WHAT ARE THE BIG AIMS OF YEAR 8?

We explore complex processes in biological systems, elemental chemistry and energetic changes.

WHAT WILL EXCELLENCE LOOK LIKE IN YEAR 8?

- We use knowledge to explain how scientific development has benefited society.
- Understand and appreciate the development and implications of science and technology in the past, present and future and consider the role and responsibility it has within society (e.g. global warming, alternative energy)

WHAT KNOWLEDGE DO THE PUPILS NEED TO ACQUIRE?

In Biology we will look at key processes such as digestion, respiration and breathing and the effect our everyday choices can have on these, both positively and negatively. We also focus on plant reproduction and how plant structures are adapted to increase the likelihood of successful offspring.
In Chemistry we look at the processes that have created the structure of the Earth we live on. Digging deeper in to the Earth's crust we identify elements and different types of reactions that can happen. We look at metals and non-metals and understand how the periodic table is designed so scientists can share information.
In Physics we look at the importance of Energy transfers, wave transmissions and movement of charged particles in the universe around us and how this has enhanced technology.

WHAT SKILLS DO THE PUPILS NEED TO DEVELOP?

Pupils can manipulate variables to test different hypotheses and begin to discuss limitations with any data they collect. They can present data in different formats suitable to the audience. They can recognise patterns in data and use models to help predict a series of stages or events. They can use scientific vocabulary accurately showing that they know the meaning and can use correct chemical nomenclature where appropriate. We begin to examine consequences of technology or inventions and describe any financial impact that may occur.

WHAT MISCONCEPTIONS MAY THEY HAVE FROM PREVIOUS LEARNING?

Mass and weight are the same thing, heat and temperature are the same, breathing and respiration are the same, energy can be created or destroyed.

WHAT ASSESSMENTS WILL BE USED ACROSS THE YEAR TO DEMONSTRATE HOW THE PUPILS HAVE ACQUIRED THE KNOWLEDGE AND DEVELOPED THE SKILLS?

Using investigative approaches: selecting and managing variables: recognise the range of variables involved in an investigation and decide which to control by identifying relevant variables in an investigation, e.g. identify what would affect the rate at which a trolley rolls down a slope and therefore which variables to alter and which to keep the same.

Using investigative approaches: obtaining and presenting primary evidence: describe and record observations and evidence systematically recognising that the presentation of experimental results through the routine use of tables, bar charts and simple graphs makes it easier to see patterns and trends. Pupils should be able to demonstrate the selection of appropriate ways of recording observations and decide which observations are appropriate and how to tabulate them to make comparisons easier. Furthermore select appropriate terminology for the description of evidence, e.g. to understand the difference between quantitative and qualitative data when studying a habitat.

Applications, implications and cultural understanding: To analyse the issues, benefits and drawbacks of scientific developments justifying the main groups that could be affected by scientific and technological developments and whether the 'right' decision is the one that benefits the greatest number of people.