

16+	Study Modules	Brief Description	Equipment Includes:	Centre	Edexcel Units Covered
Biology	Ecological Succession	By performing accurate and detailed line transects students can observe the changes in succession in relation to biotic and abiotic factors. They also begin to appreciate the importance of conservation and management of fragile ecosystems. This unit is ideal for students undertaking projects with an emphasis on experimental design, accurate and consistent data collection, hypothesis testing and statistical analysis	Activity sheets, digital camera, Pocket PC, infiltration kit, pH kit, soil thermometer, moisture meter, profiling kit, quadrat, plant ID guides, Pocket ID books, anemometer.	Barton Hall, Little Canada, Osmington Bay	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
	Ecosystems in the British Isles, Ecological Succession	An introductory session highlights the variety of types of succession which can take place, the stages we move through and the abiotic factors which have an influence. Practical fieldwork involves data collection on a line transect using indicator species to identify seral stages. Classwork uses field data to produce a species distribution graph. Students can compare this with expected results and suggest reasons for variation.	Activity sheets, digital camera, PC, infiltration kit, pH kit, soil thermometer, moisture meter, tape measure, Profiling Kit, quadrat, plant ID guides, Pocket ID books, anemometer.	Loch Ranza	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
	Ecosystems in the British Isles, The Interrelationships of Soils and Topography	Fieldwork consists of a transect covering both north and south facing slopes. Data on soil, climate, vegetation, topography and land use is gathered at a number of sites and in a variety of habitats including deciduous woodland and heathland. Data is processed using IT, and statistical calculations include Chi-Square and Spearman's Rank tests.	Activity sheets, digital camera, PC, infiltration kit, soil thermometer, moisture meter, pH kit, profiling kit, quadrats, plant ID guides, Pocket ID books, anemometer.	Loch Ranza	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
	Heathland Ecology and Management	An investigation of open heathland is undertaken. Line transects are made and measurements taken including pH, light levels and soil type. Quadrats are used to examine plant species along the transect. Expected changes in diversity within physical parameters are discussed, along with the role of heathland in the nitrogen and carbon cycles. In addition, the management and land uses of the area are discussed. Data analysis and statistical tests can be used to complete a report on the investigation.	Activity sheets, digital camera, Pocket PC, infiltration kit, soil thermometer, moisture meter, pH kit, profiling kit, quadrat, plant ID guides, Pocket ID books, anemometer.	Barton Hall and Osmington Bay.	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
	Introduction to Ecology and Sampling Techniques	The aim of this session is to familiarise students with the general principles and definitions of ecology. Sampling techniques to be used during the week are introduced in the classroom with an explanation of the theory behind quadrats and transects and the sampling methods associated with each. Students carry out a short exercise in determining optimum quadrat size. Systems used within quadrats include the ACFOR scale, % cover and point sampling.	Activity sheets, digital camera, PC, profiling kit, 100% quadrat, 10cm quadrat, identification sheets and books.	Loch Ranza	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
	Investigations and Sampling Techniques	This unit provides students with an introduction to a variety of different data collection techniques, both in theory and practically as part of an investigation. Techniques that can be covered include belt transects, line transects, random sampling, quadrats and 'mark, release and recapture'. Students' work will have an emphasis on experimental design, accurate and consistent data collection, hypothesis testing and statistical analysis.	Activity sheets, digital camera, Pocket PC, infiltration kit, pH kit, soil thermometer, moisture meter, profiling kit, quadrat, plant ID guides, Pocket ID books, anemometer.	Barton Hall, Little Canada and Osmington Bay	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
	Lithoseral and Haloseral Succession	This is a study of the colonization of a bare rock substrate. By performing accurate and detailed line transects students can observe the changes in succession. They will also begin to appreciate the importance of conservation and management of fragile ecosystems. Students test their hypotheses using Spearman's Rank Coefficient calculation to determine if there is a relationship between different environmental factors, e.g. between the pH of the soil and species number. Remaining time can be spent writing up the methodology and discussing the day's findings.	Activity sheets, digital cameras, Pocket PC, thermometer, profiling kit moisture meter, pH kit quadrat, infiltration kit, stopwatch, plant ID sheets, identification books.	Osmington Bay	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
	Marine Zonation	Horizontal succession is studied using line transects across the littoral zone to measure the percentage and/or frequency cover of the organisms. Vertical zonation studies can also be carried out, using a 10cm quadrat - vertically on the rocks - to examine changes in species number and diversity on a small scale. Both methods are ideal for students undertaking projects with an emphasis on experimental design, accurate and consistent data collection, hypothesis testing and statistical analysis alongside concepts such as Ballantine's scale of exposure.	Activity sheets, digital camera, Pocket PC, profiling equipment, 100% quadrat, 10cm quadrat, identification sheets and books, bug pots.	Barton Hall, Little Canada and Osmington Bay	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12.
	Psammoseral Succession	A Nature Reserve system is an ideal location for studying the abiotic and biotic factors of succession over sand and the factors that affect this process. Opportunities are provided to study different approaches to sustainable development and how humans impact upon succession. Data analysis and statistical tests can be used to complete a report on the investigation.	Activity sheets, digital camera, Pocket PC, infiltration kit, pH kit, soil thermometer, moisture meter, profiling kit, quadrat, plant ID guides, Pocket ID books, anemometer.	Barton Hall and Osmington Bay.	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
	Stream Ecology	Students investigate how a river changes along its course from source to mouth, focusing on the change in invertebrate communities. Students use kick and sweep sampling alongside identification keys, recording their findings on pocket computers. Digital photographs help to identify sample sites, and the reasons for changes along the river are examined fully, including pollution levels, land use and management.	Activity sheets, Pocket PC, digital camera, channel profile kit, flow meters, sediment roundness chart, pH meters, sweep nets, bug pots, identification books and sheets.	Barton Hall, Little Canada and Osmington Bay	Edexcel Biology GCE AS/A level: Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12.

	<b>Woodland Ecology</b>	Students conduct a comparative investigation of coniferous and deciduous woodland. Line transects are made and measurements taken, including pH, light levels and soil type. Students use quadrats to examine plant species in different layers of woodland. Expected changes in diversity within physical parameters are discussed, along with the role of woodland in the nitrogen and carbon cycles.	Activity sheets, digital camera, Pocket PC, infiltration kit, pH kit, soil auger, soil thermometer, moisture meter, profiling kit, 2 quadrats, plant ID guides, Pocket ID books, anemometer, light meter.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel Biology GCE AS/A level:</b> Unit 4 The Natural Environment and Species Survival: 3.3 Topic 5: On the wild side: 1, 10, 11, 12, 13.
Environmental Science	<b>Energy Resources</b>	A brief introduction covers current energy resources used in the UK. Students then move on to focus on renewable and sustainable resources. Fieldwork identifies the most suitable location for a wind farm in the local area using environmental impact assessment techniques. In a follow-up class session students analyse and present their results to identify and justify the most suitable wind farm site.	Activity sheets, digital camera, digital anemometer, light meters, hygrometers, weather stations.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 3 Contested Planet: 3.3 Topic 1: Energy Security: 1 and 3
	<b>Freshwater Pollution</b>	Students investigate pollution levels in a freshwater system, using biotic and abiotic factors. Moving between sample sites, they will focus primarily on the change in invertebrate communities. In addition, factors such as nitrate levels are measured. Pupils use sweep sampling and identification keys, recording their findings on pocket computers. Digital photographs help to identify sample sites and the reasons for changes between the sample sites are examined fully, including pollution levels and land use and management.	Activity sheets, digital camera, pocket PC, bug pots, tray, flexible net, identification guides and sheets, BMWP index, pH kit, nitrate test kits.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 4 Geographical Research: Option 5: Pollution and Human Health at Risk.
Geology	<b>People, Rocks and Landscapes</b>	Visiting a number of localities students will see how geology, as a natural resource, can have a massive impact on the environment and character of an area. Igneous geological features can attract industries, particularly tourism but can also produce areas of natural beauty and scientific importance thereby introducing conflict over a variety of issues. Students can create a report of their findings based on the viewpoints of people living in the community.	Activity sheets, rock guides, compass clinometer, metre ruler, spirit level, digital camera.	Barton Hall	<b>Edexcel GCE Geography AS/A level:</b> Unit 4 Geographical Research: Option 1 Tectonic Activity and Hazards; Option 6 consuming the Rural Landscape - Leisure and Tourism.
	<b>Coastal Investigation - including Features and Management</b>	Students are set a long-shore drift investigation on a stretch of shingle beach with defined aims and hypotheses. Beach profiles are taken using a levelling technique. Coastal processes and features are discussed in a series of field talks including tides, coastal erosion, raised beaches and the implications of sea level change. Coastal management techniques including gabion construction and environmental impact are also studied. A section of sand dunes backed by a golf course provides a good case study of human impact.	Activity sheets, questionnaires, profiling kit, digital camera.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 2: Crowded Coasts: 1, 3, 4.
	<b>Coastal Management</b>	Students examine the conflicts that arise from coastal erosion and the options for coastal management. They investigate different types of coastal defences through field sketches and discuss how they should be managed in the future through a decision matrix. Each option is examined through cost benefit analysis and all relevant economic, social, educational and industrial impacts are investigated and discussed.	Activity sheets, clipboards, questionnaires, digital camera.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 2: Crowded Coasts: 1, 2, 3, 4.
	<b>Crowded Coasts</b>	Students examine the conflicts that arise from coastal erosion and the options for coastal management. They investigate different types of coastal defences through field sketches and discuss how they should be managed in the future through a decision matrix. Each option is examined through cost benefit analysis and all relevant economic, social, educational and industrial impacts are investigated and discussed.	Activity sheets, questionnaires, digital camera.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 2: Crowded Coasts: 1, 2, 3, 4.
	<b>Consuming the rural landscape, Leisure and Tourism</b>	A case study of the impacts of leisure and tourism on people and the landscape. An introduction considers the history and development of tourism from the early Victorian travellers to the package holidays and day trippers of the modern day. Fieldwork focuses on the direct impact of tourism in the form of footpath erosion. Field stops provide information on the attraction of the natural environment and management strategies.	Activity sheets, questionnaires, profiling kit, quadrats, plant ID guides, digital camera.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 4 Rebranding Places: 1, 2, 3, 4. Unit 4 Geographical Research: Option 6: Consuming the Rural Landscape – Leisure and Tourism: 1, 2, 3.
	<b>Drainage Basins, Flooding and Management (Loch Ranza only)</b>	Students focus on factors affecting channel flooding and the drainage basin characteristics of two rivers. Field studies include consideration of rejuvenation, interception, infiltration, rate of through-flow and storm hydrographs. A proposed housing scheme on the flood plain provides a cost/benefit analysis study and highlights river management techniques.	Activity sheets, PC, digital camera, channel profile kit, flow meters, callipers, sediment roundness chart.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 1: Extreme Weather: 2, 3, 4.
	<b>Impacts of Tourism</b>	Students examine the reasons for the historical development of a tourist resort. Effects of recreational pressure on local employment, land use conflicts, the physical environment and traffic congestion are considered. Data can be collected through land use mapping, pedestrian surveys and traffic counts. Information collected can be analysed through classification of land use maps and collation of questionnaires. A report can be written and a management plan produced for future work.	Activity sheets, digital cameras, questionnaires, land use maps.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 4 Geographical Research: Option 6 consuming the Rural Landscape - Leisure and Tourism.

Human Geography	<b>Population and Rural Settlements</b>	A case study for population change, sustainability and rurality. This option sets out clear aims and objectives which are followed up by data collection in a number of local settlements. Techniques include place check, service assessments, questionnaires and landscape character assessments. Students study how the local population has changed over time using GIS generated data, and research solutions to population change problems.	Activity sheets, questionnaires, digital camera.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 3 Unequal Spaces: 3
	<b>Re-branding Places</b>	Students investigate the reasons for re-branding, different approaches to re-branding and its impact on the local community and the wider area. Using a local study they investigate the profile of the area and the use of local resources and traditions, alongside other topics such as the use of arts and communications media to re-brand. Evidence, including digital photos, land use and other surveys is collected and students can produce a presentation or report of their investigation.	Activity sheets, pencils, digital cameras, questionnaires, land use maps.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 4: Rebranding Places: 1, 2, 3, 4.
	<b>Rural and Urban Issues</b>	For rural issues, students investigate the changing function of a village over time and the issues associated with rural settlements. Geographical techniques are used to illustrate how an area has changed over time. Evidence of the impact of other settlements and the rural employment levels and type are discussed. For urban issues, producing land use classification maps of town centres allows students to investigate patterns in retail settlements and settlement function. Development of towns over time can be demonstrated through a study of building type and the CBD can be mapped.	Activity sheets, digital cameras, questionnaires, land use maps	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 3 Unequal Spaces: 3, 4; Unit 4 Geographical Research: Option 6 consuming the Rural Landscape - Leisure and Tourism.
	<b>Rural Rebranding and Regeneration</b>	This option provides a case study for rebranding the local area as a modern tourist destination. Field studies follow set aims and objectives at various locations. Students investigate the need for change and the mechanisms of change focusing on the 'key players'.	Activity sheets, questionnaires, digital camera.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 4 Rebranding Places: 1, 2, 3, 4. Unit 4 Geographical Research: Option 6: Consuming the Rural Landscape – Leisure and Tourism: 1, 2, 3.
	<b>Rural Settlements</b>	Students investigate the changing function of a village over time and the issues associated with rural settlements. Geographical techniques are used to formulate an image of how an area has changed over time. Evidence of the impact of other settlements and the rural employment levels and type are discussed. Using evidence including digital photos and house age comparisons, students can produce a presentation or report of their investigation, including graphical and numerical data.	Activity sheets, digital cameras, land use maps.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 3 Unequal Spaces: 3
	<b>Tourism and Environments</b>	Students examine the development of a tourist location. Landscape features and local history are considered alongside the effects of recreational pressure on local employment, land use conflicts, the physical environment and traffic congestion. Data can be collected through land use mapping, pedestrian surveys and traffic counts. Information collected can be analysed through classification of land use maps and collation of questionnaires and then included in a written report.	Activity sheets, digital cameras, questionnaires, land use maps.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 4 Geographical Research: Option 6 consuming the Rural Landscape - Leisure and Tourism.
	<b>Urban Settlements</b>	Producing land use classification maps of town centres allows students to recognise and investigate patterns in retail settlements and settlement function. Development of towns over time can be demonstrated through a study of building type and the CBD can be mapped. A report or presentation incorporates data collected. Alternatively land use maps can be completed and classification discussed.	Activity sheets, digital cameras, questionnaires, land use maps.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 3 Unequal Spaces: 4
	<b>Urban Studies, Regeneration and Rebranding</b>	A case study of a key UK city. We consider changing population, employment, land use and tourism influence over time. Linked to this are strategies used by national and local government to deal with change and the need for change. A wide variety of practical field work techniques are included in this study. Data analysis includes statistical calculations, IT and GIS resources. The option can involve a full day to gather data only or a day and a half including follow-up studies.	Activity sheets, questionnaires, digital camera, PC.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 4 Rebranding Places: 1, 2, 4.

Physical Geography	<b>Coastal Processes and Features</b>	By working as part of a team pupils profile a beach, taking accurate measurements, which are entered onto a pocket computer. Pupils discuss beach formation and the reasons why beaches differ in shape and sediment size. Pupils then discuss the results they have obtained and suggest why sediment size varies in relation to its position on the beach. Simple experiments allow observations of long shore drift and wave refraction.	Activity sheets, profiling kit, digital camera.	Barton Hall, Little Canada and Osmington Bay	<b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations: Topic 2: Crowded Coasts: 3.
	<b>Cold Environments</b>	Superb examples of cold environment features are discussed in a series of field talks. Topics include glacial and fluvioglacial landforms and their formation. A case study is made of a classic glacial valley, focusing on its formation in the past and its uses today. This includes consideration of UK glacial history, trigger theories, glacier characteristics, features of erosion and deposition.	Activity sheets, digital camera.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 4 Geographical Research: Option 2: Cold Environments – Landscapes and Change: 1, 2, 3.
	<b>Earth Hazards: Earthquakes and Volcanoes</b>	This option involves a series of field talks focusing on processes and features of volcanicity and plate tectonics. Aspects covered include extrusive landforms, intrusive landforms, types of plate boundary and the impact of volcanic activity on the landscape and population.	Activity sheets, rock guides, compass clinometer, spirit level, metre ruler, digital camera.	Loch Ranza	<b>Edexcel GCE Geography AS/A level:</b> Unit 4 Geographical Research: Option 1: Tectonic Activity and Hazards: 1, 2.

<p><b>Sediment Analysis</b></p>	<p>An opportunity for a practical investigation linked to Cold Environments, Rivers or Coastal Investigation. Exposures of sediment are analysed at five locations – three of known origin and two unknown. Fieldwork techniques assess size, shape, orientation and stratification. Graphical presentation, statistical and IT analysis help interpret data and identify the environment of deposition.</p>	<p>Activity sheets, sediment charts, callipers, digital camera.</p>	<p>Loch Ranza</p>	<p><b>Edexcel GCE Geography AS/A level:</b> Unit 2 Geographical Investigations. Unit 4 Geographical Research</p>
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