

AS90459 Version 2
Describe genetic variation and change
Level 2 Credits 3

This achievement standard involves describing biological concepts and processes that relate to genetic variation and change.

| Achievement | Achievement with Merit | Achievement with Excellence |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Describe biological concepts and processes that relate to genetic variation and change. | Explain biological concepts and processes that relate to genetic variation and change. | Discuss biological concepts and processes that relate to genetic variation and change. |

Biological concepts and processes relating to *genetic variation* will be selected from:

- Genetic biodiversity - allele frequencies, gene pools
- Mutations as a source of variation
- Independent assortment, segregation, and recombination during meiosis
- Dihybrid inheritance.

Biological concepts and processes relating to *genetic change*, ie where the gene pool is affected, will be selected from:

- Natural selection
- Migration
- Mutation
- Genetic drift
- Founder effect
- Bottleneck effect.

Terms:

- *Describe* requires the student to define, give characteristics of, or an account of.
- *Explain* requires the student to provide a reason as to how or why something occurs.
- *Discuss* requires the student to show understanding by linking biological ideas. It may involve justifying, relating, evaluating, comparing and contrasting, or analysing.

Key words: These are the words that you are expected to understand when used in questions and be able to use in your answers.

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|--------------------|-------------------|------------------------|
| Allele | Gene | Genotype |
| Meiosis | Mutation | Phenotype |
| Variation | Adaptation | Allele frequency |
| Bottle neck effect | Evolution | Directional selection |
| Founder effect | Gene pool | Disruptive selection |
| Gene flow | Genetic drift | Gene frequency |
| Immigration | Mate selection | Genetic equilibrium |
| Population | Natural selection | Independent assortment |
| Recombination | Speciation | Selective pressure |
| Species | Adenine | Stabilising selection |
| Cytosine | DNA | Dominant |
| Double helix | Gene | Heterozygous |
| Mitosis | Monohybrid | Phenotype |
| Recessive | Test cross | Sex chromosome |
| Thymine | Autosome | Centromere |
| Chiasma | Chromatid | Dihybrid |
| Diploid | Gametic | Haploid |
| Homologous pair | Locus | Nucleotide |
| Recombination | Semi-conservative | Somatic |