Achievement Standard

Subject Reference	Chemistry 3.3				
Title	Describe oxidation-reduction processes				
Level	3	**Credits**	3	**Assessment**	External
Subfield	Science				
Domain	Chemistry				
Registration date	23 November 2005	**Date version published**	23 November 2005		

This achievement standard involves describing oxidation-reduction processes.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Describe oxidation-reduction processes.	• Explain and apply oxidation-reduction processes.	• Discuss oxidation-reduction processes.

Explanatory Notes

1 This achievement standard is derived from *Chemistry in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1994, p. 28, achievement objectives 8.1, 8.2 and 8.3.

2 *Processes* involve reactions and calculations, which may include electrochemical cells and their properties, the use of reduction potentials, and spontaneity of oxidation-reduction reactions.

3 *Calculations* may include determination of oxidation numbers, mole ratios and those related to electrochemical cells.

4 Knowledge of appearance and state of the following reactants and the product to which they are converted in an oxidation-reduction reaction is required.
Oxidants will be limited to: O_2, Cl_2, I_2, Fe^{3+}, dilute acid (with metals), H_2O_2, MnO_4^- (reacting in acidic, basic or neutral conditions), Cu^{2+}, $Cr_2O_7^{2-}/H^+$, OCl^-, concentrated HNO_3, IO_3^-, MnO_2.

Reductants will be limited to: metals, C, CO, H_2, Fe^{2+}, Br^-, I^-, H_2S, SO_2, SO_3^{2-}, $S_2O_3^{2-}$, H_2O_2, $H_2C_2O_4$.
Appropriate information relating to other oxidants or reductants will be provided.

5 Standard reduction potentials will be included where required.

6 Terms
- *Describe* involves identifying, naming, drawing, giving characteristics of, giving an account of, defining, and/or carrying out simple calculations.
- *Explain and apply* involves describing as well as giving reasons for, making links between chemical concepts and/or observations, or carrying out calculations.
- *Discuss* involves showing understanding by analysing, interpreting, justifying, relating, evaluating, comparing and contrasting, and/or calculating.

Quality Assurance

1 Providers and Industry Training Organisations must be accredited by the Qualifications Authority 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