

### PROVISIONAL PROGRAMME

#### Aim

To compare the biotic and abiotic factors affecting energy transfer in two microhabitats of a pond.  
To design and carry out an investigation of factors affecting energy transfer in a terrestrial setting.

#### Introduction

- Background to Freshwater Ecosystems
- Food chains and Food Webs
- Sampling methods; random, systematic, stratified
- Ethical and Risk assessment of the fieldwork.

#### *Freshwater study (am)*

##### Meadow Pond

- Random Sampling using Sweep sampling of 2 microhabitats
- Field identification of invertebrates using dichotomous keys
- Measuring abiotic factors
- Construct Pyramids of numbers and biomass

#### *Terrestrial invertebrate study (pm)*

##### Woodland

- Design and carry out experiment to study the energy transfer between trophic levels in a terrestrial ecosystem.

#### Follow up

- Summary, conclusion and limitations of scientific investigation.

### SPECIFICATION LINKS

3.4.5 Energy is transferred through ecosystems and the efficiency of transfer can be measured.

#### Energy transfer:

Photosynthesis is the main route by which energy enters an ecosystem.

Energy is transferred through the trophic levels in food chains and food webs and is dissipated.

Quantitative consideration of the efficiency of energy transfer between trophic levels.

Pyramids of numbers, biomass and energy and their relationship to their corresponding food chains and webs.

#### RECOMMENDED DAY LENGTH 9.30-16.00

**SAFETY** All activities and sites are Risk Assessed.  
Recommended 1 adult per group.

**CLOTHING** Appropriate outdoor clothing. Indoor & outdoor footwear. Students may bring their own rubber gloves for fieldwork.

**VISITING TEACHER ROLE**  
Teachers to support FSC staff by circulating the students, keeping them on task. Teachers are responsible for behaviour.

**RESOURCES** All resources are provided.

**ICT** We have the option of using a digital camera to record techniques.



**Practical Skills Assessment (PSA)**  
Opportunity to assess students during ecology practical activities.

**ASSESSMENT**  
Progress assessed by open ended questioning, peer discussions, presentations and use of knowledge and skills in different situations.

**PRIOR LEARNING**  
Simple definitions and terms

**FUTURE LEARNING**  
Consider effects of human Influences and management on the environment

**HOW SCIENCE WORKS**  
2, 3, 4, 5, 6