



While you were away.

Lesson 1: Predator-Prey Relationships

1. **What is a predator, and what does it eat?**
2. **How does the population of one organism affect others in a food web?**

Lesson 2: Food Chains

1. **What do the arrows in a food chain represent?**
2. **What is the role of a producer in a food chain?**

Lesson 3: Food Webs

1. **How do food webs show interdependence in an ecosystem?**
2. **Why are food webs more complex than food chains?**

Lesson 4: Disruption to Food Webs

1. **What are biotic and abiotic factors that can disrupt food webs?**
2. **How can a change in one population affect the rest of the food web?**

Lesson 5: Bioaccumulation

1. **How does bioaccumulation occur through a food chain?**
2. **What happened in the Minamata case study in Japan related to bioaccumulation?**

Lesson 6: Case Study

1. **What was the source of the chemical pollution in the Minamata case study?**
2. **How did the chemical pollution affect people living near the water supply in Minamata?**

SUBJECT: Science

UNIT: Y7 Interdependence



Key Vocabulary

Food web

A diagram that shows how food chains in an ecosystem are linked

Food chain

Part of a food web, starting with a producer ending with an apex predator

Ecosystem

The living things in a given area and their non-living environment

Environment

The surrounding air, water, and soil where an organism lives

Population

Group of the same species living in an area

Producer

Green plant or algae that makes its own food using sunlight

Consumer

Animal that eats other animals or plants

Predator

Animal that eats other animals

Bioaccumulation

The process of the build up of chemicals in a food chain

Abiotic factors

Abiotic factors are factors that are non-living that can affect food chains and webs.

This includes air temperature and humidity, soil pH, carbon dioxide concentration, pollution levels, and light intensity.

Interdependence

All organisms that live in the same habitat depend on the other organisms and need them to survive.

Producers

Producers are green plants or algae that produce their own food through the process of photosynthesis. They are at the start of every food chain.

Food chains

The following is an example of a food chain:

Grass → Rabbit → Fox

The arrows show the direction of energy transfer in the food chain. As the rabbit eats the grass energy is transferred to the rabbit. Food chains only show part of a larger food web in an ecosystem

Food webs

Food webs are a way of merging food chains to show the full interdependence in an ecosystem.

For example, the previous food chain shows grass, a rabbit, and a fox. Foxes may eat other animals than rabbits so another arrow must go from the other animal to the fox. Eventually this makes a larger interconnected web of organisms including several producers and consumers.

Disruption to food webs

Due to the interdependence of organisms in food webs when the population of one organism is affected it will, in turn, affect other organisms. Examples of factors that affect an organism can be biotic or abiotic. When one population decreases or increases other organisms will have population changes as well. These population changes will eventually even out.

Biotic factors

Biotic factors are factors that are living that can affect food chains and webs. This includes new predators being introduced to the area, and new diseases caused by changes in pathogens.

Ambitious Vocabulary

Bioaccumulation

Interdependence

Bioaccumulation

Pesticides, herbicides, and fungicides can be used to treat crops by farmers.

These are to stop pests and diseases from ruining valuable food for humans and livestock. Some factories and businesses also release chemicals into rivers and lakes.

When these pesticides are sprayed onto crops or put into rivers or the ocean they absorb into the soil.

This causes them to be taken in by green plants.

There are only small amounts of the toxic chemicals in each green plant.

These green plants are then eaten by the primary consumer.

The primary consumer eats several of the green plants and therefore the chemical becomes more concentrated in their body. By the time the apex predator is eating their prey the chemical is extremely concentrated in their body. This will negatively affect the predator and can cause death.

There is a case study about a town called Minamata in Japan where a company released a chemical into the water supply. This chemical was taken in by algae and affected the fish that ate the algae. People who lived nearby fished in the waters and died as a result of eating the polluted and toxic food.