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	Approved	**Status date**		September 2024	
Planned review date	December 2028	**Date version published**		December 2024	

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
• Demonstrate understanding of human manipulations of genetic transfer and its biological implications.	• Demonstrate in-depth understanding of human manipulations of genetic transfer and its biological implications.	• Demonstrate comprehensive understanding of human manipulations of genetic transfer and its biological implications.

Explanatory Notes

1 This achievement standard is derived from Level 8 of the Science learning area in *The New Zealand Curriculum,* Learning Media, Ministry of Education, 2007.

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 animal 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 Schools and institutions must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.

2 Schools and institutions with consent to assess must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference 0233
