



A2 Biology for AQA

Tailored Courses

Slapton Ley

Please visit

<http://www.field-studies-council.org/outdoorclassroom/biology/aqa/>
for alternative A-level AQA programmes

OVERVIEW

These fieldwork modules are designed for A2, Unit 4: Populations and Environment and Unit 6: Investigative and Practical Skills in A2 Biology. This can also be tailored for AS, Unit 2: The Variety of Living Organisms and Unit 3: Investigative and Practical Skills in AS Biology. A variety of habitats can be studied to allow students the opportunity to practise a variety of practical data collection techniques, graphical and statistical analysis and cover specification content. The use of fieldwork will allow students to gain a strong understanding of “How Science Works” through the development and practise of investigative skills throughout the course.

During a course students will have the opportunity to complete the exemplar Investigative Skills Assessment (ISA) and in longer courses another ISA may be included to practise skills needed for their final assessment.

OPTIONS

Ecological Introduction

A basic introduction to the key ecological concepts and terminology that will be used for the rest of the course. Introduction to sampling techniques and strategies.

Freshwater Ecology

Students will use Slapton Ley to investigate variations in distribution and abundance of freshwater invertebrates. Alternatively Slapton Wood stream may be used depending on time of year and antecedent weather conditions. The study will also allow students to study trophic levels and energy flow within an ecosystem.

Rocky Shore Ecology

Students will carry out several investigations on the rocky shore at Gorah Rocks, Prawle, to allow them to collect and analyse data relating to the distribution and abundance of rocky shore organisms. Students will have the opportunity to interpret data relating to species distribution and global warming.

Succession

An investigation into the process of plant succession, which is occurring on the shingle ridge at Slapton Sands. Students will collect and analyse data on the vegetation, climate and soil factors along a transect line. Discussion of management strategies used on the shingle ridge will take place.

Woodland Ecology

Students will use a variety of techniques and sampling strategies to investigate variations in distribution and abundance of woodland flora and invertebrates in Slapton Woods, part of the Slapton Ley NNR.

Farming and Conservation

A walk round the NNR discussing management techniques used, with implications of global warming and farming practises on the reserve. Followed by a visit to a local organic farm to discuss implications of different farming practises on the ecology.

Content of each topic

Topic	Definitions & Concepts	Sampling and Experimental Techniques	Data Analysis and Presentation Skills	How Science Works	Specification Links
Ecological Intro	Habitat, population, community, ecosystem, niche, biotic, abiotic	Random sampling. Transect sampling. Percentage cover and frequency. Mark-release-recapture			Basic skills needed for <u>all</u> parts Unit 4, 6 and ISA.
Freshwater Ecology	Energy transfer / trophic levels. Net / gross productivity.	Quantitative data on energy transfer	Construction of pyramids of nos. / biomass / energy. Species Diversity Index. Null Hypothesis. Chi squared.	Eutrophication	Unit 4: 3.4.1 3.4.5 3.4.6 Unit 6
Rocky Shore	Taxonomy. Inter/intra specific competition.	Random Sampling . Transect Sampling	Mean, normal distribution and standard deviation. Null hypothesis. Standard Error.	Global warming on impact of distribution of species.	Unit 4: 3.4.1 Unit 6
Succession	Succession (pioneer to climax). Abiotic / biotic. Community	Transect Sampling	Graphical techniques. Null Hypothesis. Spearman's Rank.	Conservation of species / habitat and management of succession.	Unit 4: 3.4.1 3.4.6 3.4.7 Unit 6
Woodland Ecology	Biotic , abiotic, habitat, ecosystem	Random sampling. Transect sampling. Percentage cover and frequency. Mark-release-recapture.	Graphical techniques. Mean, normal distribution and standard deviation.	Conservation of species/habitat	Unit 4: 3.4.1 3.4.6 Unit 6: ISA Exemplar 2008
NNR and Farm visit	Habitat, ecosystem, community.			Effect of farming practices on energy efficiency and productivity. Global warming and effects. Conservation of species and habitats.	Unit 4: 3.4.5 3.4.6 3.4.7