

Science Curriculum: Year 7

Science provides a key foundation for students to understand the world around us. Science affects our daily lives, stimulates curiosity and broadens student's horizons, both in the understanding of wider scientific issues and providing access to a range of job opportunities. The science curriculum provides students with the opportunity to develop a love and appreciation of science and realise their full potential through the breadth and depth of scientific knowledge and skills. Students are naturally curious, by stimulating this curiosity, through scientific ideas, practical investigation and the studying the wider implications of science, we can ensure they are motivated to reach their full potential.

All students follow an introductory unit: Being a scientist, which covers key working scientifically skills such as safety, scientific diagrams, methods, recording and presenting results as well as drawing conclusions from findings. Subsequently, the students study a unit of Biology, Chemistry and Physics each term as shown below.

| | Autumn term | Spring | Summer |
|------------------|---|--|--|
| Biology | <p>Cells - Cells are alive</p> <p>Students study the key structures found in plant and animal cells, using microscopes to observe, draw and calculate the size of cells. They expand their knowledge looking at a range of specialised cells and the key structures and functions of each.</p> | <p>Reproduction - Cells are alive and characteristics are inherited</p> <p>Students study human reproduction, including adolescence, body systems and foetus development.</p> | <p>Body systems - Bodies are systems (made of cells)</p> <p>Students link ideas of cells and body systems to build ideas of the organisation of cells into tissues, organs and organs systems through the study of the respiratory and skeletal systems.</p> |
| | <p>Important vocabulary: Objective lens, magnification, cell, nucleus, structure, function, specialized,</p> | <p>Important vocabulary: Adolescence, Puberty, Gamete, Fertilisation, Implantation, Ejaculation, Gestation, Ovulation</p> | <p>Important vocabulary: Tissue, organ, organ system, volume, pressure, inhale, exhale, ventilation, antagonistic</p> |
| Chemistry | <p>Particles - Structure determine properties</p> <p>Students explore the particle model of matter and how the structure of materials affects the way it behaves. They use the model to classify materials and explain a range of properties of materials</p> | <p>Elements and Compounds - Structure determines properties and reactions rearrange matter</p> <p>Students develop their model of particles further, introducing ideas about elements, compounds and mixtures. This topic also introduces ideas of what happens to particles in chemical reactions.</p> | <p>Rocks - Earth systems interact (and structure determines properties)</p> <p>Students further explore the idea that structure determines properties by studying sedimentary, metamorphic and igneous rocks. They will explore how rocks are formed and how they can be transformed from one type to another in a cycle.</p> |
| | <p>Important vocabulary: State of matter, property, volume, vibrate, compress, diffusion, pressure, condense, evaporate, sublime.</p> | <p>Important vocabulary: Element, Chemical symbol, Periodic Table, Atom, Compound, Molecule, Chemical formula, Word equation</p> | <p>Important vocabulary: Metamorphic, igneous, sedimentary, erosion, weathering, cementation, deposition, compaction.</p> |
| Physics | <p>Energy - Energy is conserved</p> <p>Students explore the key idea of energy conservation through investigating types and transfers of energy, including energy resources (particularly in generation of electricity)</p> | <p>Space</p> <p>Student build on KS2 knowledge of the Earth and the Solar system to explore the cause of seasons, phases of the moon and eclipses.</p> | <p>Light - Radiation transfers energy</p> <p>Students study the behavior of light as an example of wave behavior. They expand this into how we see in study of the eye and colours of light.</p> |
| | <p>Important vocabulary: Energy, conservation, transfer, potential, dissipation, renewable, non-renewable,</p> | <p>Important vocabulary: Waxing , waning , Eclipse, penumbra, Umbra, Intensity, Orbit, Rotate, Galaxy, Universe, Light-year, gaseous</p> | <p>Important vocabulary: Reflection, refraction, absorb, emit, transmit, spectrum, opaque, transparent, translucent</p> |

These topics will also help students to:

- Make connections between these subject areas and become aware of some of the big ideas underpinning scientific knowledge and understanding.
- Understand that science is about working objectively, modifying explanations to take account of new evidence and ideas and subjecting results to peer review
- Apply knowledge and skills to solve scientific problems and answer scientific questions about the world around us.

How parents can help:

-  Review key vocabulary with your child to help them transfer it to their long-term memory.
-  Ask students to explain what they have learnt that week, this also helps build long-term memory.
-  Try watching science / nature programs together and talking about them to encourage them to investigate the world around them.
-  Help them explore science YouTube channels (like Sci show or Minute Physics), to give them a broader knowledge of science in the real world.
-  Research some simple experiments they can do at home.

How your child will be assessed:

Assessment of learning takes many forms. Much of this will be informal assessment in lessons through verbal and written responses to questions. Students will have regular opportunity to assess their own progress through the regular quiz reviews.

In Science, we understand that to make progress students need to know and practice the next steps to improve their work. For this reason in each topic, staff assess an identified assessment task. Students will receive feedback that includes some improvement or next steps to complete. This may take a number of forms from short answer correction, answering additional, extension questions, or redrafting sections of longer written work either for correct scientific content or for improving the quality of written English.

To monitor the progress in students' knowledge and skills they will also sit a short assessment for each topic, with time to mark their work and correct mistakes. This provides an important opportunity for students to reflect on their learning and any additional steps to take.

Each term also includes 1 longer formal assessment that covers the previous 3 units, to give a clear assessment of learning over time. It is this assessment, along with the ongoing formative assessment that form the basis of the reports each term.

Developing an understanding of the scientific process is an intrinsic part of learning about science. In addition to carry out practical work in lessons where appropriate students understanding of this process will be assessed along with key knowledge in the topic assessment tasks, short unit assessments and the longer formal assessments in line with how these skills are assessed in standard national assessments.

Please feel free to contact us to discuss our assessment policy in depth.