Science & Year 9 – An introduction to GCSE Science

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 9 is the third step in a 5 year learning journey that spirals to conclude in GCSE examinations in year 11.

Students have started their 5 year journey in years 7 and 8 that concentrated on the 'big ideas' at the heart of scientific learning. During these years, students not only built the knowledge foundations to access the higher learning of GCES content, but also practiced the skills that allow them to explore topics in more detail.

In year 9 students undertake the first modules of GCSE science (B1,2,3, C1,2,3 and P1,2,3). These foundation modules consolidate some of the big ideas introduced in year 7 and 8, extending the learning to novel contexts such as learning about pro and eukaryotes in B1.

During year 9 we continue to develop skills revision skills and extend their exam skills into command words and extended question writing. A great emphasis is put upon critical thinking, where students are asked to come to decisions based upon presented evidence and comment critically on the quality of this data.

Population design

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

In year 9 students continue to be stranded, following the principals from Y7 and Y8. During this year students will be taught by specialist subject teachers on a half termly rotation. Stranded classes are all taught the same objectives, but these are differentiated based upon prior attainment. In this year group we do not assess using GCSE grades or project gradings so class stranding's are based upon that prior assessment. Students will remain in their stranded class for the year.

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 reminder of the year.

Content-Knowledge and Skills.

Students undertake the following GCSE modules in year 9.

Biology		Physics		Chemistry	
B1	Cell structure and transport	P1	Conservation and dissipation of energy	C1	Atomic structure
B2	Cell division	P2	Energy transfer by heating	C2	The periodic table
B3	Organisation and the digestive system	P3	Energy resources	C3	Structure and bonding

The firm foundations from KS3 are extended into substantial concepts (such as atomic structure). Students are encouraged to examine the evidence for their learning and to question the validity of models that they use to express ideas. All students follow the same diet of learning ideas, with students being given the opportunity to go further with higher level tasks and ideas.

Subject specific pedagogy

Unit specific scientific glossaries are included in all booklets. These are used to practice vocabulary and are highlighted when used in students work.

The narrative journey is included as a lesson sequence showing progression of unit and the linked learning objectives, to support self-assessment.

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.

Scientific mathematical skills are embedded where required. This includes the evaluation of provided data.

Resources and support

Access to online textbooks. and Seneca learning used as revision aid. Focus e learning adds practical support.

Access to a wide range of practical's with differentiated worksheets and outcomes to meet their needs.

Use of textbooks tailored to the class.

Checklists have access to full range of levels with students 'choosing' working level.

Feedback, assessment and progress.

How are students assessed? How does this demonstrate progress?

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.

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.

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.

How do children receive feedback on their learning?

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

Habits

Resilience – proof reading, responding to teacher feedback, applying Next Steps to new contexts;

Collaboration – participate actively in-group discussions, develop active listening skills, and begin to experiment with roles within groups.

Leadership – Participating in planning and execution of an idea (such as an experiment or investigatory exercise).

Problem solving – learning to look for answers and use prior knowledge to trouble shoot obstacles as they arise.

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.	