



love the journey

## Curriculum Implementation 2023-24

### Secondary

<b>LCA Strand</b>	<b>Science</b>
<b>Subject</b>	<b>Science</b>
<b>Key Stage</b>	<b>Key Stage 3 (Chapter 7-9)</b>

What are the key concepts taught?	<p>The key concepts are taught in science using the big ideas principle. The content is organised under the 10 big idea headings: Forces, Electromagnetism, Energy, Waves, Matter, Reactions, Earth, Organisms, Ecosystem and Genes. Smaller building blocks of content fall within each of these big ideas eg. Forces has several smaller concepts that include speed, gravity, contact forces and pressure.</p>
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What is the sequencing of units?	<p>Each big idea topic is taught across the KS3 in a spiralled design to allow for more abstract ideas to build on simpler ones.</p> <p><b>Ch7</b></p> <ul style="list-style-type: none"> <li>• particle model, separating mixtures, acids &amp; alkalis, metals &amp; non-metals,</li> <li>• cells and movement, variation, human reproduction, interdependence, plant reproduction,</li> <li>• energy costs &amp; transfers, speed &amp; gravity, sound, light, earth structure, universe</li> </ul> <p><b>Ch8</b></p> <ul style="list-style-type: none"> <li>• wave effects &amp; properties, work, heating &amp; cooling, potential difference, resistance &amp; current, magnetism &amp; electromagnets, forces &amp; pressure</li> <li>• breathing, digestion, evolution, inheritance, respiration, photosynthesis</li> <li>• elements, periodic table, earth &amp; resources, reactions, chemical energy</li> </ul> <p><b>Ch9</b></p> <p>Working scientifically, maths skills, fundamentals of GCSE understanding including;</p> <ul style="list-style-type: none"> <li>• Biology - Cells, Organisation, Photosynthesis, Respiration</li> </ul>
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	<ul style="list-style-type: none"> <li>• Chemistry - Atomic Structure, Periodic Table, Structure and Bonding</li> <li>• Physics - Energy and Energy Resources, Electricity, Waves</li> </ul>
<p>How do we encourage pupils to see the links between different units and concepts?</p>	<p>Using the big ideas principle, smaller ideas build towards a more abstract idea. The curriculum is spiralled to allow for opportunities to draw on various scientific skills and to use different contexts. For examples, the big idea of 'Reactions is spiralled across the key stage with simpler ideas of 'Metals and non-metals' being taught initially to solidify the fundamental and build on learning from key stage 2. This is then applied to the more difficult and abstract ideas of 'Elements and the periodic table'.</p>
<p>What are the planned opportunities for adaptive teaching, including for SEND, the more and able and disadvantaged pupils?</p>	<p>Ideas for adaptive teaching are included in the scheme of work. For example, in Ch7 when teaching about the particle model, some students will produce an independently written piece to explain the properties of different states of matter based on the idea of the particle model. This is adapted for other learners who are provided with properties that they need to match to the states, and then use those as scaffolding to produce the extended writing piece.</p> <p>Pupil profiles are utilised to determine teaching and learning strategies that are suited to the needs of those learners, and all teaching staff are expected to 'know their pupils' and utilise that information to form appropriate seating plans and groupings for lessons.</p>
<p>What are the planned opportunities for retrieval and reflection by pupils?</p>	<p>All lessons are initiated with a 'retrieval' opportunity which is included in the scheme of work. This can take varying forms and is adapted by the class teacher based on feedback of their classes.</p> <p>All lessons are linked back to prior learning of content in KS2 which is referenced on the scheme of work. The curriculum is spiralled across KS3 which offers clear opportunities for links between ideas and skills. Practical opportunities allow review of 'Working Scientifically' at numerous opportunities.</p> <p>Key scientific terminology is identified on the scheme of work and repetition of this terminology is frequent.</p>
<p>What are the opportunities for feed forward by the teacher post assessment outcomes?</p>	<p>PP assessments (termly) are cumulative to include skills and content from previous units/terms/years. LCT and PP assessments are marked by class teachers. Students are provided with an overview of their achievement and progress, and they are guided to identify areas they need to focus on. Class teachers plan and provide further opportunities for students to improve</p>

	<p>on identified skills and knowledge which is evidenced in pupil exercise books.</p>
<p>What are the planned opportunities for developing Reading?</p>	<p>Tier 2 and tier 3 words are identified on the scheme of work and shared with students and defined before the commencement of any reading task or comprehension.</p> <p>Comprehension text is read aloud and questioned to check for understanding before questions are completed.</p> <p>The use of text to complete other tasks is used eg. in Ch7 the use of a labelled particle model diagram is used to explain the properties of different substances.</p> <p>Students are encouraged to read aloud, and then underline and highlight key terms in written text to check for understanding eg. in Ch8 students complete extended writing on the question 'Describe the consequences of global warming', and need to know and understand the terms 'describe', 'consequences' and 'global warming'.</p>
<p>What are the planned opportunities for developing literacy, numeracy, oracy and SMSC?</p>	<p>Assessments include extended writing tasks to develop literacy and quality of written communication. Maths skills are also assessed in lessons as well as in LCT and PP assessments.</p> <p><b>Ch7</b> Moral development is promoted by considering inventions which have made the world a better place such as microscopes, the use of ultrasound in medicine, the camera, the Hubble telescope and satellites. Cultural development is encouraged to allow students to ask questions about ways in which scientific discoveries from around the world have affected our lives. They consider social development when exploring acids and alkalis considering how to keep other people safe. Spiritual development is promoted when students look at space, and the fact that some answers cannot be provided by science.</p> <p><b>Ch8</b> Moral development is promoted by considering the effects of drugs, alcohol and smoking. This also links in with cultural development as students can ask questions about how the development of new drugs have affected our lives as well as the new vaping products. Social development is promoted when students study the Earth and the environmental concerns linked with climate change.</p> <p><b>Ch9</b> Moral development is promoted when students learn about theories concerning the creation of the universe and evolution of life with consideration of religious beliefs, as well as in the energy topic when they consider energy resources that have caused harm to the environment. This also links in with cultural development as students can ask questions about cells as the</p>

	<p>building blocks of life and how they have evolved from primitive cells, how they divide, how they are linked to cancer and other diseases and how antibiotics and bacterial resistance could become a prominent focus in the science and health sectors this century, and how energy resources have affected our lives. Social development is promoted when students study Energy and the environmental concerns linked with non-renewable resources.</p>
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