This course will evoke students’ curiosity about science in the natural world as they explore one of our inspiring learning locations. Students will use real world learning as they are guided through a scientific enquiry working together to plan their method, use fieldwork techniques to collect data, analyse their data, present their findings to the rest of the group and evaluate their study. In addition to the working scientifically students will appreciate key biological concepts, develop personal/social skills and engage with the environment around them.
### Course Length

3 Days (2 nights with 6 teaching sessions)

<table>
<thead>
<tr>
<th>Monday/Wednesday</th>
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<th>Sunday</th>
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### Course Timetable

<table>
<thead>
<tr>
<th>DAY</th>
<th>MORNING</th>
<th>AFTERNOON</th>
<th>EVENING</th>
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</table>
| 1   | **Arrive** (approx. 12 - 1pm) | **Team Building Activities**  
Welcome and outline of the course  
Tour of Centre  
Settle into rooms  
Allocate kit (i.e. waterproofs)  
Team Building Activities  
This session will focus on team building activities within the spectacular natural environments surrounding FSC learning locations to develop interpersonal and social skills. Students will get to know each other and work together to overcome fun challenges, which will foster an enhanced sense of group spirit. There will be the opportunity for students to begin exploring their new environment, develop knowledge of their surroundings and start investigating scientific concepts. | **The Twilight Zone**  
Our world is a very visual place and very often the observations students make about an environment will be based on what they can see. This session aims to give students the opportunity to explore their environment in another way and will develop their understanding of how ecosystems change throughout the day. Students will be introduced to nocturnal creatures such as small mammals, bats and badgers and will cover concepts such as niche and the relationships between organisms. Students will also gain an appreciation of the night sky and how astronomy is used in science. |
| 2   | **Investigating This...and That!**  
This session will engage students’ curiosity about the natural world as they progress through a scientific enquiry based on their own observations. They will have the opportunity to explore one of our inspiring learning locations leading to a deeper understanding of the spectacular environment they are immersed in. Students will begin to appreciate key biological concepts such as interactions between organisms, photosynthesis and variation within ecosystems. Students will use independent and interdependent learning to design their own investigation and use appropriate fieldwork techniques to collect data relating to their key question. | **Super-Small Science Scenarios!**  
Working in teams, students will be set a fun challenge to overcome via creative planning. This will enable them to conduct a short, sharp investigation or activity to explore another scientific concept which includes physics and chemistry, linked into an environmental context. | |
| 3   | **What Does It All Mean?!**  
This session will allow students to explore the data they have collected as they continue through their scientific enquiry. Their data will be analysed using a variety of techniques to identify patterns and trends before students construct a presentation explaining their investigation and what they have found. They will also have the opportunity to identify limitations, evaluate their study and think creatively about how these problems could be overcome in the future. | Depart after lunch | |

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

Why are your learners coming to FSC? This is the broad purpose of the course or session. It could involve specification requirements or learning outcomes.

FSC invest much time and effort to ensure our field teachers have an up to date understanding of the National Curriculum and Awarding Body specifications. Therefore, whether you choose a course to encourage academic progression or to improve personal/social skills, they will be able to help you develop learning goals that fit into your overall course structure as well as your wider goals.

Learning Objectives

The building blocks of the learning goals. Your students will develop knowledge, skills and understanding throughout the course, enabling them to meet their learning goals.

FSC staff will communicate with you before the course to establish how you wish to go about achieving the learning goals of your course. The course can then be tailored to your group and the individuals within it.

On the vast majority of our courses you will be assigned FSC field teacher(s) who will lead the group for the duration of the course. This enables them to get to know your group and continue to tailor the course to the needs of the students as they progress throughout the course.

Whilst our FSC field teachers deliver the course, you can play a different but equally important role; observing the group and giving specific attention to individual students. Most teachers that bring their students on an FSC course comment on how much more frequently students will approach them when they have questions about what is being taught. You can then liaise with FSC field teachers to further tailor the course to individual’s needs.

Assessment

This is how we all know that learning is taking place and that it’s the right learning to meet the goals.

FSC field teachers, your students and yourself will use a range of tasks, both formative and summative, throughout the course to closely monitor learning progress. If learning isn’t progressing as expected, the learning objectives can be changed. Each course description provides examples of the types of tasks that might be used, they will range from teacher lead to peer review and may involved grade criteria from specification documents if appropriate.

Learning Opportunities

These are the experiences and activities that FSC will provide to meet the purposes of the course and ensure learners meet their goals.

FSC tries to design course activities that inspire students, to engage them with the subject being taught. Many visiting groups report back to us that as a result of their fieldwork experience at one of our Centres, some of their A-level students tear up their UCAs forms and reapply to study geography or biology.

FSC also continually seeks new ways to improve course activities: we recently held a hack day to explore how technology can aid fieldwork; we encourage innovative geography with the Geographical Association through world-wise and are working with the Institute of Physics to develop GCSE content.

Teaching

It is the same inside the classroom as it is outside the classroom; the teacher delivering the content plays a vital role in ensuring the learning goals are achieved.

Every FSC Centre has taken great care in developing a full-time, permanent team of gifted field teachers with a real passion for the environment and the subject being taught. FSC field teachers are fully trained to contextualise the learning opportunities and activities specifically to your group. They will change their pedagogy to match your group’s needs, taking account of their different learning styles, culture and wider inclusion needs.

Please visit http://www.field-studies-council.org/outdoorclassroom/

For alternative Key Stage 3 courses
FSC’s approach to course design and delivery couldn’t happen without people and places.

**People**

FSC is an Investors In People charity, our staff are the reason why schools return year after year. Our trainee teaching staff spend more time in training than some spend in their entire employment at other organisations. They undergo three weeks of intensive training followed by a four week training period at one of our Centres. After completion of this they spend 9 months on placement before being able to become an FSC field teacher. The training doesn’t stop when they become a field teacher; FSC provides ongoing professional development including training from all the awarding bodies. Many of our teaching staff maintain close links to exam boards, becoming moderators etc.

Our non teaching staff are equally well trained, in addition to on the job training they can attend a staff conference each year to take time away from their role, reflect, share best practice with staff doing similar roles at other centres and consider how they can better do what they do.

**Places**

FSC believes the environment can really engage, motivate and inspire students; would you prefer to learn about succession from a textbook or see it stood on the shores of a National Nature Reserve? Is there a better place to teach urban regeneration than a classroom overlooking the Olympic stadium? Would you rather climb a mountain in the Lake District or an artificial wall? This is why FSC has carefully selected Centres across the UK to ensure access to a range of inspirational teaching sites.

It’s not just the teaching sites that provide inspiration, each of our Centres has its own unique character; most are historic buildings that provide an interesting contrast to the school environment. They offer a safe, secure and caring atmosphere to help create the best conditions to encourage learning. They also house all the equipment needed for fieldwork and classroom based teaching. FSC is investing in new technology for the centres, we are working closely with ESRI to incorporate their GIS software into our fieldwork and also with the Open University to explore how smart devices such as tablets can help students collect, share and analyse the data they collect in the field where mobile signals are rare.

I believe that immersion in the outdoors and the natural world helps instil lasting values of care, respect and responsibility of self, others and the environment that are essential for creating a more compassionate society and a sustainable future for our planet.

I believe that students who engage with an FSC course will have the opportunity to connect, enjoy and care for wild places and to become aware and responsible for the natural environment in a spirit of fun, adventure and exploration.

Personally I enjoy working with younger students the most. I find at these ages, their honesty, innocence, openness to learn and try new things is very motivating. I always feel privileged to be able to work with them, seeing and being part of their development in that short space of time; increasing in confidence and team skills, becoming more aware of and understanding themselves and the world around them.

I worry that our children are growing up without the opportunity to learn and to grow towards out of doors.

Field Studies Council, over the last 70 years, has been such an important organisation…your work is literally irreplaceable.

Michael Gove MP, Former Secretary of State for Education
Learning Goals
This session will focus on team building activities within the spectacular natural environments surrounding FSC learning locations to develop interpersonal and social skills. Students will get to know each other and work together to overcome fun challenges, which will foster an enhanced sense of group spirit. There will be the opportunity for students to begin exploring their new environment, develop knowledge of their surroundings and start investigating scientific concepts.

Learning Objectives

All students will:
- Gain knowledge about the environment they are exploring.
- Take part in team building activities to solve problems and challenges.
- Improve their interpersonal skills as they co-operate with others.
- Take part in self and peer review.

Most students will:
- Understand some of the key processes operating within the environment they are exploring.

Some students will:
- Develop the understanding to solve problems and challenges through team building activities.

Teaching
The session will be delivered by enthusiastic FSC field teachers who have a passion for the environment, and who wish to inspire students about the natural world. All field teachers strive to promote inclusive learning opportunities and will tailor the course to meet specific learning needs by facilitating activities. Visual and auditory learners will be engaged as ideas are being communicated and kinaesthetic learners will be enthused through hands on experiences. Differentiation will be used to ensure that all students are fully engaged with the course. For example, if some of the students had participated in a particular activity before, they could lead a group to help achieve the best results. There will be a strong emphasis on individuals using their strengths to support their team.

Assessment
Observation of initial activities will be used to gauge the group dynamic and challenges can then be tailored to gradually improve group spirit and inclusivity among students. FSC Field teachers will monitor students and use questioning to ensure they remain engaged with the problem solving/challenge task. Students will be able to self/peer review each activity with the view to reflecting on their achievements and identifying aspects to help improve their individual and group performance.

Learning Opportunities
Students will work collaboratively and creatively to solve problems or challenges through team building activities. They will have the opportunity to develop leadership skills through taking charge of group challenges and will develop interpersonal skills as they work together. Students will improve their communication skills and patience through activities such as blindfold trails. They will use self and peer review to analyse their performance in challenges which will help them to identify improvements that could be made.

Through the different challenges students will be given the opportunity to explore first hand a new environment. This will improve their enquiry skills as they begin to question the way in which the ecosystem works and will lead to the development of environment-specific knowledge as well as an understanding of the underlying ecological processes. For example, an energy transfer game may be used to develop group work skills and also to introduce students to the idea of food chains and how energy is transferred through ecosystems.

Please visit http://www.field-studies-council.org/outdoorclassroom/ for alternative Key Stage 3 courses.
Learning Goals

Our world is a very visual place and very often the observations students make about an environment will be based on what they can see. This session aims to give students the opportunity to explore their environment in another way and will develop their understanding of how ecosystems change throughout the day. Students will be introduced to nocturnal creatures such as small mammals, bats and badgers and will cover concepts such as niche and the relationships between organisms. Students will also gain an appreciation of the night sky and how astronomy is used in science.

Learning Objectives

All students will:
- Develop an understanding of nocturnal creatures, how they live and name some of their adaptations.
- Understand basic information about stars and planets and spot some of the most iconic constellations.
- Take part in setting Longworth small mammal traps.

Most students will:
- Understand how nocturnal creatures use senses other than sight and be able to discuss their adaptations.
- Name ecological concepts that are important in the environment such as energy flow, interdependence of organisms, niche and the role of variation.

Some students will:
- Understand how some of the named ecological concepts have shaped an environment.
- Appreciate how different niches and variation enables closely living organisms to survive in the same environment e.g. diurnal and nocturnal creatures.

Assessment

FSC field teachers will observe students to ensure they remain engaged with the various activities. To check knowledge and understanding questioning will be used. For example, students will learn how to set a mammal trap and then will have to show their field teacher how they have set their own up before hiding it in the grounds and setting it properly. An informal, discussion-based review at the end of the session will encourage students to reflect on what they have learned.

Learning Opportunities

Students will be able to explore the environment at dusk, learning about how this suits certain creatures. There will be opportunities to observe nocturnal animals such as bats and badgers and talk about their adaptations to the environment including their use of senses. Small mammal traps will be set up, to be checked the following morning. Students will develop an appreciation of how complex the environment can be and begin to understand the ecological processes that shape it.

On a clear night there will also be the opportunity to do some stargazing to broaden students’ mind and introduce them to other scientific themes.

Teaching

The session will be delivered by enthusiastic FSC field teachers who have a passion for the environment, and who wish to inspire students about the natural world. All field teachers strive to promote inclusive learning opportunities and will tailor the course to meet specific learning needs. Visual, aural, written and kinaesthetic activities will be provided to appeal to all students; and differentiation will be used to ensure that all students are fully engaged with the course. For example there may be student-led aspects where they share their knowledge and understanding of relevant information. Field teachers will ensure that the pace and detail in the delivery will be adapted to suit each group.
Learning Goals

This session will engage students’ curiosity about the natural world as they progress through a scientific enquiry based on their own observations. They will have the opportunity to explore one of our inspiring learning locations leading to a deeper understanding of the spectacular environment they are immersed in. Students will begin to appreciate key biological concepts such as interactions between organisms, photosynthesis and variation within ecosystems. Students will use independent and interdependent learning to design their own investigation and use appropriate fieldwork techniques to collect data relating to their key question.

Learning Objectives

**All students will:**
- Develop an understanding of the interactions within an ecosystem including niches, food webs and variation; and use of appropriate vocabulary.
- Be involved in formulating questions to help investigate the environment.
- Observe patterns and notice differences.
- Carry out fieldwork using appropriate equipment and in a safe manner.
- Collect relevant qualitative and quantitative data.

**Most students will:**
- Formulate a question/predication to help investigate the environment.

**Some students will:**
- Design a focused investigation within the environment.
- Identify independent, dependent and control variables.

Assessment

An initial assessment through pre-course liaison will be made to help gauge the students’ level, prior knowledge and identify any specific learning requirements. Formative assessment will be used via a range of techniques to ensure that students have identified with the task and have understood the key concepts. Students will be questioned about their work and observed so that any issues highlighted can then be corrected and learning objectives amended. More able students will be stretched to undertake more complex studies. At the end of the session students will have written down a clear question, method and have recorded relevant data.

Learning Opportunities

Students will have the opportunity to explore an inspiring environment, learning about the key concepts that shape the ecosystem such as interactions, niche, food webs and variation. They will devise questions that could be investigated to reveal more about the ecosystem and develop their scientific terminology.

Via the process of scientific enquiry students will create hypotheses and design an investigation to collect relevant data. Students will learn how to work safely in fieldwork environments and will have the opportunity to use various fieldwork equipment, perhaps even creating their own!

Teaching

The session will be delivered by enthusiastic FSC field teachers who have a passion for the environment, and who wish to inspire students about science in the natural world. All field teachers strive to promote inclusive learning opportunities and will tailor the course to meet specific learning needs. Students will be encouraged to explore their location to generate engagement with the environment, directly appealing to kinaesthetic learners. They will work independently and collaboratively as field teachers facilitate their use of the scientific process and work with them to help extend their skills and knowledge. Differentiation will be used to ensure that all students are fully engaged with the course. For example, those students who are more capable may be able to conduct a further mini experiment if they have other questions they would like to try to answer.

Please visit [http://www.field-studies-council.org/outdoorclassroom/](http://www.field-studies-council.org/outdoorclassroom/) for alternative Key Stage 3 courses.
Learning Goals

Working in teams, students will be set a fun challenge to overcome via creative planning. This will enable them to conduct a short, sharp investigation or activity to explore another scientific concept which includes physics and chemistry, linked into an environmental context.

Learning Objectives

All students will:
- Develop an understanding of a key science (physics or chemistry) concept.
- Understand the link between that concept and the environment around them.
- Improve their interpersonal skills as they take part in a team challenge.

Some students will:
- Develop leadership qualities as they guide their group to overcome problems and challenges.
- Suggest improvements to aid their group’s performance.
- Be able to relate their team’s investigation and its outcome to real life ecological adaptations.

Most students will:
- Use scientific understanding to solve a problem.
- Make a prediction based on scientific theory.
- Identify problems with the way they have approached the task.

Assessment

Formative assessment will be used via a range of techniques to ensure that students have identified with the task and have understood the key concepts. Students will be questioned about their work and observed so that any issues highlighted can then be corrected and learning objectives amended. Summative assessment will be used in the form of whether they manage to complete the challenge they have been set. A field-teacher-led self/peer review at the end will allow students to consider their own performance and what they have learned from the activity.

Learning Opportunities

Students will conduct a small investigation to learn about a scientific theory or process. They will work in groups to continue developing team work skills and will aim to find solutions to a problem. The task will be set up with an open question and students will be provided with a number of materials. They will then be expected to use trial and error or scientific theory to inform the way they tackle the challenge. They will develop innovative ways to overcome the problem presented to them and will be able to review their performance in order to identify positives and negatives to potentially improve future performance.

Teaching

The session will be delivered by enthusiastic FSC field teachers who have a passion for the environment, and who wish to inspire students about science in the natural world. All field teachers strive to promote inclusive learning opportunities and will tailor the course to meet specific learning needs. The types of activities used in this session will appeal directly to kinaesthetic learners although all students will be able to identify with the tasks. Differentiation will be used to ensure that all students are fully engaged with the challenges. For example, if some students have completed a similar challenge before, they could become group leaders/mentors to help the rest of their group. There will also be the opportunity to stretch students to link what they have discovered to scientific and ecological theory.
Learning Goals

This session will allow students to explore the data they have collected as they continue through their scientific enquiry. Their data will be analysed using a variety of techniques to identify patterns and trends before students construct a presentation explaining their investigation and what they have found. They will also have the opportunity to identify limitations, evaluate their study and think creatively about how these problems could be overcome in the future.

Learning Objectives

All students will:
- Work collaboratively to analyse their data using a variety of techniques.
- Develop group presentations to deliver to the rest of the group which should explain their investigation and what they have found.
- Appreciate the role of peer review in science.

Most students will:
- Link their results to their knowledge of the environment they have been studying.
- Identify at least two limitations of their data collection methods.

Some students will:
- Identify key anomalies in their data.
- Suggest improvements to the investigation.
- Explain why some anomalies may have occurred, and identify random and systematic errors.

Assessment

Formative assessment will be used via a range of techniques to ensure that students have identified with the task and have understood the key concepts. Students will be questioned about their work and observed so that their learning can be supported and objectives amended when required. Summative assessment in the form of a presentation back to the group about their investigation will indicate how much they have learned, and give the opportunity for self-reflection and feedback against agreed criteria.

Learning Opportunities

Students will work collaboratively to analyse their data, identify trends and link their findings back to ecological concepts such as niche, interdependence of organisms and variation. They will use a variety of techniques to present their data and will bring the whole enquiry process into a presentation that will be delivered to the rest of the group. There will be opportunities to identify anomalies and link their results to their understanding of how the ecosystem works and to generate questions for further potential investigation. There will also be an emphasis on identifying limitations and evaluating their investigations, as well as the opportunity to discuss improvements. By using peer review within the group, the role of peer review in science will be discussed and evaluated.

Teaching

The session will be delivered by enthusiastic FSC field teachers who have a passion for the environment, and who wish to inspire students about science in the natural world. All field teachers strive to promote inclusive learning opportunities and will tailor the course to meet specific learning needs. Students will be supported to explain their results and guided through the process of evaluation. Visual, aural, written and kinaesthetic activities will be provided to appeal to all students and differentiation will be used to ensure that all students are fully engaged with the course. For example, those students that need to be challenged could be asked to identify sources of random and systematic error, whereas others may only be asked to identify anomalies.
Key Stage 3 Science: The Application of Science

3 days

Please visit http://www.field-studies-council.org/outdoorclassroom/ for alternative Key Stage 3 courses.

Centres that offer this course

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<tr>
<th>Code</th>
<th>Centre</th>
<th>Tel</th>
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<tbody>
<tr>
<td>BL</td>
<td>Blencathra</td>
<td>01768 779 601</td>
</tr>
<tr>
<td>CH</td>
<td>Castle Head</td>
<td>0845 330 7364</td>
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<tr>
<td>DF</td>
<td>Dale Fort</td>
<td>0845 330 7365</td>
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<tr>
<td>DG</td>
<td>Derrygonnelly</td>
<td>028 686 41673</td>
</tr>
<tr>
<td>EF</td>
<td>Epping Forest*</td>
<td>020 8502 8500</td>
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<tr>
<td>FM</td>
<td>Flatford Mill</td>
<td>0845 330 7368</td>
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<tr>
<td>JH</td>
<td>Juniper Hall</td>
<td>0845 458 3507</td>
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<tr>
<td>KD</td>
<td>Kindrogan</td>
<td>01250 870 150</td>
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<tr>
<td>LDN</td>
<td>London*</td>
<td>020 3130 0469</td>
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<tr>
<td>MT</td>
<td>Malham Tarn</td>
<td>01729 830 331</td>
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<td>MA</td>
<td>Margam</td>
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<tr>
<td>NC</td>
<td>Nettlecombe</td>
<td>01984 640 320</td>
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<td>OR</td>
<td>Orielton</td>
<td>0845 330 7372</td>
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<tr>
<td>PM</td>
<td>Preston Montford</td>
<td>0845 330 7378</td>
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<tr>
<td>RC</td>
<td>Rhyd-y-Creau</td>
<td>01690 710 494</td>
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<tr>
<td>SL</td>
<td>Slapton Ley</td>
<td>01548 580 466</td>
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To book this course, simply:
1. Choose the time of the year you would like to attend
2. Pick the centre(s) of interest
3. Check availability online, contact the head office to check availability across multiple centres or contact the centre(s) of your choice directly.

To book this course, the minimum size of your group must be 12 students and one member of staff.

*Please note, although these centres can deliver this course, they are day centres and therefore cannot offer accommodation.

Head Office contact details:
Tel: 01743 852100   Email: enquiries@field-studies-council.org