

Year 11 Biology Curriculum Overview - Term 2

Welcome to the Year 11 Biology curriculum overview. This term, students will continue their studies following the AQA KS4 Biology curriculum. Below is an outline of the topics your child will study, tailored for both Combined Science and Triple Science students, with clear indications where content is specific to Triple Science.

Combined and Triple Science: Unit 6 – Inheritance, Variation, and Evolution

Inheritance and Variation

1. DNA and Inheritance

- Students will explore the structure of DNA and its role in inheritance. They will learn about genes, chromosomes, and how characteristics are passed down from parents to offspring through sexual reproduction.
- The basics of genetic inheritance will be covered, including dominant and recessive alleles and Punnett squares to predict genetic outcomes.

2. Genetic Disorders

- Students will study genetic disorders, such as cystic fibrosis and sickle cell anemia, understanding how these are inherited and the genetic mutations that cause them.

3. Variation in Organisms

- Students will explore the causes of variation within species, focusing on both genetic variation (due to inheritance) and environmental variation (due to the environment influencing traits).
- They will study how natural selection leads to evolution by understanding how advantageous traits increase an organism's chances of survival and reproduction.

4. Evolution and Natural Selection

- The process of natural selection will be explored, including how it leads to adaptation and evolution over time.
 - Students will learn about Darwin's theory of evolution and how evidence for evolution comes from fossil records, comparative anatomy, and molecular biology.
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Triple Science Only: Advanced Topics in Evolution and Inheritance

1. Cloning and Biotechnology

(Triple Science only)

- Students will study the methods of cloning, including both natural and artificial processes, and how these are applied in biotechnology.
- They will investigate the ethical issues surrounding cloning and genetic modification in agriculture and medicine.

2. **Selective Breeding**

(Triple Science only)

- Students will explore selective breeding, how it is used in agriculture and animal breeding to enhance desired traits, and the potential benefits and drawbacks of this practice.

3. **Evidence of Evolution** (Triple Science only)

- Students will delve deeper into the various types of evidence supporting the theory of evolution, such as the fossil record, embryology, and molecular genetics.
 - They will also study more complex evolutionary processes such as genetic drift, speciation, and co-evolution.
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GCSE Exam Revision

After completing Unit 6, both Combined and Triple Science students will begin their revision for the GCSE Biology exams. This will focus on consolidating knowledge from all topics studied so far, ensuring a strong understanding of the core concepts and scientific principles.

Revision will cover:

- Key content review across all units (from Cells, Organisation, Infection and Response, to Bioenergetics, Ecology, and Genetics).
 - Practice exam questions and techniques to improve exam performance.
 - Focus on practical skills, such as interpreting data and conducting experiments.
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Assessment and Skills Development

Throughout this term, students will consolidate their understanding of key topics in inheritance, variation, and evolution. They will also engage in targeted revision activities to prepare for their upcoming GCSE exams. Assessments will include topic quizzes, mock exams, and practical assessments to monitor progress.

Triple Science students will engage with additional content such as cloning, biotechnology, and further evidence for evolution, which will be assessed separately and at a deeper level than Combined Science students.

We look forward to supporting your child as they prepare for their GCSE exams!