

Scheme of Learning: Ecology

Topic Sequence:

1	2	3	4	5	6	7	8	9	10	11
Organisation	Electric Circuits	Chemical Changes	Mains Electricity	Quantitative Chemistry	Using Resources	Electro-Magnetism	Homeostasis & Response	Energy Changes	Ecology	Waves

Topic Overview:

The Sun is a source of energy that passes through ecosystems. Materials including carbon and water are continually recycled by the living world, being released through respiration of animals, plants and decomposing microorganisms and taken up by plants in photosynthesis. All species live in ecosystems composed of complex communities of animals and plants dependent on each other and that are adapted to particular conditions, both abiotic and biotic. These ecosystems provide essential services that support human life and continued development. In order to continue to benefit from these services humans need to engage with the environment in a sustainable way. In this section we will explore how humans are threatening biodiversity as well as the natural systems that support it. We will also consider some actions we need to take to ensure our future health, prosperity and well-being.

Lesson Sequence:

We begin by building on the key stage three knowledge of food chains to describe some key terminology for ecology. We look at the adaptations of organisms to help them complete in their habitats and how energy is transferred through the food chain. The required practical utilises maths skills to sample the population of plants in an ecosystem.

We then look at wider ecological issues such as how water and carbon are cycled through the environment and the consequences of human action in terms of land, air and water pollution. We describe possible solutions to the biodiversity crisis.

In addition, separate Biology students study the role of decay in the environment and the challenges facing our food security and the possible solutions to it.

Sequence of Lessons:

1	Communities, Biotic & Abiotic Factors
2	Adaptations
3	Competition – <i>mid topic assessment</i>
4	Feeding Relationships
5	Trophic Levels – <i>Separate Biology Only</i>
6	Sampling – <i>Required Practical</i>
7	Water & Carbon Cycles
8	Decomposition – <i>Separate Biology Only Required Practical</i>
9	Land & Water Pollution
10	Global Warming & Air Pollution - <i>mid topic assessment</i>
11	Maintaining Biodiversity
12	Food Security – <i>Separate Biology Only</i>
13	Revision
14	Test

Resources:

1	Resources in shared folder
2	n/a
3	Resources in shared folder
4	Resources in shared folder
5	Resources in shared folder
6	Depending on weather either quadrats, 100m measuring tape OR sampling the lawn sheet
7	Resources in shared folder
8	Milk, water bath at 35, universal indicator paper, cling film
9	n/a
10	Resources in shared folder
11	Resources in shared folder
12	Resources in shared folder
13	Resources in shared folder
14	Test in shared folder

Supportive Reading:

Comprehension activity	Maintaining biodiversity
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Assessment:

Knowledge:	Multiple choice and short answer questions
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Application of Knowledge:	End of topic test
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