

## Year 7

### Intent

The main driver for our year 7 science curriculum is to establish an enjoyment of the subject, to develop a natural interest in the scientific world around them and to build up their skills of enquiry in all areas of the science curriculum.

### Implementation

- All pupils begin Year 7 with a short booklet on the basics of science skills and enquiry, to 'set the scene' for their future learning in school, but also to gauge what skills they have brought with them from primary school
- Pupils are then taught a carefully planned sequence of units that build on the previous units, to create a scheme of work that allows pupils to grow their knowledge in biology, chemistry and physics.
- Pupils study speed: How to interpret motion and calculate speed from data
- Pupils study the structure of Earth and space, and apply knowledge of gravity throughout
- Pupils learn about cells, and tissues as the building blocks of living organisms
- Pupils learn about atoms, molecules and compounds and how these are the building blocks of chemicals and chemical reactions.

### Assessment

- Pupils complete end of topic tests regularly throughout the year and these allow us to identify the areas of pupil strength and weakness and the year progresses.

### Impact

- By careful sequencing of lessons and topics, pupils knowledge grows in a logical manner
- The curriculum allows learners to 'hook' new knowledge onto existing knowledge to build a big picture of science as a whole (rather than discrete and separate topics)
- Schemes are designed to engage learners with real -life applications of science to foster a 'culture capital' of learning
- Pupils will become more interested in science in the news.
- Pupils make expected or better than expected progress in all areas of the science curriculum
- Pupils should also gain insight into a wide range of jobs available, through the curriculum, which will raise motivation and aspirations of our learners.

### Key Knowledge and Skills Cross Curricular

Year 8**Intent**

The main driver for our year 8 science curriculum is to build on the foundations established in Year 7, and to continue to foster an enjoyment of the subject, to develop a natural interest in the scientific world around them and to build up their skills of enquiry in all areas of the science curriculum.

**Implementation**

- Pupils are taught a carefully planned sequence of units that build on the previous units, to create a scheme of work that allows pupils to grow their knowledge in biology, chemistry and physics.
- Pupils study the periodic table and begin to look at patterns of reactivity of different groups of elements. They use this information later to study a range of chemical reactions, to make predictions about reactivity and about products formed.
- Pupils develop their understanding of chemical conventions, for example writing word equations & uses of symbols.
- IN biology, pupils study application of chemical reactions in the life processes of respiration & photosynthesis.
- Pupils build on knowledge of cells and tissues learned from year 7 to study body systems – digestion and breathing
- Pupils later study ecology and interactions of different species in habitats.
- In physics, pupils study forces in more depth than Year 7, then learn about electricity and electromagnets.

Assessment

- Pupils complete end of topic tests regularly throughout the year and these allow us to identify the areas of pupil strength and weakness and the year progresses.

**Impact**

- By careful sequencing of lessons and topics, pupils knowledge grows in a logical manner
- The curriculum allows learners to 'hook' new knowledge onto existing knowledge to build a big picture of science as a whole (rather than discrete and separate topics)
- They become more inquisitive about the science world and are able to make predictions based on science fact and ideas.
- They become more competent and confident with a range of practical activities, including ones of increasing complexity
- Schemes are designed to engage learners with real -life applications of science to foster a 'culture capital' of learning
- Pupils will become more interested in science in the news.
- Pupils continue to develop an awareness of health and safety in all areas of practical work and apply this to scenarios in different places.
- Pupils make expected or better than expected progress in all areas of the science curriculum
- Pupils should also gain insight into a wide range of jobs available, through the curriculum, which will raise motivation and aspirations of our learners.

## Key Knowledge and Skills Cross Curricular

**Release of energy in respiration is an important fact in sport, as is diet and digestion.**  
**Links to geography in terms of structure of the earth and rocks**  
**Links to food tech when teaching diet and digestion**

### Year 9

#### Intent

The main driver for our year 9 science curriculum is to support our learners in the transition from KS3 to GCSE study, to secure knowledge learned in KS3 and to move them from more concrete to more abstract and independent learning.

#### Implementation

- Pupils will study the more complex aspects of the KS3 curriculum in this year and make clear connections between prior learning at KS3 and future learning at KS4.
- Pupils study elements and materials, with a focus on evaluating the impact of mining in the local area (e.g. effect on environment, social and economy)
- Pupils study applications and rates of chemical reactions e.g. production of salts & combustion
- In biology, pupils study further biological systems, such as circulatory system and infection responses, with a focus on healthy living.
- Pupils also study environment in more detail, looking at how species adapt to different habitats, and how resources are recycled
- In the physics units students apply their knowledge of speed and forces to practical applications of speed limits and stopping distances of vehicles
- Practical applications of energy and electricity are taught, so pupils learn about energy transfers in the house, how to reduce energy consumption and increase energy efficiency

#### Impact

- By careful sequencing of lessons and topics, pupils knowledge grows in a logical manner
- The curriculum allows learners to 'hook' new knowledge onto existing knowledge to build a big picture of science as a whole (rather than discrete and separate topics)
- They become more inquisitive about the science world and are able to make predictions based on science fact and ideas.
- Schemes are designed to engage learners with real -life applications of science to foster a 'culture capital' of learning. For example, how to reduce energy bills in the home and how to reduce illness (e.g.g heart disease) due to poor life choices
- Pupils will become more interested in science in the news.
- Pupils make expected or better than expected progress in all areas of the science curriculum
- Pupils should also gain insight into a wide range of jobs available, through the curriculum, which will raise motivation and aspirations of our learners.

Assessment

- Pupils complete 6 end of topic tests regularly throughout the year and these allow us to identify the areas of pupil strength and weakness and the year progresses.

**Key Knowledge and Skills Cross Curricular**

**Release of energy in respiration is an important fact in sport, as is diet and digestion.**  
**Links to geography in terms of structure of the earth and rocks**  
**Links to food tech when teaching diet and digestion**

## Key Stage 4– Combined Science

### Intent

The main focus for this course is to deliver high quality lessons to enable pupils to make maximum progress in all areas of biology, chemistry and physics. It is also the intent that pupils develop a wide range of competencies to complement the knowledge learned, such as analytical skills, evaluation, practical skills

### Implementation

- Pupils are taught the AQA GCSE Combined science curriculum by subject specialist teachers
- Schemes are being carefully planned to incorporate practical skills in the form of required practicals (necessary) and exposure where possible to other experiments.
- A focus is being developed in literacy, to help pupils develop skills in organising written work to be logical, well sequenced and methodical. For example pupils are given 6 mark questions and 'goal free' tasks to extend their ideas
- There are opportunities for social and moral discussions to enable pupils to make educated life choices in terms of health, contraception etc.
- Content is linked to local culture and current news where and when possible to ensure curriculum is relevant and engaging for learning. E.g. Covid links clearly to the infection and response topic.
- Use of PLC's to enable pupils to see the big picture and support their own learning.

### Assessment

- Pupils complete end of topic tests regularly throughout the year and these allow us to identify the areas of pupil strength and weakness and the year progresses.
- Whole paper mocks are completed at the end of Year 10 and again in Year 11.

### Impact

- By careful sequencing of lessons and topics, pupils knowledge grows in a logical manner
- The curriculum allows learners to 'hook' new knowledge onto existing knowledge to build a big picture of science as a whole (rather than discrete and separate topics)
- They become more inquisitive about the science world and are able to make predictions based on science fact and ideas.
- Schemes are designed to engage learners with real -life applications of science to foster a 'culture capital' of learning.
- Pupils will become more interested in science in the news.
- Pupils make expected or better than expected progress in all areas of the science curriculum
- Pupils should also gain insight into a wide range of jobs available, through the curriculum, which will raise motivation and aspirations of our learners.

## Key Knowledge and Skills Cross Curricular

### Key Stage 4– Triple Science

#### Intent

The main focus for this course is to deliver high quality lessons to enable pupils to make maximum progress in all areas of biology, chemistry and physics. It is also the intent that pupils develop a wide range of competencies to complement the knowledge learned, such as analytical skills, evaluation, practical skills

#### Implementation

- Pupils in top set are taught AQA GCSE Biology, GCSE Chemistry & GCSE Physics by subject specialist teachers
- Schemes are being carefully planned to incorporate practical skills in the form of required practicals (necessary) and exposure where possible to other experiments.
- A focus is being developed in literacy, to help pupils develop skills in organising written work to be logical, well sequenced and methodical. For example pupils are given 6 mark questions and 'goal free' tasks to extend their ideas
- There are opportunities for social and moral discussions to enable pupils to make educated life choices in terms of health, contraception etc.
- Content is linked to local culture and current news where and when possible to ensure curriculum is relevant and engaging for learning. E.g. Covid links clearly to the infection and response topic.
- Use of PLC's to enable pupils to see the big picture and support their own learning.

#### Impact

- By careful sequencing of lessons and topics, pupils knowledge grows in a logical manner
- The curriculum allows learners to 'hook' new knowledge onto existing knowledge to build a big picture of science as a whole (rather than discrete and separate topics)
- They become more inquisitive about the science world and are able to make predictions based on science fact and ideas.
- Schemes are designed to engage learners with real -life applications of science to foster a 'culture capital' of learning.
- Pupils will become more interested in science in the news.
- Pupils make expected or better than expected progress in all areas of the science curriculum
- Pupils should also gain insight into a wide range of jobs available, through the curriculum, which will raise motivation and aspirations of our learners.

- Teaching order of GCSE Biology and GCSE Chemistry has been reordered into a more logical sequence, to make explicit links between curriculum areas.
- Retrieval practice (approx. 5 questions) are used at the start of most GCSE lessons to embed knowledge and the culture of 'know more, remember more'.

#### Assessment

- Pupils complete end of topic tests regularly throughout the year and these allow us to identify the areas of pupil strength and weakness and the year progresses.
- Whole paper mocks are completed at the end of Year 10 and again in Year 11.

### **Key Knowledge and Skills Cross Curricular**