



## WJEC Biology

At Orielton Field Centre we are proud of our options for WJEC 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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[enquiries.or@field-studies-council.org](mailto:enquiries.or@field-studies-council.org)



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

At Orierton you can opt for either a flexible or recommended course. These courses all aim to build on the ideas about variation, classification and biodiversity covered in AS Assessment Unit BY2 and provide coverage of the ecological content from A2 Assessment Unit BY4 and BY5. 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><b>Freshwater Ecology and Energy Transfer</b> 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 in order to determine whether there is any pollutant source from local farms. Students to think about the effects of pollution including eutrophication.</p> <p>The biotic data will also be interpreted with regards 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><b>Links to:</b> Units: 5.7 (a) 5.8 (d) HSW</p> <p><b>Field site(s):</b> Stembridge Stream, Orierton Estate</p>	<p><b>Yes</b></p>
<p><b>Woodland Ecology and Management</b> Students will undertake a walk and talk exercise through Orierton'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><b>Investigation 1:</b> 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><b>Investigation 2:</b> 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>Students to consider the impact of global warming / climate change on diversity. And also look at human impact on woodlands through forestry.</p>	<p><b>Links to:</b> Units: 4.5 5.8 (c,e) HSW</p> <p><b>Field site(s):</b> Orierton Estate</p>	<p><b>Yes</b></p>

Content of Modules continued	Notes	Possible Half Day
<p><b>Conservation Case Study</b> Students taken on an awe inspiring coastal walk around 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><b>Links to:</b> Units: 5.8 (e,f) HSW <b>Field site(s):</b> Stackpole Estate</p>	<b>Yes</b>
<p><b>Sand Dune Succession</b> An investigation of primary succession of plant communities (pioneer to climax) across a developing dune system. Students will collect 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.  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><b>Links to:</b> Units: 4.5 5.7 (b, g) HSW  <b>Field site(s):</b> Freshwater West</p>	<b>No</b>
<p><b>Sheltered Rocky Shore Ecology</b> 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 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).</p>	<p><b>Links to</b> Units: 4.5 5.7 (a) HSW  <b>Field site(s):</b> Sawdern Point</p>	<b>No</b>

## 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?

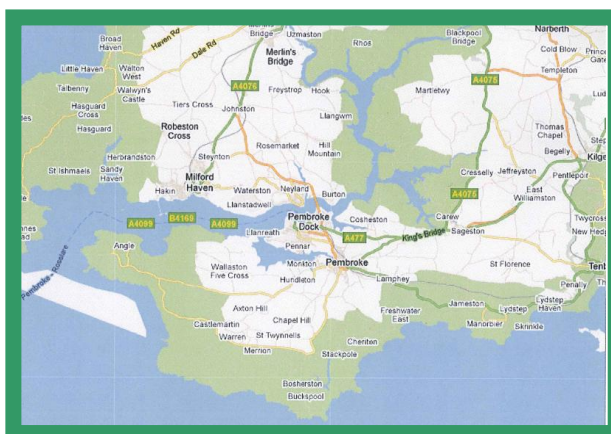
Up to 10 hours of tuition a day  
Expert tuition by fully trained staff  
Full board accommodation including a cooked breakfast, packed lunch, homemade cakes and an evening meal. Vegetarian and other dietary options are available  
Use of resources including library, classrooms and soils lab and the 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 ¾ 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 Orierton by e-mail at [enquiries.or@field-studies-council.org](mailto:enquiries.or@field-studies-council.org) or by phone 01646 623920 to check availability and prices.

## **Why Come to FSC Orierton?**

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 in 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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