

Genes

1. Variation

CONCEPT 2

LESSON GUIDE

BIODIVERSITY

PRECISE LEARNING POINTS

KNOW

I know what biodiversity is.

APPLY

I can apply my knowledge to explain the importance of biodiversity.

EXTEND

I can extend my knowledge to explain the consequences of a lack of biodiversity.

NOTES

Biodiversity

'Bio' means 'living', 'diverse' means to show variety. Therefore, biodiversity is the variety of living things within an ecosystem (a habitat and all the living things in it).

Biodiversity can be measured in two ways:

1. The number of different species within an ecosystem. An ecosystem of high biodiversity would have a large number of different species.
2. The differences between individuals of the same species. An ecosystem of high biodiversity would have a wide range of differences within one species.

The importance of biodiversity

Humans rely on a whole range of plants and animals. For example, we rely on plants to remove carbon dioxide and release oxygen into the atmosphere. We rely on crops for food and certain plants and microorganisms for medicines. We rely on animals such as cows, sheep and fish for food and we rely on trees for building materials. A reduction in biodiversity would make it less likely that we had all of the resources that we currently depend on.

Consequences of a lack of biodiversity

Organisms in an ecosystem rely on each other. All animals depend on producers at the start of a food chain, either directly or indirectly. Interactions within the environment are in a delicate balance. When that balance is upset, for example, by decreasing the number of species, it can have a knock-on effect on other living things.

In ecosystems where the number of different species is high, food webs will be complex with organisms having a choice of food. In ecosystems of lower biodiversity, food webs will be simpler. If a change occurs to remove one species from a simple food web, this could have a devastating effect on other organisms.

In an ever-changing environment, it is important that species can adapt to changes. As the theory of natural selection shows, variation within a species means that some organisms are likely to be well adapted to survive a change, even if all organisms are not. Where biodiversity is low within a species, a change in the environment could result in that species becoming endangered. This means that the numbers of the species are so low that it could become extinct.