

Introduction

These 2 lessons encourage children to explore how food chains work in waterway environments and what happens when a food chain breaks down.

**QCA Scheme of Work** KS2 Science Unit 4B Habitats.

Learning Objectives

To explore food chains and feeding relationships in waterway environments.  
To identify producers, decomposers and primary and secondary consumers.  
To understand how food webs are built around predators and prey.

**The Curriculum**

**England** – KS2: Sc2 5d, 5e

**Scotland** – Science: Interaction of living things with their environment, level D

**Wales** – KS2 Science: Life processes and living things 4.3, 4.4

Resources

Copies of source sheets A and B. (The cards on the sheets need to be cut out prior to the lesson.)

Key Vocabulary

Producer, consumer, decomposer, herbivore, carnivore, food chain, predator, prey.

Teaching Activities

**Introduction** Explain that the children will be exploring some food chains found in waterway environments. Tell them that no living thing exists by itself and that groups of living things are interdependent with each other. Explain that all food chains begin with a producer like grass and other green plants that make food using energy from the sun. Primary consumers are herbivores and they eat the green plants. Carnivores are secondary consumers who eat primary consumers, for example a fox eats a rabbit that eats green plants. There are also decomposers like fungi and bacteria that break down waste materials like dead plant and animal remains.

Give out the cards. Check that children know whether they are a producer, a decomposer or a primary or secondary consumer.

**Activities** Game 1 - Ask the children to get into groups of producers, decomposers and primary or secondary consumers.

Game 2 - Ask the children to find a partner who they would eat or who would feed on them. They can extend their chain to three or more stages if there are children who have not found a partner e.g. grass - rabbit - fox. When the chains have been formed stop the game and ask each group to call out their food chain.

Game 3 - Challenge the children to form food webs based around the top predators the fox, sparrow hawk, owl and badger. The fox for example may feed on a rabbit, hare and mouse. Each of these animals will bring a chain of producers and consumers to create a food web. When the webs have been formed they can be recorded by each member of the group and used for follow up research.

**Plenary** Ask children to explain the meaning of producer, decomposer, primary and secondary consumer, herbivore and carnivore. Write down some examples of food chains and ask children to identify the producers, consumers, predators and prey.

Continued...

Differentiation

Cross-curricular

Follow-up

Older or more able children might be asked to draw a diagram to illustrate the food chains that make up a food web.

This lesson may be linked with work in Literacy.

Children could explore a habitat found near a waterway using [Habitat Addresses](#).

Introduction

These 2 lessons encourage children to explore how food chains work in waterway environments and what happens when a food chain breaks down.

**QCA Scheme of Work** KS2 Science Unit 4B Habitats

Learning Objectives

To understand the inter-relationships between organisms in an ecosystem.  
To explore what happens to an ecosystem when a food chain breaks down.

**The Curriculum**

**England** – KS2: Sc2 5d, 5e

**Scotland** – Science: Interaction of living things with their environment, level D

**Wales** – KS2 Science: Life processes and living things 4.3, 4.4

Resources

Copies of source sheet C. (The cards on the sheets need to be cut out prior to the lesson.)  
Each child will need to have one each of all four cards.

Key Vocabulary

Water, habitat, organism, ecosystem, supplier, survival, population, oxygenated.

Teaching Activities

**Introduction** Explain to the children that during this activity, they will be thinking about the things that organisms need to be able to survive and how a food chain has to be in balance with the resources of the habitat. When there is a glut of food, populations grow. When there is a shortage of food, populations of animals drop. There are also other influences on the balance of life in a habitat. Pollution, harsh weather and loss of habitat can also damage the balance of life in a habitat and reduce the number of animals and plants that can survive. This relationship between the organisms in a habitat and the habitat is called the ecosystem.

**Activities** Children play a game called 'survival' which explores the balance between the population of fish and food, shelter and clean water [oxygenated] in a waterway habitat. To play 'survival' divide the children into two groups. One group will be the 'fish' and the other group features of the habitat, the 'suppliers'. Each child has the four game cards and at a signal from the teacher the children choose one card and place it on top of the others facing outwards held in both hands.

The 'fish' now move towards the 'suppliers' and look for a child with the same card showing as themselves. They must not change their card after making their initial choice. If they fail to find a match they are out of the game. Tell the children that they must choose a different card and play the game again with the remaining fish until there is a balance between fish and habitat.

**Plenary** When the game is completed discuss what has happened in the ecosystem. You may wish to re-play the game but this time give secret instructions to the 'suppliers' to control the card that they may show. In this way, a visual demonstration can be given to the children showing them the consequences to organisms if part of the ecosystem is damaged.

Continued...

Differentiation

Cross-curricular

Follow-up

Older or more able children might be asked to write an explanation of the consequences to organisms if part of the ecosystem is damaged.

This lesson may be linked with work in Literacy.

Children could explore how animals become adapted to their habitats using [Animal Adaptation](#).

Cut out the cards along the dotted lines.



A woodlouse eats dead wood and other plant remains.

A hedgehog feeds on slugs, small frogs and beetles.

A bee is an insect that gets its energy by feeding on the pollen in flowers.

An oak tree can live for hundreds of years; its seeds are called acorns.

A moth drinks nectar from flowers.

A fern is a plant you find in damp shady places.

Grass is a common plant that can grow almost anywhere.

A centipede is a carnivore and eats other invertebrates.

A song thrush eats worms, snails, beetles, berries and fruit.

A butterfly feeds on flower pollen and lays its eggs on a plant.

A blackbird eats worms, snails, beetles, berries and fruit.

A woodpecker eats insects on the ground or in trees.

A beetle is a useful creature in the garden. It eats other insects.

A stoat gets its energy from eating small mammals and bird's eggs.

A mouse feeds on seeds and small plants.

A beech tree grows for more than a hundred years.

Cut out the cards along the dotted lines.



A mute swan feeds on aquatic plants.	A pike eats other fish and sometimes young waterfowl.
A moorhen feeds on aquatic plants.	A coot feeds on aquatic plants.
A water starwort is an aquatic plant.	Duckweed is a common food of ducks and waterfowl.
A dragonfly feeds on insects.	Mayfly nymphs are eaten by fish.
A white water lily is a common water plant.	A great diving beetle is a ferocious carnivore.
A stickleback eats tadpoles and other water invertebrates.	A water boatman eats other small invertebrates.
A great pond snail feeds on aquatic plants.	A swan mussel feeds on microscopic life.
A heron eats small fish and frogs.	A tadpole eats pond weed.

Each child needs one each of the four cards.



1. Food – insects

2. Food – vegetation

3. Shelter in pond weed

4. Clean water – oxygenated

1. Food – insects

2. Food – vegetation

3. Shelter in pond weed

4. Clean water – oxygenated