AQA Biology A-level

7.2 - Populations

Flashcards

Define species.

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A group of organisms that can interbreed to produce fertile offspring.

Define population.

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All the organisms of a particular species that live in the same place.

Define gene pool.

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The range of different alleles existing for a particular locus within a population.

Define allele frequency.

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The proportion of a certain allele within a gene pool, expressed as a decimal or percentage.

What is the Hardy-Weinberg principle?

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Allows us to estimate the frequency of alleles in a population, as well as if allele frequency is changing over time.

Give the assumptions made by the Hardy-Weinberg principle.

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- No mutations occur to create new alleles.
- No migration in or out of the population.
- No selection, so alleles are all equally passed on to the next generation.
- Random mating.
- Large population.

Explain the Hardy-Weinberg equation for calculating allele frequency.

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The frequencies of each allele for a characteristic must add up to 1.0. The equation is therefore; **p + q = 1**

Where p= frequency of the dominant allele, and q= frequency of the recessive allele.

Explain the Hardy-Weinberg equation for calculating genotype frequency.

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The frequencies of each genotype for a characteristics must add up to 1.0. The equation is therefore; $\mathbf{p^2 + 2pq + q^2 = 1}$

Where p^2= frequency of homozygous dominant, 2pq= frequency of heterozygous, and q^2= frequency of homozygous recessive.