Curriculum Overview – Science

Intent

Science is changing our lives and is vital to the world's future prosperity, and all students should be taught essential aspects of the knowledge, methods, processes and uses of science. They should be helped to appreciate the achievements of science in showing how the complex and diverse phenomena of the natural world can be described in terms of a number of key ideas relating to the sciences which are inter-linked, and which are of universal application.

The sciences should be taught in ways that ensure students have the knowledge to enable them to develop curiosity about the natural world, insight into working scientifically, and appreciation of the relevance of science to their everyday lives.

The overarching **concepts** for Science at Shaftesbury School are:

- **Investigatory**
- **Observing**
- **Experimenting**
- **Testing**
- **Problem solving**
- **Communication**
- **Modelling**
- **Creativity**

Implementation

As a department, we have redesigned our curriculum at KS3 (2019) into a two year model. Using our professional judgement and subject specialisms, the KS3 curriculum in Yr 7 and 8 now focuses on less content compared to the previous curriculum model but is closer linked to the working scientifically specification and AO3[1] assessment objectives at GCSE. Learning is embedded through lots of practical work and investigatory skills and the Yr 7 also follow a programme of Let's think alongside the new science curriculum. Termly assessments are cumulative and assess knowledge, 'working scientifically' and Maths skills. The majority of the new assessments are using low to medium grade questions at GCSE level.

In Key Stage 4 learning is embedded through the development of knowledge and skills over time and through overlapping concepts from KS3. KS4 students follow the AQA Trilogy Combined GCSE programme of study or they can choose to follow the AQA Separate Science (Triple

[1] AO3: Analyse information and ideas to: interpret and evaluate; make judgments and draw conclusions; develop and improve experimental procedures.

Science) programme of study. All students are taught Science in three disciplines of Biology, Chemistry and Physics. Assessments are completed roughly half termly after each topic has been taught.
Progression is tracked and allows for effective differentiation, marking and feedback and stretch for more able pupils. Pupils have access to online materials via a programme called Kerboodle, which includes an online version of the textbook. Each student is also encouraged to buy a revision guide at the beginning of Yr 10, and all PP students receive a free copy of the revision guide to support their learning within the lesson and at home. As part of the marking policy within Science, longer answer questions (QWC) are regularly marked and feedback given to help improve student literacy and scientific vocabulary. Disadvantaged students are positively discriminated for through immediate, directed questioning at the start of the lesson and seating plans designed by using class charts.
Throughout the two KS, there are many opportunities built into the curriculum for SMSC topics and activities, and to aid development of students abilities to evaluate claims based on science through critical analyse of methodology, evidence and conclusions.

Curriculum overview for KS3				
Unit[2]	**1**	**2**	**3**	**4**
Year 7	Safety lessons Cells Sound & Light Particle model	Systems Energy costs & transfer Atoms & Elements	Reproduction Speed & Gravity Mixtures	Adaptation Acid & Alkali
Year 8	Systems VIR Periodic table	Inheritance Forces & pressure Metals & reactivity	Classification Magnets & electromagnets Combustion	Plants Work & heating /cooling Materials Waves

Yr 9 Curriculum overview:

[2] Each teaching unit has more teaching contact time than the number of lessons per half term. Hence 4 units spread out over 6 half terms. A fuller version of curriculum overview can be found in the appendix.

2 – 16 Sept First 2 weeks **Skills lessons**	1st October – 7th December (8 weeks)	10th December – 15th February (8 weeks)	25th February – 3rd May (8 weeks)	6th – 24th May (3 weeks)	3rd – 21st June (3 weeks)	24th June – 12th July (3 weeks)
ALL skills lessons	Physics – Energy	Biology – Cells	Chemistry – Atomic structure and properties,	Physics – Motion	Biology - Cell Organisation, tissues, plant cells, leaf, stomata transpiration, translocation	Chemistry– Bonding and Structure, up to and including simple molecular substances

See appendix for 10 and 11 curriculum overviews.

Impact

By the end of Key Stage 3 pupils will be able to understand and begin to apply the fundamental concepts of science and the skills associated with the 'working scientifically' aspect of the GCSE speciation which includes being competent in talking, reading and writing about science. Students will have been exposed to and undertaken a range of different practical investigations to allow them to practise these skills which are vital for progression into KS4.

By the end of Key Stage 4 pupils will be able to demonstrate their knowledge and understanding of their scientific ideas and techniques. Using their practical skills, apply their knowledge to different scientific scenarios. Pupils will be able to evaluate, make valid judgements and draw conclusions for themselves on situations that arise everyday of a scientific nature.