

## Ecosystems

#### **Food Chains**

Food chains show the feeding relationships in a habitat. When an organism eats another organism, the energy is transferred along the food chain. Therefore the arrows represent an energy transfer.



Food chains always start with a producer. This is a green plant that does photosynthesis

Energy is transferred along a food chain as one organism eats another.

#### **Biotic Factors**

These are living factors that affect an organism in its habitat. For example:

- New predator
- Diseases
- Hunters
- Availability of food

#### **Abiotic Factors**

These are non-living factors that affect an organism in its habitat. For example:

- Temperature
- Water availability
- Soil pH
- $O_2$  levels
- CO<sub>2</sub> levels

#### Interdependence

Ecosystems are full of interactions between biological communities of organisms in their habitats. All the food chains in an ecosystem can be combined to make a food web. Healthy ecosystems rely on stable populations of each organism in the food web.

For example, if there was a drought which led to all the grass dying, this would mean the rabbit, insect and slug populations would decrease. This would have an effect on all the other organisms in the food web.

Another example: if a new predator killed more voles, the hawk population would decrease due to less food being available.



### **Bioaccumulation**

This is when harmful chemicals are passed along a food chain. For example: Pesticides Insecticides



Traces of mercury

Plant plankton

#### **Protecting Pollinators**

All food chains start with producers e.g. green plants like grass. Producers rely on insects like bees and flies to help them reproduce by passing on pollen from plant to plant.

Bee populations are severely decreasing due to climate change.

This is a danger because we need bees to pollinate plants. One third of all food in a supermarket rely on bee pollination!





# **CORE** Questions

The following are core questions for this topic. Cover the answer section with a sheet of paper and try and quiz yourself. Only try learning 5 at a time, once you know them move on.

1	Give an example of an organism which is a producer.	(Any plant: e.g. grass)
2	True or False. Primary consumers are predators.	False. They are prey.
3	What do the arrows represent in a food chain?	Energy transferred
4	True or False. Energy is gained from the surroundings through a food chain.	False. Energy is lost to the surroundings.
5	Put the following organisms into a foodchain. Rabbit, grass, fox.	Grass $\rightarrow$ Rabbit $\rightarrow$ Fox
6	True or False. An ecosystem is a habitat with biological communites	True.
7	What would happen to the population of the foxes in the following food chain if the grass had a disease. Grass > Rabbit > Fox	The fox population would decrease because the rabbits would have less to eat so they will die.
8	A food web starts with grass. Describe the impact on the food web if all the grass was removed and replaced with artificial grass.	All the organisms in the ecosystem will have a decrease in population (accept die)
9	What are abiotic factors?	Non-living factors which affect ecosystems
10	What are biotic factors?	Living factors which affect ecosystems
11	Are the following factors abiotic or biotic: light, temperature, soil pH	Abiotic
12	Are the following factors abiotic or biotic: new diseases, new predators	Biotic
13	Give an example of bioaccumulation in a food chain.	Pesticides/Insecticides/microplastics/ metals building up in animals
14	True or False. In bioaccumulation, the top predator has less chemicals in its system than the producer.	False. The chemicals are passed along building up.
15	Why are certain producers reliant on bees?	Bees help pollinate so the plants can reproduce.

**X**