

GENETICS SUMMARY NOTES

Genotype = The genetic constitution of an organism that describes all the alleles that an organism contains

Phenotype = An observable characteristic of an organism resulting from the genotype and the environmental conditions.

HARDY WEINBERG PRINCIPLES:

- No mutations arise
- The population is isolate (no immigration or emigration)
- There is no selective breeding
- The population is large
- Mating within the population is random

REPRODUCTIVE SUCCESS AND ALLELE FREQUENCY

1. All organisms produce more offspring than can be supported by the supply of food, light, minerals etc
2. Despite too many offspring, populations stay the same
3. This means there is competition between members of the same species to survive
4. There will be a gene pool within any population with a wide range of alleles
5. Some individuals will contain certain alleles that allow them to be better able to survive
6. They are therefore more likely to produce offspring
7. The alleles that give the best competitive advantage are most likely to be passed on
8. Over years the number of individuals with the advantageous alleles will increase

SPECIATION = The evolution of a new species from an existing species

Process;

- Two populations of a species is isolated
- They will be exposed to different environmental factors
- Selection will affect them differently so type and frequency of alleles will change
- Gene pools will become very different