

Year 10 Biology Curriculum Overview - Term 2

Welcome to the Year 10 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 this term, tailored for both Combined Science and Triple Science students.
Combined Science: Unit 3 – Infection and Response & Photosynthesis (Unit 4)

Unit 3 – Infection and Response

Communicable Diseases

- Students will study pathogens (bacteria, viruses, fungi, and protists) and how they spread, focusing on diseases such as measles, HIV, malaria, and rose black spot.

Human Defence Systems

- They will explore the body's natural defenses, including skin, mucus, and the immune system, as well as the role of white blood cells in fighting infection.

Vaccinations and Drug Development

- This section covers how vaccinations work and their role in preventing disease. Students will also learn how medicines, including antibiotics and painkillers, are developed and tested for safety and effectiveness.

Monoclonal Antibodies

- An introduction to how monoclonal antibodies are produced and their uses in medicine, diagnostics, and scientific research.

Photosynthesis (Unit 4 – Bioenergetics)

The Process of Photosynthesis

- Students will learn about the role of chloroplasts, light, carbon dioxide, and water in producing glucose and oxygen.

Factors Affecting Photosynthesis

- The impact of light intensity, carbon dioxide concentration, and temperature on the rate of photosynthesis will be investigated through practical experiments.

Uses of Glucose in Plants

- Students will explore how glucose is used for energy, storage, and building materials in plants.

Triple Science: Units 3 and 4 – Infection and Response & Bioenergetics

Completing Unit 3 – Infection and Response

- Triple Science students will delve deeper into the topics covered in Unit 3, with additional focus on:
 - The global impact of communicable diseases.

- Advanced study of how monoclonal antibodies are tailored for specific medical uses.
- The rise of antibiotic resistance and its implications for healthcare.

Unit 4 – Bioenergetics

Photosynthesis (Detailed Study)

- Students will explore photosynthesis in greater depth, including the biochemical pathways involved.
- Practical investigations will enhance understanding of the limiting factors of photosynthesis.

Respiration

- An introduction to aerobic and anaerobic respiration, including their chemical equations and energy yields.
- Students will explore the differences between animal, plant, and microbial respiration.

Metabolism

- Students will study how the products of respiration are used in metabolic processes, such as synthesis of new molecules, breakdown of substances, and energy transfer.

Assessment and Skills Development

Throughout this term, students will develop their practical skills and scientific understanding by conducting experiments, analyzing data, and applying mathematical concepts to biological processes. Assessments will include practical evaluations, quizzes, and end-of-unit tests to ensure progress and understanding.

We look forward to supporting your child as they continue their studies in Biology!