



## Ecology (Biology)

### Year 4

#### End Points:

- There are seven life processes which living things have in common
- A habitat is the natural environment or home of an animal, plant or other organism
- Living things depend on each other within their habitat
- A producer makes their own food using sunlight, water and nutrients
- A consumer eats other living things to gain their energy
- A decomposer breaks down the remains of dead living things into smaller pieces which leaves nutrients in the soil
- An ecosystem is the interaction of organisms in their environment
- Ecosystems can be delicately balanced so if one organism is added or removed it can have a negative impact on other organisms
- Pollution is any substance that is introduced to an environment that can damage or affect quality of life
- Understand the human impact on their local area

This unit builds on understanding from Taking Care of the Earth in Year 1, from Living Things and their Environments in Year 2, from Cycles in Nature in Year 3 and from Classification of Plants and Animals, the previous unit pupils have studied in Year 4.

Pupils will learn about the seven things that all living things have in common; movement, sensitivity, respiration, nutrition, excretion, respiration and growth. This content is not essential to cover the national curriculum but being introduced to the concepts here will help children to prepare for upper KS2 and beyond.

Pupils will study food chains and will look at what happens when a food chain is disrupted. They will learn that ecosystems are complex webs of life, with many things dependent on one another. They will understand how humans can impact both positively and negatively on ecosystems. In Lesson 4, pupils look at air pollution as an example of how human actions impact the environment. They will learn how air pollution can impact upon ecosystems and how dangerous it can be for many living things.

At the end of this unit, there is a lesson designed to include a local study incorporating a local ecological issue or project such as a nature reserve. This will help pupils to see science in action and will encourage them to reflect on how human actions impact their own local area.

### **Lesson Sequencing:**

In lesson one, children will learn that living things depend on their habitats for survival. They will learn the processes that all living things have in common and how living things depend on each other within their habitat. This knowledge will be built upon in lesson two, where children will look at food chains within habitats. Lesson three will further develop the idea that living things depend on each other by looking at the concept of an ecosystem as the interaction between organisms in an environment. They will learn how removing or adding an organism can drastically affect the ecosystem. Lesson four will look at how air pollution is a human threat that can damage the environment and ecosystems. In lesson five, children will explore the human impact on ecology in their local area, considering both negative and positive impact. In the assessment lesson, children will write about food chains or how humans affect ecosystems.

### **Misconceptions:**

- Fire is alive.
- The death in one part of a food chain has no effect on the rest of the food chain.
- Wild animals always have food available to them.
- All changes to habitats are negative.
- Arrows in a food chain mean 'eats' (rather than 'is eaten by').
- The living thing at the top of the food chain is a predator of all other living things in the food chain.
- Air pollution is always visible.

### **Working Scientifically criteria met in this unit:**

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.