

The organism in the environment What is a population?	The organism in the environment What is a community?
The organism in the environment What is a habitat?	The organism in the environment What is an ecosystem?
The organism in the environment What is a quadrat used for?	The organism in the environment Why are quadrats placed randomly?
The organism in the environment How do you estimate a population from quadrat counts?	The organism in the environment What is percentage cover?

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

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

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

The place where an organism lives.

To avoid bias, so the sample is representative.

Sampling the organisms in a small, known area, so the population size of a larger area can be estimated.

The percentage of the quadrat covered by a species. Used where individuals are hard to count, such as grass.

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

The organism in the environment **Biology only**

What is biodiversity?

The organism in the environment **Biology only**

Does a field of one million plants of a single species have high biodiversity?

The organism in the environment **Biology only**

When is a transect used instead of random quadrats?

The organism in the environment **Biology only**

How is biodiversity measured with quadrats?

The organism in the environment

What is an abiotic factor? Give two examples.

The organism in the environment

What is a biotic factor? Give two examples.

The organism in the environment

What do plants compete for?

The organism in the environment

On a predator-prey graph, which peak comes first?

No. Biodiversity is the number of different species, not the number of individuals.

The variety of different species in an ecosystem, habitat or on Earth.

Count the number of different species in each of many random quadrats and calculate the mean number of species.

To show how the distribution of a species changes along a gradient, such as from shade into light.

A living factor, for example competition or predation.

A non-living factor, for example temperature, light or water.

The prey peak. The predator peak comes after it, because predator numbers rise only once there is more prey to eat.

Light, water, mineral ions and space.

Feeding relationships

What is a trophic level?

Feeding relationships

What are producers?

Feeding relationships

Name the trophic levels after producers.

Feeding relationships

What do decomposers do?

Feeding relationships

Which way do the arrows in a food chain point?

Feeding relationships

What is a food web?

Feeding relationships

What does a pyramid of biomass show?

Feeding relationships

Why can a pyramid of number be inverted?

Organisms, usually plants and algae, that make glucose by photosynthesis. They are the first trophic level.

The position of an organism in a food chain. Producers are level 1.

Break down dead plants, animals and waste by secreting enzymes. Small soluble molecules then diffuse in.

Primary consumers, secondary consumers and tertiary consumers.

A diagram of all the linked food chains in a habitat.

From the food to the organism that eats it.

It counts organisms but ignores size, so one large producer such as a tree can support many small consumers.

The mass of living material at each trophic level. It almost always narrows at each higher level.

Feeding relationships

What does a pyramid of energy transfer show?

Feeding relationships

What passes along a food chain?

Feeding relationships

What percentage of energy is transferred to the next trophic level?

Feeding relationships

Give three reasons energy is lost between trophic levels.

Feeding relationships

Why are food chains limited in length?

Feeding relationships

How do you calculate percentage of energy transferred?

Cycles within ecosystems

Which process removes carbon dioxide from the air in the carbon cycle?

Cycles within ecosystems

Name three ways carbon dioxide is returned to the air.

Energy and substances, such as carbon compounds, when each organism is eaten.

The energy transferred to each trophic level in a given time. It is always pyramid-shaped.

Parts not eaten or not digested (faeces), heat from respiration and movement, and waste such as urine.

About 10%.

Energy transferred to the next level $\div$ energy available at the previous level $\times 100$.

Too little energy is left after each transfer to support more trophic levels.

Respiration, decomposition and combustion.

Photosynthesis, by plants and algae.

Cycles within ecosystems

Why are decomposers important in the carbon cycle?

Cycles within ecosystems

What is combustion?

Cycles within ecosystems **Biology only**

What do nitrogen-fixing bacteria do?

Cycles within ecosystems **Biology only**

What do nitrifying bacteria do?

Cycles within ecosystems **Biology only**

What do denitrifying bacteria do?

Cycles within ecosystems **Biology only**

What is the role of decomposers in the nitrogen cycle?

Human influences on the environment

How does sulfur dioxide cause acid rain?

Human influences on the environment

Give two effects of acid rain.

Burning of fuels such as wood, coal, oil and gas, which releases carbon dioxide.

They break down dead material and waste and release carbon dioxide by respiration.

Convert ammonium ions in the soil into nitrates.

Convert nitrogen gas from the air into nitrogen compounds, which become nitrates.

Break down proteins and urea in dead material and waste, releasing ammonia (ammonium ions).

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

It lowers the pH of lakes, killing fish, and damages tree leaves and washes minerals from the soil.

It dissolves in rain water to form an acidic solution.

Human influences on the environment

How is carbon monoxide formed?

Human influences on the environment

Why is carbon monoxide poisonous?

Human influences on the environment

Name the five greenhouse gases in the spec.

Human influences on the environment

Give a human source of methane.

Human influences on the environment

Give a human source of carbon dioxide.

Human influences on the environment

Give a human source of nitrous oxide and of CFCs.

Human influences on the environment

What is the enhanced greenhouse effect?

Human influences on the environment

Give two possible consequences of global warming.

It combines with haemoglobin, so the blood carries less oxygen to the tissues.

By incomplete combustion of carbon-containing fuels.

Cattle, rice paddy fields or landfill sites.

Water vapour, carbon dioxide, nitrous oxide, methane and CFCs.

Nitrous oxide: fertilisers. CFCs: refrigerators and aerosols.

Burning fossil fuels, or burning forests during deforestation.

Melting ice and rising sea levels; changes in weather patterns and species distribution.

Extra warming because human activities increase greenhouse gases, which absorb more infrared radiation and send it back to Earth.

Human influences on the environment

Why does sewage pollution kill fish?

Human influences on the environment

Why is sewage in water a risk to human health?

Human influences on the environment

What is eutrophication?

Human influences on the environment

What is leaching?

Human influences on the environment

What causes the death of fish in eutrophication?

Human influences on the environment **Biology only**

Why does deforestation cause soil erosion?

Human influences on the environment **Biology only**

How does deforestation affect evapotranspiration?

Human influences on the environment **Biology only**

How does deforestation affect the carbon cycle and atmospheric gases?

It contains pathogens that cause diseases such as cholera and typhoid.

Decomposers feeding on the sewage use up the oxygen in the water.

Dissolved minerals being washed out of the soil by rain.

Over-enrichment of water with minerals, such as nitrates leached from fertiliser, leading to loss of oxygen and death of aquatic life.

Tree roots no longer hold the soil together, so it is washed or blown away.

Decomposers feeding on dead plants and algae use up the oxygen in the water.

Less photosynthesis and more burning and decay raise carbon dioxide and lower oxygen.

Less transpiration from leaves, so less water vapour in the air, less cloud and lower rainfall.

Why does leaching follow deforestation?

No tree roots take up the minerals, so rain washes them out of the soil, making it less fertile.