

## Year 9 Learning Map

### Hydrocarbons and Energy Changes

<p><b>Prior Learning</b> This topic builds on your prior knowledge from Key Stage 3, deepening your understanding of organic compounds. You will learn about crude oil and fractional distillation, energy changes and endothermic and exothermic reactions.</p>	<p><b>Current Learning</b> In this topic, you will learn about the structure and function of alkanes and alkenes. You will also learn how crude oil is separated and the different properties of the different fractions. You will also learn how the energy of chemical reactions changes depending on whether the temperature of the reaction increases or decreases. You will also investigate the tests for positive and negative ions.</p>	<p><b>Subsequent Learning</b> This topic will prepare you for quantitative chemistry, environmental chemistry and covalent bonding in further topics.</p>
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<p><b>Lesson Sequencing</b> (lessons highlighted in green represent subject content for only some science students)</p>	<p><b>Tier 3 Vocabulary</b></p>	<p><b>Wider Reading Opportunities</b></p>	<p><b>Ways in which parents/carers can support</b></p>																																						
<table border="1"> <thead> <tr> <th>Lesson Number</th> <th>Lesson Title</th> </tr> </thead> <tbody> <tr><td>1</td><td>Crude oil, Hydrocarbons and Alkanes</td></tr> <tr><td>2</td><td>Fractional Distillation and Petrochemicals</td></tr> <tr><td>3</td><td>Properties of Hydrocarbons</td></tr> <tr><td>4</td><td>Cracking Alkenes</td></tr> <tr><td>5</td><td>Pure Substances</td></tr> <tr><td>6</td><td>Formulations</td></tr> <tr><td>7</td><td>Chromatography</td></tr> <tr><td>8</td><td>Gas Tests</td></tr> <tr><td>9</td><td>Flame Tests and Hydroxides</td></tr> <tr><td>10</td><td>Carbonates, Halides and Sulphates</td></tr> <tr><td>11</td><td>RP</td></tr> <tr><td>12</td><td>Instrumental Methods</td></tr> <tr><td>13</td><td>Ceramics, Polymers and Composites</td></tr> <tr><td>14 &amp; 15</td><td>Exothermic and Endothermic Reactions with RP 4</td></tr> <tr><td>16</td><td>Reaction Profiles</td></tr> <tr><td>17 &amp; 18</td><td>The Energy Change of Reactions</td></tr> <tr><td>19</td><td>Test</td></tr> <tr><td>20</td><td>Check Point Lesson</td></tr> </tbody> </table>	Lesson Number	Lesson Title	1	Crude oil, Hydrocarbons and Alkanes	2	Fractional Distillation and Petrochemicals	3	Properties of Hydrocarbons	4	Cracking Alkenes	5	Pure Substances	6	Formulations	7	Chromatography	8	Gas Tests	9	Flame Tests and Hydroxides	10	Carbonates, Halides and Sulphates	11	RP	12	Instrumental Methods	13	Ceramics, Polymers and Composites	14 & 15	Exothermic and Endothermic Reactions with RP 4	16	Reaction Profiles	17 & 18	The Energy Change of Reactions	19	Test	20	Check Point Lesson	<p>Alkanes Alkenes Fractional Distillation Hydrocarbons Saturated Unsaturated Ceramics Polymers Reaction profiles Energy changes Endothermic Exothermic Hydroxides Cation Anion Solubility Solvent Solute</p>	<ul style="list-style-type: none"> <li>• 'CGP Science Revision Guide'</li> <li>• A Short History of Nearly Everything by Bill Bryson</li> <li>• The Elements: A Visual Exploration of Every Known Atom in the Universe by Theodore Gray</li> <li>• <a href="#">BBC News Science and Environment</a></li> </ul>	<p>Support your child's progress through:</p> <ul style="list-style-type: none"> <li>• <a href="#">Educake</a> - to complete homework and access further revision</li> <li>• <a href="#">myGCSE science</a> - for extra support videos and work on the topics stated</li> <li>• Accessing their Microsoft Teams work for directed exercises on current topics</li> </ul>
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