ul>	<ul style="list-style-type: none"> <li>Revision and exam preparation</li> </ul>

	<ul style="list-style-type: none"><li>• Photosynthesis</li><li>• Aerobic and anaerobic respiration</li></ul>	
<b>Summer 2</b>	<p>P5 Electric circuits</p> <ul style="list-style-type: none"><li>• Static electricity</li><li>• Electrical current</li><li>• Resistance</li><li>• Ohm's Law</li><li>• Potential difference</li><li>• Variable resistors and sensors</li><li>• Power</li><li>• Motors</li><li>• Electromagnetic induction</li><li>• National grid and transformers</li></ul>	