WHAT ARE THE BIG AIMS OF YEAR 9?

We will develop pupils' understanding of key concepts. Pupils will be able to independently plan investigations to solve problems and communicate their findings in a scientific way. They confidently analyse their results using research and data to support their ideas.

WHAT WILL EXCELLENCE LOOK LIKE IN YEAR 9?

- We conduct thorough and appropriate investigations
- Use knowledge learnt from Y7 & Y8 to extend understanding into new situations
- Predict likely outcomes and consequences of actions (Using prior learning).

WHAT KNOWLEDGE DO THE PUPILS NEED TO ACQUIRE?

Pupils will study the following units in Y9:

9.1 Energy 2 Heating, Cooling and Pressure, 9.2 Genes 2 - Variation, Evolution and Inheritance, 9.3 Earth 1 Earth's structure, Earth's resources and climate, 9.4 Electromagnets 2 Potential difference, Ohm's law and electromagnets, 9.5 Energy and Forces – Moments, Levers & Work Done, 9.6 Ecosystems 2 - Photosynthesis and Respiration, Transition to GCSE.

Throughout this year we use investigative approaches to explain different phenomena. We manipulate different factors to see how they affect photosynthesis and how human and natural chemical processes can affect our climate. We will develop ideas of genes into how inheritance and evolution occurs.

We learn how magnets, levers and electricity can be used to make modern life easier and learn how energy is transferred during heating. We will explore how changes to particles cause pressure changes.

WHAT SKILLS DO THE PUPILS NEED TO DEVELOP?

- Development of hypothesis
- Scales
- Uncertainty and calculating uncertainty
- Drawing tables
- Peer Review
- Systematic errors
- Rearranging calculation equations
- Significant figures

WHAT MISCONCEPTIONS MAY THEY HAVE FROM PREVIOUS LEARNING?

classification errors, confusing models with “reality”, language ambiguity (multiple meanings of words), difficulty of understanding things that cannot be seen (e.g. atoms, waves, magnetism), where plants obtain their mass from, not realising that burning involves oxygen, misunderstanding of when forces are acting on objects, heavier objects fall faster, not understanding the existence of air/air pressure around us.