

Year 10 Biology Curriculum Overview - Term 3

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, tailored for both Combined Science and Triple Science students.

Combined Science: Respiration (Unit 4 – Bioenergetics) & Introduction to Ecosystems (Unit 7 – Ecology)

1. **Respiration (Unit 4 – Bioenergetics)**
 - **Aerobic and Anaerobic Respiration**
Students will learn about the processes of aerobic and anaerobic respiration, including their chemical equations and energy yields.
 - **Comparison of Respiration in Organisms**
They will explore how animals, plants, and microorganisms perform respiration, with a focus on the differences between these processes.
 - **Practical Investigations**
Students will conduct experiments to measure respiration rates in different conditions, applying mathematical concepts to analyze data.
 2. **Introduction to Ecosystems (Unit 7 – Ecology)**
 - **Ecosystems and Communities**
Students will learn about biotic and abiotic factors that affect ecosystems and how species interact within communities.
 - **Sampling Techniques**
Practical activities will introduce techniques such as quadrats and transects to study populations and distribution of organisms.
 - **The Importance of Biodiversity**
Students will begin to understand the importance of maintaining biodiversity and the consequences of its decline.
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Triple Science: Completing Unit 7 – Ecology

1. **Ecosystems and Biodiversity**
 - A detailed study of biotic and abiotic factors in ecosystems and how these influence the survival and distribution of organisms.
 - Students will examine the interdependence of organisms and the impact of human activities on biodiversity.
2. **Sampling and Practical Ecology**
 - Advanced sampling methods, including the use of quadrats and transects, to estimate population size and study species distribution.
 - Students will analyze the reliability and validity of data collected during practical activities.
3. **Cycles in Nature**

- A detailed look at the water, carbon, and nitrogen cycles, and their roles in maintaining balance in ecosystems.
- 4. Human Impact on the Environment**
- Exploration of human activities such as deforestation, pollution, and climate change, and their effects on ecosystems and biodiversity.
 - Discussions on conservation strategies and how sustainable practices can help mitigate negative impacts.
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Assessment and Skills Development

Throughout this term, students will refine 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 track progress and understanding.

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