

B.V.G.S GCSE BIOLOGY CURRICULUM OVERVIEW

What is Biology?

Biology is the science that studies life and living organisms, including their physical structure, chemical processes, molecular interactions, physiological mechanisms, development and evolution. Despite the range of different areas of Biology, there are certain unifying concepts that consolidate it into a single, coherent field. Students should recognise the cell as the basic unit of life, genes as the basic unit of heredity and evolution as the engine that propels the creation and extinction of species. Living organisms are able to survive by exhibiting specific characteristics and being adapted to their environment. Students should appreciate these ideas and apply them in order to question whether humans could and indeed, should manipulate them to our advantage whilst also evaluating their impact and use.

Big ideas

Students should build on the Big Ideas they completed at KS3, they are and include topics such as

Organisms

- The structure and adaptations of animals, plants, bacteria and Fungi.
- The characteristics of living organisms.
- Diseases, how they may be prevented, cured, spread and treated.
- How organisms can be used as indicators of pollution, recyclers of nutrients, sources of medicine and food and how they can be preserved in a constantly evolving world.

Ecosystems

- The processes of Photosynthesis and its role in producing the energy required to support all organisms.
- The process of Respiration and its role in transferring energy those organisms can make use of for various vital processes.
- The interdependence of organisms within an ecosystem.
- The problems human interference can cause on the health of an ecosystem.

Genes

- DNA is the molecule of life and codes for our characteristics and proteins.
- The processes involved in cell division and reproduction in various organisms.
- Darwin's theory of evolution via natural selection.
- How humans can achieve artificial selection in processes such as selective breeding, cloning and genetic engineering.
- The importance of the human genome project.

How will I learn?

You will complete on average 4 1 hour lessons a fortnight.

These lessons will develop your factual knowledge and understanding, your mathematical skills, your data analysis skills including plotting and interpreting appropriate graphs, your practical skills including identifying hazards and minimising risks as well as your ability to identify advantages and disadvantages of medical treatments and technologies.

How will be assessed?

You will be assessed throughout your biology course via regular topic assessments and end of year examinations. Students are expected to develop their practical, mathematical and data analysis skills whilst completing 12 required practical investigations, delivered alongside the relevant area of content.

G.C.S.E. examinations in Biology include questions which allow students to demonstrate

- Their knowledge and understanding of the content (Factual recall), including the associated mathematical and practical skills.
- Their ability to apply their knowledge of mathematical and practical skills to unfamiliar scenarios.
- Their ability to make links with various topics in Biology and present in one answer.

2 written examinations of 1 hour 45 minutes will be completed consisting of 100 marks each, each worth 50%.

Questions will include multiple choice, structured, closed short answer and open response.