Achievement Standard

Subject Reference	Generic Technology 2.7	
Title	Demonstrate understanding of redundancy and reliability in technological systems	

Level   2   **Credits**   4   **Assessment**   External

Subfield   Technology

Domain   Generic Technology

Status   Registered   **Status date**   17 November 2011

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This achievement standard involves demonstrating understanding of redundancy and reliability in technological systems.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Demonstrate understanding of redundancy and reliability in technological systems.	• Demonstrate in-depth understanding of redundancy and reliability in technological systems.	• Demonstrate comprehensive understanding of redundancy and reliability in technological systems.

Explanatory Notes

1   This achievement standard is derived from the Level 7 achievement objectives from the Technology learning area in *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, and is related to the material in the *Teaching and Learning Guide for Technology*, Ministry of Education, 2010 at http://seniorsecondary.tki.org.nz.

Appropriate reference information is available in *Safety and Technology Education: A Guidance Manual for New Zealand Schools,* Learning Media, Ministry of Education, 1998; and the Health and Safety in Employment Act 1992, and in the *Technology Curriculum Support*, October 2007 that can be found at http://www.techlink.org.nz/curriculum-support/papers/knowledge/tech-systems/index.htm.

Further information can be found at http://www.techlink.org.nz.

2   *Demonstrate understanding of redundancy and reliability in technological systems* involves:
   - explaining the importance of redundancy in the development of a technological system
   - explaining the importance of reliability in the development of a technological system
   - describing how redundancy was applied and reliability was addressed in a technological system.

   Demonstrate in-depth understanding of redundancy and reliability in technological systems involves:
   - explaining why decisions regarding redundancy and reliability were made in the development of a technological system.

   Demonstrate comprehensive understanding of redundancy and reliability in technological systems involves:
   - discussing how redundancy and reliability implications influenced design and maintenance decision making in the development of a system.

3   *Redundancy* in technological systems refers to the inclusion of additional components and/or subsystems to duplicate a function/s. Duplication provides 'back-up' or allows for increased 'fail-safe' tolerance.

4   *Reliability* in technological systems refers to a system's ability to perform consistently and maintain its expected functions when operated within stated conditions for a stated period of time. This also includes consideration of social, cultural and/or environmental factors which impact on a system's reliability.

5   Assessment Specifications for this achievement standard can be accessed through the Technology Resources page found at http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/.

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