



AQA Biology

At Orielton Field Centre we are proud of our options for AQA which we feel match the learning needs of students. The options listed here are popular with our current groups and are designed to meet the requirements of your specification. However, if your requirements are not catered for in the suggested Orielton course outlines below please contact us to discuss possible alternatives; as we can flexibly alter a course to suit your individual needs.

Orielton Field Centre
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Freshwater West sand dunes

Please visit
<http://www.field-studies-council.org/orielton/>
for alternative KS2, KS3, GCSE and A-level options

At Orielton you can opt for either a flexible or a recommended course. These courses all aim to prepare students for or revise aspects of the AS Unit 3.2, and cover content from the A2 Unit 3.4 and 3.7. Whilst facilitating student completion of the Investigative and Practical Unit 3.6. Here we have outlined our most popular fieldwork investigations for our flexible courses. Please contact us to discuss how we can tailor a course to meet your specific requirements or if you have students wishing to cover more than one subject area (eg. geography and biology).

Content of Modules Available at A2	Notes	Possible Half Day
<p>Freshwater Ecology and Energy Transfer Students will undertake a fieldwork investigation to examine how abiotic factors, such as water velocity, temperature and oxygen levels affect invertebrate distribution. Abundance of invertebrates will be quantified using kick sampling and abiotic data factors will be measured. Organisms will be identified in the field, using dichotomous keys, and classified using the five kingdoms system to Family level.</p> <p>Data will be collated and analysed using biological indicator species, biotic indices and diversity indices and results discussed in light of the ecology of species present .</p> <p>The biotic data will also be interpreted with regard to the feeding or trophic levels represented. Pyramids, food chains and webs will be constructed and considered as methods of displaying energy flow through trophic levels within ecosystems, including the construction of a food chain from the data collected. This will also include the concept that pyramids can be generated from different data, i.e. biomass, and methods for the measurement of this data will be given. The efficiency of energy transfer through an ecosystem will be demonstrated.</p>	<p>Links to: Units: 3.4.5 / 3.4.6 / 3.6.1 / 3.6.2 / 3.6.4 HSW</p> <p>Field site(s): Stembridge Stream, Orielton Estate</p>	
<p>Woodland Ecology and Management Students will undertake a walk and talk exercise through Orielton’s extensive woodland, learning about conservation, management techniques and biodiversity. Students can also undertake some or all of a series of mini-investigations in order to use different techniques.</p> <p>Investigation 1: Investigating the population of mobile organisms. Setting up a mark, release, recapture method in order to estimate the population of woodlice in a given area.</p> <p>Investigation 2: Random sampling and percentage cover measurements using quadrats to compare the distribution of Lichens on two species of tree - Sycamore and Willow. Interaction between different species, including types of symbiosis will be discussed. Analysis of data using graphical techniques and standard deviation</p> <p>Investigation 3: The use of belt transects to investigate the zonation of Bryophytes on Beech trees. This will include the use of keys to identify species and data collection using quadrats. Discussion of niche and interaction between organisms, including competition. The effects of biotic and abiotic factors in determining numbers and distribution of plant species in a habitat will be considered, e.g. temperature, water, light, soil and mineral nutrients. Students will present the data collected using graphical techniques.</p>	<p>Links to: Units: 3.4.1 / 3.6.1 3.6.2 HSW</p>	<p>Yes</p>

Content of Modules continued	Notes	Possible Half Day
<p>Conservation Case Study Students are taken on an awe inspiring coastal walk around a local NNR within Pembrokeshire Coast National Park. Case study constructed around conservation issues and conflicts in the area. In the evening students will use an annotated mapping exercise to record their findings and use a decision making exercise to discuss conservation in National Parks</p>	<p>Links to: Units: 3.4.7, HSW Field site(s): Stackpole Estate</p>	Yes
<p>Sand Dune Succession An investigation of primary succession of plant communities (Pioneer to climax) across a developing dune system. Collection of biotic data via random sampling, using point quadrats, to assess the distribution of plant communities in relation to soil quality and other environmental factors. Students will investigate the management of conservation and succession in this delicate ecosystem. On return to the centre students will interpret biotic and abiotic data using spreadsheets and statistical analysis to explain the effects of living organisms on the abiotic environment during primary succession (including soil development, organic matter) and trampling effects. Simpson diversity index will be calculated and the data analysed in the context of succession.</p>	<p>Links to: Units: 3.4.7 / 3.6.1 / 3.6.2 / 3.6.3 / 3.6.4 HSW Field site(s): Freshwater West</p>	No
<p>Sheltered Rocky Shore Ecology Students will be introduced to the ecology of a sheltered rocky shore. They will carry out an investigation to determine the distribution of different species on the shore. A belt transect and frame quadrats will be used to assess abundance of animals and algae using the ESACFOR scale. Data will be collected and displayed graphically using kite histograms, then analysed using Chi² statistical analysis. The results will be the basis for discussion of key ecological concepts e.g. niche, competition and adaptations to both biotic and abiotic conditions considered (such as desiccation stress, competition and predation). Exposed Rocky Shore Ecology Follow up day to sheltered rocky shore in order to compare sheltered and exposed shores. Students build on techniques and ID skills learnt the previous day and will collect further data to examine process of zonation. They will also carry out a pairs investigation to collect data in order to use Standard Error test. Students introduced to planning their own methods and controlling variables, using callipers for precise measurements, how to research using scientific journals and completing their own risk assessments.</p>	<p>Links to Units: 3.4.1 / 3.6.1 / 3.6.2 / 3.6.3 / 3.6.4 HSW Field site(s): Sawdern Point Field site(s): Manorbier Bay</p>	No

Content of Modules continued	Notes	Possible Half Day
<p>Practice Individual Skills Assessments. It is possible to carry out some or all of a practice ISA in the centre grounds. Materials and equipment provided.</p> <p>3.6 (Unit 6) – Investigative and practical skills in A2 Biology</p>	<p>Field site(s): Orierton Estate</p>	<p>Yes</p>

Content of AS and half day or short A2 Level sessions	Notes
<p>Introduction to Ecology and Sampling techniques Often used as a first evening introductory session for AS or A2. This allows students to get a sense of place and an understanding of expectations for the course. An introduction to the area, ecology definitions and sampling techniques will all be covered. If weather permits a short introductory sampling session can be run in the field to look at the advantages and disadvantages of different fieldwork techniques.</p>	<p>Field site(s): Orierton Estate</p> <p>AFTERNOON / EVENING SESSION</p>
<p>Sand Dune Introduction to Ecology and Conservation (AS) Students will visit a sand dune succession, measure species richness and diversity and consider plant adaptations. Students will also investigate the management of the area and look at human impact on the ecosystem.</p>	<p>Field site(s): Freshwater West</p>
<p>Salt Marsh Succession (A2) Students will visit a salt marsh, measure species richness and diversity and species adaptations. Students will also investigate the ecology of this diverse ecosystem and how humans can impact the area looking specifically at the use of salt marsh areas for commercial development.</p> <p>In the evening the students will carry out a role play and decision making activity about managing a salt marsh succession.</p>	<p>Field site(s): Bentlass Salt marsh</p>
<p>Farm Visit (AS/A2) A visit to a local farm(s). Students will look at the conservation and biodiversity of agricultural land, debate organic vs. conventional farming and investigate enviro-agricultural schemes. Students will get to ask questions/interview local farmers and then debate the relevant issues.</p>	<p>Field site(s): Local farm</p> <p>HALF DAY SESSION</p>
<p>Woodland Ecosystems (AS) Students will investigate species richness, diversity and adaptations in a woodland ecosystem, and assess risks in fieldwork. Also, students will investigate the management of the area and look at human impact on the ecosystem.</p>	<p>Field site(s): Orierton Estate</p>

Our Tutors

All our staff complete a rigorous training process; including first aid, health and safety sessions, group management in the outdoor classroom, site specific training relating subject knowledge to our outdoor environments and curriculum content.

About the Centre

An impressive Georgian mansion with over 100 acres of mixed woodland, Orielson is located just three miles from Pembroke on the Castlemartin Peninsula and approximately 1.5 miles from the Pembrokeshire National Park boundary, Britain's only genuine coastal National Park. The proximity to the coast provides a vast array of habitats, landscapes and settlements that are used to form the basis of many of Orielson's activities

What is included within the fee?

Up to 10 hours of tuition a day
Expert tuition by fully trained staff
Full board accommodation including a cooked breakfast, packed lunch, homemade cakes and an evening meal. Vegetarian and other dietary options are available
Use of resources including library, classrooms and soils lab and the Centre grounds
Rigorous and proven health and safety procedures including 24 hour emergency cover
Access to risk assessments on website
Specialist equipment and exclusive access to specially developed resources
E-mail support before and after the course (on request)

Please remember travel to the field centre and to fieldwork sites is not included in the programme fee.

What to Bring

(Old) warm clothes - we may get muddy and wet.
Waterproof top, trousers and wellies (can be hired from the Centre), a comfortable day sack, gloves, woolly hat / sunscreen
Note paper, calculator, stationery and a lunch box.

Directions to the Centre



Directions:

By car: From Pembroke take the B4319 to Angle / Chevron / Hundleton. Continue along this road for approximately 1 mile and turn right onto B4320. Continue through the village of **Maidenwells**, bear sharply right as you leave the village, signposted **Hundleton**. After approximately $\frac{3}{4}$ mile a white sign on the left indicates the entrance to Orielson is 100 yards ahead. Please proceed with caution along the drive to the main house, maximum speed 20 mph, taking care over the speed bumps.

By train: The nearest train station is Pembroke, please inform the centre to arrange transport from the station to Orielson

FSC Orielson Field Centre, Orielson, Pembroke, Pembrokeshire, SA71 5EZ

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To book a course, simply:

1. Choose the time of the year you would like to attend
2. Contact us at Orielton by e-mail at enquiries.or@field-studies-council.org or by phone 01646 623920 to check availability and prices.

Why Come to FSC Orielton?

Some of the most common reasons which our customers give for coming to our popular Field Centre are:

- The centre's stunning location in rural South Pembrokeshire, just outside Britain's only coastal National Park
- We are easily accessible off the M4 and Pembroke train station is only 10 minutes away
- Expert and specialised tuition from experienced and passionate tutors
- A friendly, welcoming place with home cooked meals and clean, comfortable accommodation
- An unique blend of coastal and inland habitats, stunning landscapes and scientifically important habitats



The Green Bridge of Wales, south Pems



Preseli Hills, north Pems



Sand Dune Succession



Barafundle Bay, south Pems

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