

Achievement Standard

Subject Reference	Biology 1.3		
Title	Describe the transfer of genetic information		
Level	1	Credits	3
		Assessment	External
Subfield	Science		
Domain	Biology		
Status	Registered	Status date	5 November 2007
Planned review date	28 February 2009	Date version published	5 November 2007

This achievement standard involves the description of the transfer of genetic information.

Note: Students cannot use credit for both this achievement standard and AS90188, Science 1.3, towards a national qualification including a National Certificate of Educational Achievement.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Describe biological ideas relating to transfer of genetic information. 	<ul style="list-style-type: none"> Explain biological ideas relating to transfer of genetic information. 	<ul style="list-style-type: none"> Discuss biological ideas relating to transfer of genetic information.

Explanatory Notes

- This achievement standard is derived from *Science in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1993, p. 64; *Biology in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1994, p. 14; and *Pūtaiao i roto i te Marautanga o Aotearoa*, Learning Media, Ministry of Education, 1996, p. 28.
- Biological ideas* relating to the transfer of genetic information will be selected from:
 - roles of, and relationships between, chromosomes, genes, alleles and DNA
 - structure and replication of DNA and its role in the transfer of genetic information. The structure is limited to double helix, molecular groups (sugar, base, phosphate), base pairing
 - cell division through mitosis and meiosis. Biological ideas relating to mitosis and meiosis are limited to purpose, where they occur, sequence of events (the names of stages are not required), reasons for maintenance or change of chromosome number, significance of the number of cells produced

- solution of genetic problems limited to sex determination, simple monohybrid inheritance patterns for alleles showing complete dominance
 - applications of genetics, eg selective breeding, breeding techniques, genetic modification, cloning.
- 3 The student will be expected to be familiar with the following terms: variation, gamete, zygote, fertilisation, chromosome, karyotype, gene, allele, dominant, recessive, homozygous, heterozygous, pure breeding, genotype, phenotype, trait, characteristic, phenotype ratio, Punnett square, pedigree chart and semi-conservative.
- 4 Terms:
- *Describe* requires the student to define, use annotated diagrams, 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 students in elaborating, applying, justifying, relating, evaluating, comparing and contrasting, and analysing.
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Quality Assurance

- 1 Providers and Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against achievement standards.
- 2 Accredited providers and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Accreditation and Moderation Action Plan (AMAP) reference

0226