AQA Biology A-level

4.6 - Biodiversity within a community

4.7 Investigating diversity

Flashcards

What is biodiversity?

What is biodiversity?

The variety of living organisms. It can be measured in terms of species diversity (number of species in a community), ecosystem diversity (range of different habitats) and genetic diversity.

Define community.

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All the different species that live in one area and interact with each other.

How do you calculate index of diversity (*d*)?

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$$d = \frac{N(N-1)}{\Sigma n(n-1)}$$

N= total number of organisms of all species.

n= total number of organisms of each species.

Σ = sum of

What impact does agriculture (farming) have on species diversity?

What impact does farming have on species diversity?

decreases species richness

- farmland is typically used for only 1 species (monoculture)
- use of pesticides/ herbicides

What impact does agriculture (farming) have on genetic diversity?

What impact does farming have on genetic diversity?

decreases

- farmers select for certain characteristics, which reduces number of different alleles in the population

How can biodiversity be increased in areas of agriculture?

How can biodiversity be increased in areas of agriculture?

1. Use hedgerows instead of fences.
2. Grow different crops in the same area, or rotate crops around after a season.
3. Limit use of pesticides and herbicides.

Name four ways we can measure genetic diversity.

Name four ways we can compare genetic diversity between organisms.

1. Frequency of observable characteristics.
2. Base sequence of DNA.
3. Base sequence of mRNA.
4. Amino acid sequence.

What is meant by gene technology?

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Sampling DNA or mRNA in order to read and compare the base sequence of organisms. Alternatively the amino acid sequence can be studied as this will also provide information on the organism's mRNA and DNA sequences.

Why do scientists prefer to use gene technology instead of observation?

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Simply inferring DNA differences by observing an organism's characteristics is not reliable; the characteristics could be coded for by more than one gene, or could be influenced by the environment.

What is meant by interspecific and intraspecific variation?

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Interspecific= differences between individuals of different species.

Intraspecific= differences between individuals of the same species.

What is sampling?

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Selecting a group of individuals to measure that will represent the whole target population.

How can a random sample be achieved?

How can a random sample be achieved?

Create a grid for your sample area, and then randomly generate coordinates where a quadrat or transect can be placed. Repeat until required sample size is reached.