

Communities and interdependence

**Put in order from smallest to largest:
community, organism, ecosystem,
population.**

Communities and interdependence

What is a population?

Communities and interdependence

What is a community?

Communities and interdependence

What is an ecosystem?

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**What is an abiotic factor? Give
examples.**

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What is a biotic factor? Give examples.

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What is competition?

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**How do predator and prey numbers
change together?**

All the organisms of one species living in the same area.

Organism, population, community, ecosystem.

A community together with the non-living (abiotic) parts of its environment, interacting with each other.

All the populations of different species living in the same area.

A living factor that affects a community, for example competition or predation.

A non-living factor that affects a community, for example temperature, light, water or pollutants.

More prey means more predators. More predators then reduce the prey, so predator numbers fall too. The cycle repeats.

Organisms needing the same limited resources, such as food, water, light or space.

Communities and interdependence

How can pollutants affect a community?

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What is interdependence?

Communities and interdependence

What is parasitism?

Communities and interdependence

What is mutualism? Give an example.

Fieldwork and sampling

What is a quadrat?

Fieldwork and sampling

How do you place quadrats randomly?

Fieldwork and sampling

What is a belt transect?

Fieldwork and sampling

Why use a belt transect?

Species in a community depend on each other for food, shelter, pollination and seed dispersal, so a change in one affects others.

They can kill sensitive species, so the number of species and organisms falls.

Both organisms benefit. For example, nitrogen-fixing bacteria in the root nodules of legumes.

A parasite lives on or in a host and takes food from it. The parasite benefits and the host is harmed.

Lay two tape measures at right angles and use random numbers as coordinates for each quadrat.

A square frame used to sample the organisms in a small, known area.

To see how the distribution of organisms changes along an environmental gradient, such as light or moisture.

A line across a habitat with quadrats placed at regular intervals along it.

Fieldwork and sampling Equation for estimating a population using quadrats.	Fieldwork and sampling What is percentage cover?
Fieldwork and sampling Why take many quadrat samples?	Human impacts, biodiversity and food security Give a positive and a negative effect of fish farming.
Human impacts, biodiversity and food security What is a non-indigenous species?	Human impacts, biodiversity and food security How can a non-indigenous species reduce biodiversity?
Human impacts, biodiversity and food security What is eutrophication?	Human impacts, biodiversity and food security Give the order of events in eutrophication.

The percentage of a quadrat covered by a species. It is used when individuals are hard to count.

Mean number per quadrat $\times$ (total area $\div$ area of one quadrat).

Positive: reduces overfishing. Negative: waste can cause eutrophication, or disease can spread to wild fish.

It gives a more representative, reliable sample and reduces the effect of anomalies.

It can out-compete, eat or infect native species, so their numbers fall.

A species that has been introduced to an area where it does not naturally live.

Nitrates in, algal bloom, light blocked, plants die, bacteria increase and use up oxygen, fish die.

Too many nutrients, such as nitrates, entering water, causing algal growth and then lack of oxygen.

Human impacts, biodiversity and food security

Give a benefit of maintaining biodiversity.

Human impacts, biodiversity and food security

How can animal species be conserved?

Human impacts, biodiversity and food security

What is reforestation and how does it help?

Material cycles

Why must materials be cycled in an ecosystem?

Material cycles

What are the abiotic and biotic components of an ecosystem?

Material cycles

Which process removes carbon dioxide from the air?

Material cycles

Which processes return carbon dioxide to the air?

Material cycles

What do decomposers do?

Protecting habitats, captive breeding programmes and laws against hunting.

More stable ecosystems, and a source of food, materials and medicines.

The supply is limited, so materials are returned to the environment for new organisms to use.

Replanting trees. It restores habitats, absorbs carbon dioxide and reduces soil erosion.

Photosynthesis.

Abiotic: air, water, soil. Biotic: the living organisms.

Microorganisms (bacteria and fungi) that break down dead material and waste and release carbon dioxide by respiration.

Respiration, decay by decomposers, and combustion.

Material cycles

Name the main processes in the water cycle.

Material cycles

What is potable water?

Material cycles

What is desalination and what is its disadvantage?

Material cycles

Why do plants need nitrates?

Material cycles

What do nitrogen-fixing bacteria do?

Material cycles

What do nitrifying bacteria do?

Material cycles

What do denitrifying bacteria do?

Material cycles

How do fertilisers and crop rotation help plants get nitrates?

Water that is safe to drink.

Evaporation, transpiration, condensation and precipitation.

To make amino acids and proteins.

Removing salt from sea water to make potable water. It needs a lot of energy so is expensive.

Convert ammonium ions in the soil into nitrates.

Convert nitrogen gas from the air into nitrogen compounds, which become nitrates. Some live in legume root nodules.

Fertilisers add nitrates. In crop rotation, a legume crop adds nitrates through nitrogen-fixing bacteria.

Convert nitrates in the soil into nitrogen gas, reducing soil fertility.