

## SCIENCE

Teacher in charge – Mrs S. Pearson

### Aim

The curriculum for pupils in Key Stage 3 highlights science content and emphasises 'How Science Works' and science literacy skills. The course called 'Exploring Science' incorporates all the different aspects of 'How Science Works', including evaluating opinions about scientific phenomena and weighing up evidence, along with the usual investigations delivered in a dynamic and interesting way. In Year 8 pupils continue to develop the skills, concepts and knowledge they will need to allow them to be well equipped for their GCSEs in Years 10 and 11. The course is comprised of the following units of study. Pupils will receive 4 lessons of science a week and units are studied on a rota basis.

<u>Food and Nutrition</u>	Pupils look at health and diet, the digestive system and respiration.
<u>Breathing &amp; Respiration</u>	Pupils learn how the human gas exchange system works and how it is well adapted for this role. Through a series of experiments pupils assess factors related to their own respiratory systems.
<u>Unicellular Organisms</u>	Pupils compare the different types of microorganisms. They explore how microorganisms have been pivotal in shaping our history (for example the Black Death) and how we can harness them to make useful products for ourselves.
<u>Combustion</u>	Pupils investigate what happens when a fuel is combusted, and the implications the products have for the environment. Pupils then research alternatives and make conclusions based on sound evidence.
<u>Periodic Table</u>	Pupils explore the history of the Periodic Table. What were the key discoveries in Chemistry by big names such as Dalton and Mendeleev? Patterns and reactions within groups of elements are the subject of several investigations. Links are also made to the application of Chemistry in our lives (e.g. fireworks)
<u>Metals &amp; Uses</u>	Pupils investigate the reactions of metals and use results from experiments to justify why certain metals are used for specific jobs.
<u>Light</u>	Pupils investigate key phenomena related to light. What is the law of reflection? Why does light appear to bend? What colours are in light and how does this link to rainbows and colour vision?
<u>Fluids</u>	Pupils delve into the properties of different states of matter. They will use particle diagrams to explain the differences in the behaviour of solids, liquids and gases. Pupils will use their knowledge of particle theory to explain how objects float and sink, what pressure is and how it affects objects, and how we can use this to overcome extreme environments.
<u>Energy Transfers</u>	Pupils make use of investigations to explain how energy transfers shape our world and everything we do. From conduction of energy in cooking to convection currents that keep Hot Air Balloons airborne. Experimental evidence is used to show how careful design can reduce energy loss and create energy efficient products.
<u>Space</u>	In this unit pupils will explore the big ideas about gravity and how it influences our place in the Universe. Pupils will consider a range of evidence and use it to explain why we have seasons and the effects of Earth's magnetic field. Delving deeper, pupils will research what is beyond our Solar System and debate if it is worth exploring.

In addition to the units above, pupils will also spend time reviewing some of the 'Big Ideas' in science. These include photosynthesis & respiration, earth processes, chemical reactions, forces, electricity, and an emphasis on improving scientific enquiry skills.

### **Homework**

There is one science homework task each week. This will seek to consolidate understanding of key ideas or applying their knowledge in new areas. Homework will be set via an online app called Educake.

### **Assessment**

As well as regular informal assessment during lessons, there will be test at the end of each unit to assess pupils' knowledge and understanding. The analysis of the results allows continuous assessment of a pupil's progress to be maintained. Pupils will also sit an exam at the end of Year 8 which will help determine pathways at KS3 and option choices at KS4.