Achievement Standard

Subject Reference		Chemistry 3.7			
Title		Demonstrate understanding of oxidation-reduction processes			
Level	3	**Credits**	3	**Assessment**	Internal
Subfield	Science				
Domain	Chemistry				
Status	Registered	**Status date**	04 December 2012		
Planned review date	31 December 2016	**Date version published**	04 December 2012		

This achievement standard involves demonstrating understanding of oxidation-reduction processes.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Demonstrate understanding of oxidation-reduction processes.	• Demonstrate in-depth understanding of oxidation-reduction processes.	• Demonstrate comprehensive understanding of oxidation-reduction processes.

Explanatory Notes

1 This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 8. The standard is aligned to the Material World achievement objective:

> Investigate and measure the chemical and physical properties of a range of groups of substances.

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

Procedures outlined in *Safety and Science*: *a Guidance Manual for New Zealand Schools,* Learning Media, Ministry of Education, 2000, should be followed.

2 *Demonstrate understanding* involves describing oxidation-reduction processes and may involve calculations. This requires the use of chemistry vocabulary, symbols, and conventions.

Demonstrate in-depth understanding involves making and explaining links between oxidation-reduction processes, observations, equations and calculations. This requires explanations that use chemistry vocabulary, symbols, and conventions.

Demonstrate comprehensive understanding involves comparing and contrasting, and justifying, links between oxidation-reduction processes, observations, equations and calculations. This requires the consistent use of chemistry vocabulary, symbols, and conventions.

3 *Oxidation-reduction processes* involve the use of the relative strengths of oxidants and reductants. This includes the use of reduction potentials and spontaneity of reactions.

4 *Processes* include reactions in electrochemical and electrolytic cells.

5 Calculations are limited to those involving electrode potentials.

6 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 AS90696.

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