

## **Science**

### **Curriculum Intent**

Our aim in science is to deliver an engaging and challenging curriculum so that pupils develop a scientific perspective of the world around them and can make informed decisions.

We encourage children to be inquisitive throughout their time at the school and beyond. The Science curriculum fosters a healthy curiosity in our students about our universe and promotes respect for the living and non-living. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Working Scientifically skills are built-on and developed throughout children's time at the school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently and continue to ask questions and be curious about their surroundings.

We aim to prepare our pupils effectively for the future to make them confident, responsible members of the school and wider community and to set them on the path to success for their KS4 exams and beyond.

### **Curriculum Implementation**

Our science curriculum adheres to a 'spiral curriculum' approach to education. This involves regularly re-visiting the educational topics over the course of a student's education. Each time the content is re-visited, the student gains deeper knowledge of the topic. It has the benefits of reinforcing information over time and using prior knowledge to inform future learning. Planning the curriculum in this way enables students to develop a deeper understanding of the topic, while also helping them to retain the information. This allows for logical progressions from simplistic to complicated ideas, and encourages students to make links between old learning and new learning

With a focus on embedding formative assessment, we look at how students can activate their prior knowledge and then apply their knowledge in progressively more challenging real-world

situations. We encourage them to reflect so that they are better able to make links to past study and encourage independent learning.

### **Year 5 science**

- Living things and their habitats, including life cycles of a mammal, amphibian, insect and bird.
- Animals, including humans, focusing on changes from birth to old age.
- Properties and changes of materials, including dissolving, separating and reversible changes.
- Earth and space, looking at the movement of the sun, earth and moon.
- Forces, including gravity, air resistance, water resistance and friction.

### **Year 6 science**

- Living things and their habitats, including classifying micro-organisms, plants and animals.
- Animals, including humans, focusing mainly on diet and exercise.
- Evolution and inheritance, looking at fossils, reproduction and adaptation.
- Light, looking closely at how it travels and how shadows are made.
- Electricity, analysing the function of lamps, buzzers, cells and switches.

In years 5 and 6, children will practise their scientific skills with depth and precision. When carrying out experiments they will:

- understand what variables are and how to control them.
- take measurements from a range of equipment, understanding the need for repeated measures to increase accuracy.
- gather and record data using labels, classification keys, tables, scatter graphs, bar and line graphs.
- use test results to make further predictions to set up further comparative and fair tests.
- make conclusions on the test carried out, orally and in writing.

### **Year 7 Science**

- Cells and organisation
- The skeletal and muscular systems
- Reproduction

- The particulate nature of matter
- Atoms, elements and compounds
- Forces
- Light
- Electricity

### **Year 8 Science**

- Nutrition and digestion
- Gas exchange systems
- Health
- Photosynthesis
- Cellular respiration
- Relationships in an ecosystem
- Pure and impure substances
- Chemical reactions
- The periodic table
- Materials
- Energy

### **Impact**

The impact and measure of this is to ensure children not only acquire the appropriate age related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives.

- Pupils enjoy and are enthusiastic about science in our school. KS3 Science club and KS2 and KS3 Astronomy club are well attended each week.
- There is a clear progression of children's work and teachers' expectations in our school. Success criteria for each topic are shared at the beginning of each topic.
- Children's work shows a range of topics and evidence of the curriculum coverage for all science topics.
- Children are becoming increasingly independent in science, selecting their own tools and materials, planning investigations and choosing their own strategies for recording.
- Feedback from teachers has impact on our pupils, both given verbally and written feedback.
- Teachers' judgements are formed from a range of sources including classwork, homework and end of topic tests. There moderation of judgements in department meetings.