

# Science curriculum overview Yr7

(Draft arrangement as the school may need flexibility as the need arises)

<u>Term</u>	<u>Topic and key questions</u>	<u>Assessment structure</u>	<u>How parents can help</u>
<u>Autumn 1</u>	<p><b>CHEMISTRY</b></p> <p><b>1.The particle Model</b></p> <ul style="list-style-type: none"> <li>• Solids, Liquid, Gases</li> <li>• <b>Hypothesis and Theories</b></li> <li>• Particles</li> <li>• Brownian Motion</li> <li>• Air Pressure</li> </ul> <p><b>2.Atoms, elements and molecules</b></p> <ul style="list-style-type: none"> <li>• The air we breath</li> <li>• Earth's elements</li> <li>• Metals and non-metals</li> <li>• Making compounds</li> <li>• Chemical reactions</li> </ul>	<p>Test 1: The particle model + atoms, elements and molecules</p> <p>Extended task: long answer Chemistry question (topic assigned by teacher)</p>	<ul style="list-style-type: none"> <li>• Monitor that your daughter is reading the Exploring Science textbook by having discussion around topics covered in lesson. She should be reading every week about all the topics covered in lessons that week even if not assigned by the teacher.</li> <li>• Quiz your daughter on the material she learned during the term and/or in preparation for a test.</li> </ul>
<u>Autumn 2</u>	<p><b>CHEMISTRY</b></p> <p><b>3. Acids and Alkali</b></p> <ul style="list-style-type: none"> <li>• Hazards and <b>Controlling Risk (WS)</b></li> <li>• Indicators</li> <li>• Acidity and alkalinity</li> <li>• Neutralisation</li> <li>• Neutralisation in daily life</li> </ul> <p><b>4. Mixtures and separation</b></p> <ul style="list-style-type: none"> <li>• <b>Writing a method</b></li> <li>• Mixtures</li> <li>• Solutions</li> <li>• <b>Safety when heating (WS)</b></li> <li>• Evaporation</li> <li>• Chromatography</li> <li>• Distillation</li> </ul>	<p>Test2: Acids and Alkali + Mixtures and separation</p>	<ul style="list-style-type: none"> <li>• Ensure that your daughter has access to a computer and Internet so she can complete Doodle quizzes as assigned by the teacher. Note: Doodle can be accessed via school website.</li> <li>• Encourage your daughter to try various revision techniques at home such as:             <ol style="list-style-type: none"> <li>1. Glossary of key science terms</li> <li>2. A diagrams book</li> <li>3. Mind maps</li> <li>4. Revision cards</li> </ol> </li> </ul>
<u>Spring 1</u>	<p><b>BIOLOGY</b></p> <p><b>1.Cells, tissues, organs and systems</b></p> <ul style="list-style-type: none"> <li>• Life Processes</li> <li>• Cells</li> <li>• <b>Microscopes (WS)</b></li> </ul>	<p>Test 3: cells, tissues, organs and systems + Muscles and bones</p>	<ul style="list-style-type: none"> <li>• If your daughter had completed a practical during her Science lesson during that week ask her to tell you about:</li> </ul>

	<ul style="list-style-type: none"> <li>• Tissues</li> <li>• Organs and organ systems</li> </ul> <p><b>2. Muscles and bones</b></p> <ul style="list-style-type: none"> <li>• Muscles and breathing</li> <li>• Muscles and blood</li> <li>• The skeleton</li> <li>• Muscles and Moving</li> <li>• Drugs</li> <li>• Drugs and sport</li> </ul>	Extended task: long answer Biology question (topic assigned by teacher)	<ol style="list-style-type: none"> <li>1. The aim of the practical</li> <li>2. Method she followed</li> <li>3. Safety precaution</li> <li>4. Scientific equipment she used</li> <li>5. How she recorded results</li> <li>6. Observations</li> <li>7. Conclusions</li> </ol> <ul style="list-style-type: none"> <li>• Watch BBC Science programs, read about latest science news and discuss, watch YouTube Science videos.</li> <li>• Use BBC Bitesize Science for extra revision.</li> <li>• Allow your daughter to be a teacher - ask her to teach you about a specific concept she learned in science and then quiz you.</li> </ul>
<b><u>Spring 2</u></b>	<p><b>BIOLOGY</b></p> <p><b>3. Sexual reproduction in animals</b></p> <ul style="list-style-type: none"> <li>• Animal sexual reproduction</li> <li>• Growing up</li> <li>• Reproductive organs</li> <li>• Becoming pregnant</li> <li>• Gestation and birth</li> </ul> <p><b>4. Ecosystems</b></p> <ul style="list-style-type: none"> <li>• Variation</li> <li>• <b>Charts and Graphs (WS)</b></li> <li>• Adaptations</li> <li>• Effects of the Environment</li> <li>• Effects on the environment</li> <li>• Transfers in food chains</li> </ul>	Test 4: Reproduction + Ecosystems	
<b><u>Summer 1</u></b>	<p><b>PHYSICS</b></p> <p><b>1. Forces</b></p> <ul style="list-style-type: none"> <li>• <b>SI units (WS)</b></li> <li>• Different forces</li> <li>• Springs</li> <li>• Friction</li> <li>• Pressure</li> <li>• Balanced and unbalanced forces</li> </ul> <p><b>2. Energy</b></p> <ul style="list-style-type: none"> <li>• Energy from food</li> <li>• Energy transfers and stores</li> <li>• Fuels</li> <li>• Other energy resources</li> </ul>	Test 5: Forces +Energy  Extended task: long answer Physics question (topic assigned by teacher)	
<b><u>Summer 2</u></b>	<p><b>PHYSICS</b></p> <p><b>3. Current and Electricity</b></p> <ul style="list-style-type: none"> <li>• Switches and currents</li> </ul>	Test 6: Electricity + Sound	

- Models for circuits
- Series and parallel circuits
- Using table
- Changing the current
- Using electricity

#### 4. **Sound**

- Making sound
- Moving sounds
- **Line graphs and scattered graphs (WS)**
- Detecting sound
- Using Sound
- comparing waves

# Science curriculum overview Yr8

<u>Term</u>	<u>Topic and key questions</u>	<u>Assessment structure</u>	<u>How parents can help</u>
<u>Autumn 1</u>	<p><b>BIOLOGY</b></p> <p><b>1. Food and nutrition</b></p> <ul style="list-style-type: none"> <li>• Nutrients</li> <li>• Uses of nutrients</li> <li>• balanced diet</li> <li>• Digestion</li> <li>• <b>Surface area (WS)</b></li> <li>• Absorption</li> </ul> <p><b>2. Breathing and respiration</b></p> <ul style="list-style-type: none"> <li>• Aerobic respiration</li> <li>• Gas exchange system</li> <li>• <b>Means and range (WS)</b></li> <li>• Getting oxygen</li> <li>• Comparing gas exchange</li> <li>• Anaerobic respiration</li> </ul>	<p>Test 1: Food and nutrition + Berthing and respiration</p> <p>Extended task: long answer Biology question or formal class presentation (topic assigned by teacher)</p>	<ul style="list-style-type: none"> <li>• Monitor that your daughter is reading the Exploring Science textbook by having discussion around topics covered in lesson. She should be reading every week about all the topics covered in lessons that week even if not assigned by the teacher.</li> <li>• Quiz your daughter on the material she learned during the term and/or in preparation for a test.</li> <li>• Ensure that your daughter has access to a computer and Internet so she can complete Doodle quizzes as assigned by the teacher. Note: Doodle can be accessed via school website.</li> <li>• Encourage your daughter to try various revision techniques at home such as:             <ol style="list-style-type: none"> <li>1. Glossary of key science terms</li> <li>2. A diagrams book</li> <li>3. Mind maps</li> <li>4. Revision cards</li> </ol> </li> </ul>
<u>Autumn 2</u>	<p><b>BIOLOGY</b></p> <p><b>3. Unicellular Organisms</b></p> <ul style="list-style-type: none"> <li>• Unicellular and multicellular</li> <li>• Microscopic fungi</li> <li>• Bacteria</li> <li>• Protoctists</li> <li>• Decomposers and carbon</li> </ul> <p><b>4. Plants and their reproduction</b></p> <ul style="list-style-type: none"> <li>• Classification and biodiversity</li> <li>• <b>Accuracy and estimates (WS)</b></li> <li>• Types of reproduction</li> <li>• Pollination</li> <li>• Fertilisation and dispersal</li> <li>• Germination and growth Distillation</li> </ul>	<p>Test2: Unicellular organisms + Plants and their reproduction</p>	<ul style="list-style-type: none"> <li>• Encourage your daughter to try various revision techniques at home such as:             <ol style="list-style-type: none"> <li>1. Glossary of key science terms</li> <li>2. A diagrams book</li> <li>3. Mind maps</li> <li>4. Revision cards</li> </ol> </li> </ul>
<u>Spring 1</u>	<p><b>PHYSICS</b></p> <p><b>1. Fluids</b></p> <ul style="list-style-type: none"> <li>• The particle model</li> <li>• <b>Calculations with density (WS)</b></li> <li>• Changing states</li> <li>• Pressure in liquids</li> </ul>	<p>Test 3: Fluids + Energy transfers</p>	<ul style="list-style-type: none"> <li>• If your daughter had completed a practical during her Science lesson during that week ask her to tell you about:             <ol style="list-style-type: none"> <li>1. The aim of the practical</li> <li>2. Method she followed</li> </ol> </li> </ul>

	<ul style="list-style-type: none"> <li>Floating and sinking</li> <li>Drag</li> </ul> <p><b>2. Energy Transfers</b></p> <ul style="list-style-type: none"> <li>Temperature changes</li> <li>Transferring energy</li> <li>Controlling transfers</li> <li><b>Accuracy and precision (WS)</b></li> <li>Power and efficiency</li> <li>Paying for energy</li> </ul>	<p>Extended task: long answer Physics question or formal class presentation (topic assigned by teacher)</p>	<ol style="list-style-type: none"> <li>Safety precaution</li> <li>Scientific equipment she used</li> <li>How she recorded results</li> <li>Observations</li> <li>Conclusions</li> </ol> <ul style="list-style-type: none"> <li>Watch BBC Science programs, read about latest science news and discuss, watch YouTube Science videos.</li> </ul>
<p><b><u>Spring 2</u></b></p>	<p><b>PHYSICS</b></p> <p><b>3. Light</b></p> <ul style="list-style-type: none"> <li>Light on the move</li> <li>Reflections</li> <li>Refractions</li> <li>Cameras and eyes</li> <li>Colour</li> </ul> <p><b>4. Earth and Space</b></p> <ul style="list-style-type: none"> <li>Getting the evidence</li> <li>Seasons</li> <li>Magnetic Earth</li> <li>Gravity in space</li> <li>Beyond the Solar System</li> </ul>	<p>Test 4: Light + Earth and Space</p>	<ul style="list-style-type: none"> <li>Use BBC Bitesize Science for extra revision.</li> <li>Allow your daughter to be a teacher - ask her to teach you about a specific concept she learned in science and then quiz you.</li> </ul>
<p><b><u>Summer 1</u></b></p>	<p><b>Chemistry</b></p> <p><b>1. The periodic table</b></p> <ul style="list-style-type: none"> <li>Dalton's atomic model</li> <li>Chemical properties</li> <li>Mendeleev's table</li> <li><b>Anomalous results (WS)</b></li> <li>Physical trends</li> <li>Chemical trends</li> </ul> <p><b>2. Metals and their uses</b></p> <ul style="list-style-type: none"> <li>Metal properties</li> <li>Corrosion</li> <li>Metals and water</li> <li><b>Quality evidence (WS)</b></li> <li>Metals and acids</li> <li>Pure metals and alloys</li> </ul>	<p>Test 5: The periodic table + Metals and their uses</p> <p>Extended task: long answer Chemistry question or formal class presentation (topic assigned by teacher)</p>	

<b><u>Summer 2</u></b>	<b>CHEMISTRY</b> <b>3. Combustion</b> <ul style="list-style-type: none"><li>• Burning fuels</li><li>• Oxidation</li><li>• Fire safety</li><li>• <b>Fair testing (<i>teaching variables</i>) (WS)</b></li><li>• Air pollution</li><li>• Global warming</li></ul> <b>4. Rocks</b> <ul style="list-style-type: none"><li>• Rocks and their uses</li><li>• Igneous and metamorphic</li><li>• Weathering and erosion</li><li>• Sedimentary rocks</li><li>• Materials in Earth</li></ul>	Test 6: Combustion + rocks	
------------------------	---	----------------------------	--

## Science curriculum overview Yr9

<u>Term</u>	<u>Topic and key questions</u>	<u>Assessment structure</u>	<u>How parents can help</u>
<u>Autumn 1</u>	<p><b>BIOLOGY</b></p> <p><b>1.Genetics and evolution</b></p> <ul style="list-style-type: none"> <li>• Environmental variation</li> <li>• Inherited variation</li> <li>• <b>Probability (WS)</b></li> <li>• DNA</li> <li>• Genes and extinction</li> <li>• Natural Selection</li> </ul> <p><b>2. Plant Growth</b></p> <ul style="list-style-type: none"> <li>• Reactions in plants</li> <li>• Plant adaptations</li> <li>• Plant products</li> <li>• Growing crops</li> <li>• Farming problems</li> <li>• <b>Bias and validity (WS)</b></li> </ul>	<p>Test 1: Genetics and Evolution + Plant Growth</p> <p>Extended task: long answer Biology question or formal class presentation (topic assigned by teacher)</p>	<ul style="list-style-type: none"> <li>• Monitor that your daughter is reading the Exploring Science textbook by having discussion around topics covered in lesson. She should be reading every week about all the topics covered in lessons that week even if not assigned by the teacher.</li> <li>• Quiz your daughter on the material she learned during the term and/or in preparation for a test.</li> <li>• Ensure that your daughter has access to a computer and Internet so she can complete Doodle quizzes as assigned by the teacher. Note: Doodle can be accessed via school website.</li> <li>• Encourage your daughter to try various revision techniques at home such as: <ol style="list-style-type: none"> <li>1. Glossary of key science terms</li> <li>2. A diagrams book</li> <li>3. Mind maps</li> <li>4. Revision cards</li> </ol> </li> <li>• If your daughter had completed a practical during her Science lesson during that week ask her to tell you about: <ol style="list-style-type: none"> <li>1. The aim of the practical</li> </ol> </li> </ul>
<u>Autumn 2</u>	<p><b>BIOLOGY</b></p> <p><b>3. Biology transition into GCSE (most of term)</b></p> <ul style="list-style-type: none"> <li>• Disease</li> <li>• Control systems</li> <li>• Testing Medicines</li> <li>• <b>Median and quartiles (WS)</b></li> <li>• Ecology</li> <li>• In and out</li> </ul> <p><b>4.KS3 Biology revision and projects</b> (may be assigned as holiday HW)</p> <ul style="list-style-type: none"> <li>➤ Cells, systems and movement</li> <li>➤ Other organ systems</li> <li>➤ Reproduction and Health</li> <li>➤ Energy in ecosystems</li> <li>➤ Genetics and evolution</li> </ul> <p><u>1 week (complete one of three):</u> Project 1: Animal smuggling Project 2: Enzyme Investigation Project 3: Teeth</p>	<p>Test2: Biology GCSE level</p>	

<p><b><u>Spring 1</u></b></p>	<p><b>CHEMISTRY</b>  <b>1. Making materials</b></p> <ul style="list-style-type: none"> <li>• Making ceramics</li> <li>• Polymers</li> <li>• Composite materials</li> <li>• Problems with future</li> <li>• Recycling materials</li> </ul> <p><b>2. Reactivity</b></p> <ul style="list-style-type: none"> <li>• Types of explosion</li> <li>• Reactivity</li> <li>• Energy and reactions</li> <li>• <b>Percentage loss and gain (WS)</b></li> <li>• Displacement</li> <li>• Extracting metals</li> </ul>	<p>Test 3: Making materials + reactivity</p> <p>Extended task: long answer Chemistry question or formal class presentation (topic assigned by teacher)</p>	<ol style="list-style-type: none"> <li>2. Method she followed</li> <li>3. Safety precaution</li> <li>4. Scientific equipment she used</li> <li>5. How she recorded results</li> <li>6. Observations</li> <li>7. Conclusions</li> </ol> <ul style="list-style-type: none"> <li>• Watch BBC Science programs, read about latest science news and discuss</li> <li>• Watch YouTube Science videos. I.e. My GCSE Science videos for extra explanations of GCSE parts of the curriculum.</li> </ul>
<p><b><u>Spring 2</u></b></p>	<p><b>CHEMISTRY</b>  <b>3. Chemistry transition into GCSE</b></p> <ul style="list-style-type: none"> <li>• Ions</li> <li>• Energy transfers</li> <li>• Rates of reaction</li> <li>• Chemical equations</li> <li>• <b>Standard form (WS)</b></li> <li>• Equilibria</li> </ul> <p><b>4. KS3 Chemistry revision and projects</b>  (may be assigned as holiday HW)</p> <ul style="list-style-type: none"> <li>➤ Separating substances</li> <li>➤ Chemical reactions</li> <li>➤ Physical and chemical</li> <li>➤ The periodic table</li> <li>➤ Earth and atmosphere</li> </ul> <p><u>1 week (complete one of three):</u>  Project 1: Carbon capture  Project 2: Electrolysis investigation  Project 3: Nanoparticles</p>	<p>Test 4: Chemistry GCSE level</p>	<ul style="list-style-type: none"> <li>• Use BBC Bitesize Science for extra revision.</li> <li>• Allow your daughter to be a teacher - ask her to teach you about a specific concept she learned in science and then quiz you.</li> </ul>
<p><b><u>Summer 1</u></b></p>	<p><b>PHYSICS</b>  <b>1. Forces and Motion</b></p> <ul style="list-style-type: none"> <li>• Forces and movement</li> <li>• Energy for movement</li> </ul>	<p>Test 5: Forces and Motion + Force fields and electromagnets</p> <p>Extended task: long</p>	

	<ul style="list-style-type: none"> <li>• Speed</li> <li>• <b>Equations and graphs (WS)</b></li> <li>• Turning force</li> <li>• More machines</li> </ul> <p><b>2. Force fields and electromagnets</b></p> <ul style="list-style-type: none"> <li>• Force Fields</li> <li>• Static electricity</li> <li>• Current electricity</li> <li>• Resistance</li> <li>• <b>Rounding numbers (WS)</b></li> <li>• Electromagnets</li> </ul>	<p>answer Physics question or formal class presentation (topic assigned by teacher)</p>	
<p><b><u>Summer 2</u></b></p>	<p><b>PHYSICS</b></p> <p><b>3. Physics transition into GCSE</b></p> <ul style="list-style-type: none"> <li>• Differences</li> <li>• Fields</li> <li>• Cause and effect</li> <li>• Links between variables</li> <li>• <b>Information from graphs (WS)</b></li> <li>• Models</li> </ul> <p><b>4.KS3 Physics revision and projects</b></p> <ul style="list-style-type: none"> <li>➤ Models in science</li> <li>➤ Energy</li> <li>➤ Forces</li> <li>➤ Waves and fields</li> <li>➤ Machines</li> </ul> <p><u>1 week (complete one of three):</u>  Project1: Ears and eyes  Project 2: Going faster  Project 3: Speed limits</p>	<p>Test 6: Physics GCSE level</p>	