Chichester Harbour Education Centre

A-Level Biology and Environmental Science Fieldwork

We offer a 1-day course or a 2-3 day course. For the 2-3 day course reasonable accommodation could be provided at a local activities centre.

We have **2 locations**: **East Head** at the entrance to Chichester Harbour and **Dell Quay**. Our classroom is at Dell Quay and can be used for practical work and for our introductory power point presentations. See below the various fieldwork possibilities of the 2 locations.

Students will have a chance to visit a range of different habitats which provide good examples of **ecological concepts**. These concepts include:

- **Biodiversity:** Habitat biodiversity (including sand dunes, saltmarsh, muddy shoreline, woodland, freshwater streams, meadows), species richness and evenness, index of diversity.

- **Ecosystems:** Biotic and abiotic factors, interactions between organisms, succession in the saltmarsh and sand dunes.

- **Conservation of habitats:** management of environment and effects of human activities, international, national and local conservation agreements to protect species and habitats.

Students will have a chance to collect ecological data which they can analyse to develop a greater understanding of **mathematical and statistical skills**.

Students will have a chance to carry out **specified practical** in the AQA, Edexcel or OCR specifications.

- Investigate the distribution and abundance of organisms in a habitat using randomly placed quadrats or in a belt transect (Core Practical 10 Edexcel Biology A, AQA, OCR)

- Use percentage cover and frequency as a measure of abundance of a sessile species (AQA, Edexcel)

- Investigate the effect of a named environmental factor on the distribution on the distribution of a given species (Required Practical 12 AQA Biology, Core Practical 16 Edexcel, Biology B)

- Investigate sampling techniques to enable calculation of species diversity (Suggested Practical 3 OCR,AQA, Edexcel)

Our programmes are tailored to suit your curriculum requirements for practical fieldwork and also provide a wonderful opportunity to learn about and appreciate nature and the environment in its wider sense.

Our enthusiastic and knowledgeable field teachers will introduce students to species and habitats which they may not have encountered before and maybe initiate new interests, curiosity and a desire to conserve these precious habitats.

A-Level Biology Fieldwork at East Head (1 day)

Session Outline	Fieldwork techniques/methods	Biological Skills
Fieldwork session EA: **Ecosystems, Biodiversity, Populations** **Sand Dunes (1.5 – 2 hours)** Students will study the sand dune habitat looking at primary succession and plant adaptations of xerophytes. Students will investigate species diversity across the sand dunes together with changes in abiotic factors. Students can investigate the effect of a named environmental factor on the distribution of a given species. (Required Practical 12 AQA, Core Practical 16, Edexcel)	Interrupted belt transect to study succession, frequency or percentage cover of different plant species. Measurement of abiotic factors: temperature, wind speed, angle of slope, distance from sea. Identification of plants using keys	**Investigative/Graphical-** Hypotheses Selecting, measuring & recording appropriate data for chosen study and presentation/analysis in school. Consider H&S risk Graphs. Kite diagrams. **Mathematical/Statistical –** Opportunity to record quantitative data, to consider accuracy, sample size, type of sampling. Collect sufficient data to carry out statistical analysis later (e.g. Spearman's Rank Correlation)
Fieldwork Session EB **Ecosystems, Biodiversity, Populations** **Saltmarsh (1.5 – 2 hours)** Students will study the saltmarsh habitat looking at primary succession, plant adaptations of halophytes and feeding relationships. Students will investigate species richness, evenness and species diversity in two different saltmarsh zones (Suggested Practical OCR)	Grids set up and random sampling techniques used to count numbers of or percentage cover of different species in 2 different saltmarsh zones. Identification of saltmarsh plants using keys.	**Investigative/Graphical-** Hypotheses Selecting, measuring & recording appropriate data for chosen study and presentation/analysis in school. Consider H&S risks **Mathematical/Statistical –** Opportunity to record quantitative data, to consider accuracy and sample size and draw conclusions. Collect sufficient data to carry out statistical analysis later (Index of Diversity)
Fieldwork Session EC **Conservation vs. Human Needs (1 hour)** Students will find out how the National Trust manages East Head for the benefit of the landform, wildlife and visitors. They will consider the conflict between the needs of humans and conservation. They will learn about the international, national and local agreements to protect species and habitats.	Map/diagram annotation & written notes Field sketches	**Investigative/Graphical-** Selecting and recording appropriate data for chosen study and presentation/analysis in school Consider H&S risks Opportunity to record qualitative data and to form opinions about the conflict between conservation and human needs.

A-level Biology Field work from Dell Quay base (1 – 2 days)

Session Outline	Fieldwork techniques/methods	Biological Skills
Fieldwork session DA: **Ecosystems, Biodiversity, Populations** **Freshwater Stream (1.0 - 1.5 hours)** Students will Investigate the abundance of different species including indicator species of pollution. Students will learn about the lifecycles of species and the feeding relationships. Students will investigate the distribution of Gammarus (freshwater shrimp) in fast and slow flowing water.	Use kick sampling techniques to collect species at different locations in the stream. Measurement of flow rate with a flow meter. Identification of species using keys.	**Investigative/Graphical-** Hypotheses Selecting, measuring & recording appropriate data for chosen study and presentation/analysis in school. Consider H&S risk Graphs. **Mathematical/Statistical –** Opportunity to record quantitative data, to consider accuracy, sample size, type of sampling. Collect sufficient data to carry out statistical analysis later (e.g. 't' test or Spearman's Rank))
Fieldwork Session DB **Ecosystems, Biodiversity, Populations** **Meadow(1.0- 1.5 hours (**This location is best investigated in the summer) Students will investigate species richness, evenness and species diversity in managed and unmanaged meadow. (Suggested Practical OCR)	Grids set up and random sampling techniques used to count numbers or percentage cover of different species in 2 different meadow areas. Identification of meadow plants using keys.	**Investigative/Graphical-** Hypotheses Selecting, measuring & recording appropriate data for chosen study and presentation/analysis in school. Consider H&S risks **Mathematical/Statistical –** Opportunity to record quantitative data, to consider accuracy and sample size and draw conclusions. Collect sufficient data to carry out statistical analysis later (Index of Diversity)
Fieldwork Session DC **Ecosystems, Biodiversity, Populations** **Gravestones in local Graveyard (1 hour)** Students will investigate the effect of abiotic factors on the distribution of lichen on the east and west sides of gravestones.	Use of quadrats to estimate percentage cover of different lichen species. Measurement of abiotic factors: temperature, light, wind speed. Identifcation of lichen species using a key	**Investigative/Graphical-** Hypotheses Selecting, measuring & recording appropriate data for chosen study and presentation/analysis in school. Consider H&S risks Labelled drawing of lichen species **Mathematical/Statistical –** Opportunity to record quantitative data, to consider accuracy and sample size and draw conclusions. Collect sufficient data to carry out statistical analysis later (Index of Diversity)

Fieldwork Session DD **Ecosystems, Biodiversity, Populations** **Coppiced Ancient Woodland (1.0 – 1.5 hours)** Students will learn about the woodland habitat and the effect of coppicing on biodiversity. Students will investigate species richness, evenness and species diversity in a coppiced and uncoppiced area of woodland. (Suggested Practical OCR)	Grids set up and random sampling techniques used to count numbers or percentage cover of different species in 2 different woodland areas. Measure abiotic factors: temperature, light, wind speed. Identification of woodland species using a key.	**Investigative/Graphical**- Hypotheses Selecting, measuring & recording appropriate data for chosen study and presentation/analysis in school. Consider H&S risks **Mathematical/Statistical –** Opportunity to record quantitative data, to consider accuracy and sample size and draw conclusions. Collect sufficient data to carry out statistical analysis later (Index of Diversity)
Fieldwork Session DE **Ecosystems, Biodiversity, Populations** **Harbour Shoreline (1.0 – 1.5hours)** Students will learn about the biodiversity of the muddy shoreline habitat and about feeding relationships. Students will investigate the relationship between the size of crab and distance from the low tide mark.	Collection and identification of shoreline species. Systematic collection of crabs at intervals up the shoreline. Sensitive measurement of size of crabs.	**Investigative/Graphical**- Hypotheses Selecting, measuring & recording appropriate data for chosen study and presentation/analysis in school or Dell Quay classroom. **Mathematical/Statistical –** Opportunity to record quantitative data, to consider accuracy and sample size and draw conclusions. Collect sufficient data to carry out statistical analysis later (Chi squared test or Spearman's Rank)
Fieldwork Session DF **Ecosystems, Biodiversity, Populations** **Saltmarsh (1.0 -1.5 hours)** Students will study the saltmarsh habitat looking at primary succession, plant adaptations of halophytes and feeding relationships. Students will investigate species richness, evenness and species diversity in two different saltmarsh zones (Suggested Practical OCR)	Grids set up and random sampling techniques used to count numbers of or percentage cover of different species in 2 different saltmarsh zones. Identification of saltmarsh plants using keys.	**Investigative/Graphical**- Hypotheses Selecting, measuring & recording appropriate data for chosen study and presentation/analysis in school. Consider H&S risks **Mathematical/Statistical –** Opportunity to record quantitative data, to consider accuracy and sample size and draw conclusions. Collect sufficient data to carry out statistical analysis later (Index of Diversity)

For more information or to make a booking please contact Chichester Harbour Education Centre
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