

Biology

Intent

- Biology plays an important role in the understanding of complex forms of life involving humans, animals, plants and microorganisms.
- Understanding these intricate details of life helps humans understand how to care for themselves and the environment in a caring and responsible way that protects and values our living world.
- Biology helps individuals understand the complex interactions between humans and their environment.
- Studying biology offers pupils the opportunity to explore the tentative nature of science and explore the ways that technology has enhanced our understanding of ourselves.
- Through the exploration of biology, pupils will have the opportunity to develop critical thinking skills that will enable them to be scientifically literate citizens who can engage with information about science and make informed choices for themselves and others. Furthermore, through different types of enquiries to answer scientific questions about the world around them.
- The biology curriculum is based upon the AQA Key Stage 3 and GCSE program of study.
- At Key stage 3, pupils will study: Organisms (Movement, Cells, Breathing, Digestion), Ecosystem (Interdependence, Plant reproduction, Respiration, Photosynthesis) & Genes (Variation, Human reproduction, Evolution, Inheritance)
- At Key stage 4, pupils will study: Cell biology, Organisation, Infection and response, Bioenergetics, Homeostasis and response, Inheritance, variation and evolution & Ecology
- Interwoven within the schemes of work is a focus on key enquiry processes; Analyse, Communicate, Enquire and Solve.

Implementation

- The arrangement of the curriculum is founded to support pupils' cognitive development and the mastery of enquiry skills.
- Pedagogy in science is based upon a social constructivist paradigm;
- schemes of work for years 7-11 include explicit learning linked to ensuring pupils are equipped with skills, knowledge and ability to succeed in GCSE sciences and beyond; Numeracy skills, HSW and stretch & challenge linked to application/mastery

- At Key stage 3, each year group studies two biology topics per year (approx. 18 lessons in length). In every topic there are two formative assessment opportunities (feedback tasks) and one summative assessment (test). In addition a range of SMART feedback also takes place.
- At Key stage 4, pupils follow the AQA GCSE Biology specification. They study Biology for four lessons a fortnight in ability groups with a specialist teacher.
- Formative assessment tasks aim to capture 4 lessons 'worth' of learning to identify misconceptions, check progress against essential skills e.g. numeracy, literacy, exam technique and required practicals. There are a range of resources to be used for formative assessment listed in the schemes of work including activities in Kerboodle, GCSE style questions from ExamPro. Summative assessments take the form of Kerboodle end of topic tests and pupils' progress is monitored via centralised tracker marking sheets.
- At Key stage 5 pupils study the OCR A specification and have regular opportunities to receive feedback to inform their progress against their target. This aims to identify misconceptions, mistakes, skills to practice/develop, exam technique, the level of detail required in extended answers as well as extension/enrichment tasks.

Progress is monitored after each assessment and data entry point to inform teaching and planning and intervention is put in place by individual teaching as needed.

Impact

- At Key Stage 3 pupils should have the conceptual knowledge and understanding, numeracy and practical skills to equip them for study at GCSE. Pupils are awarded a grade between 9-1 based upon the AQA KS3 specification – know, explain, apply and the Activate programs – developing, secure, extend. These have been linked to grades to support pupils' ability to develop higher order thinking skills in science:

AQA specification	KS3	Activate	Grades
Know		Developing	3-4
Explain		Secure	5-6
Apply		Extend	7-8 (9)

- At GCSE all pupils should be equipped with the essential aspects of the knowledge, methods, processes and uses of biology. They should be helped to appreciate how the complex and diverse phenomena of the natural world can be described in terms of a small number of key ideas relating to the sciences which are both inter-linked, and are of universal application. These key ideas include:
 - the use of conceptual models and theories to make sense of the observed diversity of natural phenomena.
 - the assumption that every effect has one or more cause.
 - that change is driven by differences between different objects and systems when they interact.
 - that many such interactions occur over a distance without direct contact
 - that science progresses through a cycle of hypothesis, practical experimentation, observation, theory development and review.
 - that quantitative analysis is a central element both of many theories and of scientific methods of inquiry.
- Pupils are encouraged to consider the next stage in their academic career and options for further study and careers are discussed with pupils.
- At Key stage 5 pupils attain an A level in Biology and gain practical skills throughout the course.

These are assessed in the written examinations and in the practical endorsement to:

- develop essential knowledge and understanding of different areas of Biology and how they relate to each other
- develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods.
- develop competence and confidence in a variety of practical, mathematical and problem solving skills.
- develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject.
- understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society.

- Progress is monitored at all Key Stages via subject tracker mark sheets and parents are informed about progress via the College reporting system and parents' evenings.
- Extra-curricular activities are offered to enrich the opportunities to pupils and to broaden their Horizons; Year 7 science Club, CREST award, Visiting speakers, Trips and Competitions