



## FSC Outdoor Classroom for Scotland Intermediate 1 and 2 Programmes

*FSC programmes are fixed length courses with clearly stated outcomes and links to SQA Arrangements.*

### Managing Environmental Resources Investigating Ecosystems 3 days

Keen to use real world learning to create **engaged** students?

Want to promote **teamwork** and social skills?

Interested in effectively **challenging** gifted and talented students?

Aim to make A Curriculum for Excellence fun through **memorable** experiences?

Seek **inclusive** experiences that appeal to a range of learners?

Please visit

<http://www.field-studies-council.org/outdoorclassroom/scotland>

for alternative Intermediate 1 and 2 programmes

## OVERVIEW

This three day course focuses on Unit 2 *Ecosystems* of the National Unit Specification. During the course all students will benefit from expert tuition in a beautiful highland setting, while experiencing *firsthand* the concepts, principles and issues surrounding managing environmental resources.

This is a short course that packs a lot of fieldwork into a limited amount of time. Students will leave with a greater understanding of ecosystems and associated dynamics, along with their firsthand experience, and primary data that can be analysed further, back at school.

## PROGRAMME LENGTH

3 Days (2 nights with 6 teaching sessions)

*Monday-Friday, Wednesday-Sunday*

Groups would normally arrive in time to be taught in the afternoon of the first day and would then be taught on that evening and for three full days subsequently. Groups depart immediately after the morning session on the day of departure.

Day 1	Day 2	Day 3
Arrive  Afternoon & evening sessions	Morning, afternoon & evening sessions	Morning session  Depart after Lunch

## PROGRAMME CONTENT

Includes:

- Investigations into freshwater ecosystems and dynamics – variety of species and interrelationships, food chains and food webs
- Looking at factors affecting frequency and distribution of species - abiotic/biotic factors, adaptations
- Biological sampling methods and fieldwork techniques
- Data collection using a range of fieldwork techniques
- Analysis, presentation and interpretation of data

### **NATIONAL QUALIFICATION LINKS:**

This course focuses on Unit 2 *Ecosystems* in the National Unit Specification. The approach is investigative using fieldwork techniques to observe, measure and record the physical and biological elements of the ecosystem under study, and their interrelationships. Students will take back to school with them all the necessary information and data required to compile a report of a field investigation they have taken part in (design and delivery).

The difference between levels (Intermediate 1 and 2) is more in the depth of content covered and expectation of student capacity, rather than in the themes/activities themselves. This allows for mixed level groups to attend the same course. **To discuss bringing a mixed level group, please contact the Centre directly.**

### **Intermediate 1**

#### **Unit 2 Ecosystems**

- 1 Inter-relationships of an ecosystem
- 2 The physical components of an ecosystem
- 3 The biological components of an ecosystem

### **Intermediate 2**

#### **Unit 2 Ecosystems**

- 1 Ecological concepts
- 2 Food chains and food webs
- 5 The frequency and distribution of plant and animal species in relation to environmental variables
- 6 Impact of human activities on ecosystem
- 7 Pollution and Conservation

## EXEMPLAR TIMETABLE

DAY	MORNING	AFTERNOON	EVENING
1	<p><b>Arrival</b> (approx. 12 - 1pm)  <b>Welcome and outline the challenges ahead</b></p> <p>Tour of centre                      Settle into rooms                      Allocate kit (i.e. waterproofs)</p> <p><b>Introduction to Fieldwork</b>                      Brief introductory discussion to explore:</p> <ul style="list-style-type: none"> <li>• The importance of firsthand experience</li> <li>• Biological sampling methods and techniques</li> <li>• Aims of the course</li> </ul>	<p><b>Transect study</b>                      Students undertake a guided investigation of a transect across a woodland/grassland margin to:</p> <ul style="list-style-type: none"> <li>• Investigate a variety of sampling techniques – transects, quadrats, beating</li> <li>• Use measuring equipment – light, pH, temperature, soil moisture</li> <li>• Use keys to identify plants and animals</li> <li>• Discuss the presentation and analysis of their data and draw conclusions</li> </ul>	<p><b>Egg Challenge!</b>                      Team building challenge where students design a contraption to protect a raw egg from certain destruction. Challenge aims to:</p> <ul style="list-style-type: none"> <li>• Help learning about an effective design process</li> <li>• Improve their team and communication skills</li> </ul>
2	<p><b>River ecosystem study</b>                      Students undertake river investigation to:</p> <ul style="list-style-type: none"> <li>• Identify components affecting the river ecosystem</li> <li>• Collect data using appropriate sampling techniques for both biotic and abiotic factors</li> <li>• Identify freshwater species</li> <li>• Measure pH and Oxygen saturation levels along with river velocity</li> <li>• Identify pollution sources</li> </ul>	<p><b>Follow up session</b>                      Use microscopes and keys to identify species to:</p> <ul style="list-style-type: none"> <li>• Identify ways in which organic pollution can affect the distribution of organisms and compare the ways in which organisms are adapted to survival in freshwater environments</li> <li>• Identify sources of error in data collection</li> </ul>	<p><b>Small Mammal trapping</b>                      Students will set Longworth and pitfall traps in order to trap and study small invertebrate and mammal species of the area to:</p> <ul style="list-style-type: none"> <li>• Identify and discuss the ecology of local species</li> <li>• Discuss habitat and feeding needs</li> </ul>
3	<p><b>Food Chains and Webs</b>                      Revision session of the concepts, followed by fieldwork to investigate woodland leaf community to:</p> <ul style="list-style-type: none"> <li>• Identify producers, consumers, and decomposers in ecosystems</li> <li>• Illustrate trophic levels and biomass and pyramids of numbers</li> <li>• Identify species using identification keys.</li> <li>• Introduce concepts of symbiosis, mutualism and parasitism</li> </ul>	<p><b>Lunch and Depart</b></p>	

**Please note:** to ensure safe and quality learning experiences for students the timetable may alter depending on weather conditions and local factors at centres.

### **FSC KINDROGAN**

Located in rural Perthshire, at the edge of the Cairngorms National Park FSC Kindrogan is 11 miles from Pitlochry's mainline train station and close to the A9. The Centre itself is set in wooded grounds on the banks of the River Ardle and lies within easy reach of some of the most inspiring landforms in the Scottish Highlands and a rich range of wildlife habitats.



KD

Kindrogan

Tel: 01250 870150

### **TO BOOK THIS PROGRAMME, SIMPLY:**

1. Choose the time of the year you would like to attend
2. Check availability online or contact FSC Kindrogan

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**The FSC prides itself on being flexible. If you can't find a programme to meet your exact requirements a course specifically tailored to meet your needs can be developed. To discuss this, contact the centre of your choice. Fees will depend on what time of year you would like to visit and your length of stay but will be more expensive than FSC programmes at peak periods.**