Your notes

KS3 Science: revision notes

B1.3 Interdependence

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Ecosystems

- A **habitat** is where an organism lives. A **population** is all the organisms of one species in a **habitat**. A community is all the populations in a habitat.
- An **ecosystem** is a **community** of organisms together with the non-living parts of their environment.
- Organisms depend on each other for food, shelter, pollination and seed dispersal. This is called **interdependence**.

Food chains and food webs

- Arrows in a food chain show the direction energy is transferred: grass → rabbit → fox.
- **Producers** (plants and algae) make their own food by photosynthesis. Primary **consumers** (herbivores) eat **producers**; secondary consumers eat primary consumers.
- **Predators** hunt and eat **prey**. A food web shows many linked food chains.
- A change in one **population** affects others: if rabbits die out, foxes have less food, and the amount of grass increases.
- Each feeding level is a **trophic level**. Energy is lost at each level (through movement, heat from respiration and waste), so food chains rarely have more than five links.

Biotic and abiotic factors

- **Abiotic factors** are non-living: light, temperature, water, soil pH and minerals, wind.
- **Biotic factors** are living: food supply, **predators**, disease and **competition**.
- Animals compete for food, water, space (territory) and mates. Plants compete for light, water, space and mineral ions from the soil.

Sampling

- A **quadrat** is a square frame placed on the ground to count the plants inside it.
- Place **quadrats** randomly, and use lots of them, so the sample represents the whole area and isn't biased.
- Estimated **population** = mean number per **quadrat** × (total area ÷ area of one **quadrat**).
- A transect is a line along which **quadrats** are placed, to see how plants change across an area, such as from shade into sunlight.
- Pitfall traps, sweep nets and pooters are used to collect small animals.

Key terms

Habitat	The place where an organism lives.
Population	All the organisms of one species in a habitat.
Community	All the populations of different species in a habitat.
Ecosystem	A community and the non-living parts of its environment.
Interdependence	The way organisms in an ecosystem depend on each other.
Producer	An organism that makes its own food by photosynthesis.
Consumer	An organism that eats other organisms.
Predator	An animal that hunts and eats other animals.
Prey	An animal that is hunted and eaten.
Trophic level	A feeding level in a food chain.
Biotic factor	A living factor that affects an ecosystem, such as disease.
Abiotic factor	A non-living factor that affects an ecosystem, such as temperature.
Quadrat	A square frame used to sample plants.
Competition	When organisms struggle against each other for the same resources.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. What does an arrow in a food chain show?
2. What is a producer?
3. In grass → rabbit → fox, what is the rabbit?
4. What is an abiotic factor?
5. Which of these is a biotic factor?
6. What do plants compete for?

Your notes

7. What is a quadrat used for?
8. Why should quadrats be placed randomly?

Answers

1. The direction energy is transferred
2. An organism that makes its own food by photosynthesis
3. A primary consumer
4. A non-living factor, such as temperature
5. Disease
6. Light, water, space and mineral ions
7. Sampling plants in an area
8. So the sample is representative and not biased

What to do next

Practise 14 questions on this topic

Try 4 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.

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