

Science Year 8 – Skill building for GCSE access (firm foundations)

Curriculum core purpose. Intent

How does this curriculum fit into the OBHS Curriculum Specification?

Science is a core subject and students have to study science at GCSE. Year 7 is the second step in a 5 year learning journey that spirals to conclude in GCSE examinations.

Students have started their 5 year journey in year 7 and should now have a good understanding of the principals that underpin becoming a *'good scientist'*, Whilst in year 7 we focus on catching up students that come from schools where they may not have undertaken much science and establishing firm foundations based upon 10 big ideas, year 8 focuses on building the transferrable skills such as problem solving, planning and collaborative learning practice that will enable them to undertake the practical elements of GCSE learning in year 9.

The learning modules that year 8 student undertaken follow the 'big ideas' model in year 7, cementing and extending knowledge of these units into other contexts and more complex ideas.

During year 8 we continue to develop skills such as revision skills, Digital literacy and safer internet skills. Discussion around ethical reasoning (literacy skills) and development of numeracy skills (such as simple statistical analysis re-arranging equations) pays an important part to this year.

There are also specific modules such as Human reproduction, variation (genetics) and universe that support elements in the PSHE curriculum. These are highlighted in the school documentation.

Population design

How are your classes structured to meet the needs of students?

Students are stranded into classes, based upon evidence from Y7 assessments. We have chosen to use a stranded approach to setting to enable students of all abilities to see higher level work, and to aspire to raise their expectations. We cite Vygotsky's zones of proximal development as an underpinning concept of design, allowing students to share skills and knowledge to drive progress. Students remain in the same stranded set for the remainder of the year.

Content-Knowledge and Skills.	Subject specific pedagogy	Resources and support																																	
<p>Students undertake the following modules in year 8.</p> <p>Big ideas were introduced to learners as key concepts in year 7 and are revisited again in a different context.</p> <p>Key skills such as statistical analysis, interpreting data and planning methods are focused upon to build up the tool kit for GCSE science study.</p> <table border="1" data-bbox="472 199 1003 772"> <thead> <tr> <th colspan="3" data-bbox="656 199 1003 256">Part 2 Taught in year 8 or year 8/9*</th> </tr> </thead> <tbody> <tr> <td data-bbox="472 256 656 309">Forces</td> <td data-bbox="656 256 826 309">Contact forces</td> <td data-bbox="826 256 1003 309">Pressure</td> </tr> <tr> <td data-bbox="472 309 656 362">Electromagnets</td> <td data-bbox="656 309 826 362">Electromagnets</td> <td data-bbox="826 309 1003 362">Magnetism</td> </tr> <tr> <td data-bbox="472 362 656 414">Energy</td> <td data-bbox="656 362 826 414">Work</td> <td data-bbox="826 362 1003 414">Heating and cooling</td> </tr> <tr> <td data-bbox="472 414 656 467">Waves</td> <td data-bbox="656 414 826 467">Wave effects</td> <td data-bbox="826 414 1003 467">Wave properties</td> </tr> <tr> <td data-bbox="472 467 656 520">Matter</td> <td data-bbox="656 467 826 520">Periodic table</td> <td data-bbox="826 467 1003 520">Elements</td> </tr> <tr> <td data-bbox="472 520 656 572">Reactions</td> <td data-bbox="656 520 826 572">Chemical energy</td> <td data-bbox="826 520 1003 572">Types of reaction</td> </tr> <tr> <td data-bbox="472 572 656 625">Earth</td> <td data-bbox="656 572 826 625">Climate</td> <td data-bbox="826 572 1003 625">Earth resources</td> </tr> <tr> <td data-bbox="472 625 656 678">Organisms</td> <td data-bbox="656 625 826 678">Breathing</td> <td data-bbox="826 625 1003 678">Digestion</td> </tr> <tr> <td data-bbox="472 678 656 730">Ecosystem</td> <td data-bbox="656 678 826 730">Respiration</td> <td data-bbox="826 678 1003 730">Photosynthesis</td> </tr> <tr> <td data-bbox="472 730 656 772">Genes</td> <td data-bbox="656 730 826 772">Evolution</td> <td data-bbox="826 730 1003 772">Inheritance</td> </tr> </tbody> </table>	Part 2 Taught in year 8 or year 8/9*			Forces	Contact forces	Pressure	Electromagnets	Electromagnets	Magnetism	Energy	Work	Heating and cooling	Waves	Wave effects	Wave properties	Matter	Periodic table	Elements	Reactions	Chemical energy	Types of reaction	Earth	Climate	Earth resources	Organisms	Breathing	Digestion	Ecosystem	Respiration	Photosynthesis	Genes	Evolution	Inheritance	<p>Unit specific scientific glossaries are included in all booklets. These are used to practice vocabulary and are highlighted when used in students work.</p> <p>The narrative journey is included as a lesson sequence showing progression of unit and the linked learning objectives, to support self-assessment.</p> <p>Practical skills are embedded throughout the sequence of lessons. The scientific method is endorsed through regular practical engagement with literacy aims to mirror those used at KS4.</p> <p>Scientific mathematical skills are embedded where required. This includes the evaluation of provided data.</p>	<p>Access to online textbooks. Seneca learning used as revision aid.</p> <p>Access to a wide range of practical's with differentiated worksheets and outcomes to meet their needs.</p> <p>Use of textbooks tailored to the class.</p> <p>Checklists have access to full range of levels with students 'choosing' working level.</p>
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Feedback, assessment and progress.		Habits																																	
<p>How are students assessed? How does this demonstrate progress?</p> <p>Students are assessed at the end of the 6 week module via a 30 minute (60 mark) exam. The assessment takes place under exam conditions in the teaching class rooms.</p> <p>Students work is formatively marked and next steps added to help them progress. Students are expected to respond to ideas in green pen. Additionally skill specific DIRT sheets have been developed to feedback and practice key skills such as graph drawing and planning a 6 mark question.</p> <p>Lesson assessment and structure is routinely organised into hierarchal levels of understanding and competence. These are identified at the start of the topic and referred to during and after during DIRT exercises. They use these to self-assess and show ambition to reach the next level.</p> <p>How do children receive feedback on their learning?</p> <p>Feedback is given both verbally and written, following school marking policy. End of topic tests are followed by DIRT/therapy sheets that allow students to identify their own points for</p>		<p>Resilience – proof reading, responding to teacher feedback, applying Next Steps to new contexts;</p> <p>Collaboration – participate actively in-group discussions, develop active listening skills, and begin to experiment with roles within groups.</p> <p>Leadership – Participating in planning and execution of an idea (such as an experiment or investigatory exercise).</p> <p>Problem solving – learning to look for answers and use prior knowledge to trouble shoot obstacles as they arise.</p>																																	

improvement and are supported by teachers to close these gaps. Assessment of flip learning homework/ Aspirational extension is by low stakes quizzing – three questions at the beginning of the lesson.

How is feedback used to inform planning/ SoL?

Feedback dictates the learning narrative. Individualise learning approaches are used to allow students to access different levels of learning. Teachers know and plan for different students' needs using feedback and data.