

Achievement Standard

Subject Reference	Biology 3.7		
Title	Demonstrate understanding of human manipulations of genetic transfer and its biological implications		
Level	3	Credits	3
		Assessment	Internal
Subfield	Science		
Domain	Biology		
Status	Registered	Status date	4 December 2012
Planned review date	31 December 2020	Date version published	17 November 2016

This achievement standard involves demonstrating understanding of human manipulations of genetic transfer and its biological implications.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of human manipulations of genetic transfer and its biological implications. 	<ul style="list-style-type: none"> Demonstrate in-depth understanding of human manipulations of genetic transfer and its biological implications. 	<ul style="list-style-type: none"> Demonstrate comprehensive understanding of human manipulations of genetic transfer and its biological implications.

Explanatory Notes

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 8 within the Science learning area. It is aligned with the following achievement objectives in the Living World strand Life processes, ecology, and evolution:
 - Understand how humans manipulate the transfer of genetic information from one generation to the next and make informed judgements about the social, ethical, and biological implications relating to this manipulation
 - Explore the evolutionary processes that have resulted in the diversity of life on Earth and appreciate the place and impact of humans within these processes.

It is also related to the material in the *Teaching and Learning Guide for Biology*, Ministry of Education, 2010, at <http://seniorsecondary.tki.org.nz>.

This standard is also derived from *Te Marautanga o Aotearoa*. For details of *Te Marautanga o Aotearoa* achievement objectives to which this standard relates, see the [Papa Whakaako](#) for the relevant learning area.

- 2 *Demonstrate understanding* involves using biological ideas to describe human manipulations of genetic transfer and its biological implications.

Demonstrate in-depth understanding involves using biological ideas to explain how humans manipulate genetic transfer and the biological implications of these manipulations.

Demonstrate comprehensive understanding involves linking biological ideas about human manipulations of genetic transfer and its biological implications. The linking of ideas may involve justifying, relating, evaluating, comparing and contrasting, and analysing.

- 3 *Human manipulations of genetic transfer* may involve:
- selective breeding (could include embryo selection, animal breeding, plant breeding, development of new crops)
 - whole organism cloning
 - transgenesis
 - investigation and modification of the expression of existing genes.

- 4 *Biological implications* may involve the impact on:
- ecosystems
 - genetic biodiversity
 - health or survival of individuals
 - survival of populations
 - evolution of populations.

- 5 Conditions of Assessment related to this achievement standard can be found at www.tki.org.nz/e/community/ncea/conditions-assessment.php.

Replacement Information

This achievement standard replaced AS90718.

Quality Assurance

- 1 Providers and Industry Training Organisations must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Organisations with consent to assess and Industry Training Organisations assessing against achievement standards must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference

0233