Achievement Standard

Subject Reference	Chemistry 1.4				
Title	Describe characteristic properties and reactions of metals, acids and bases				
Level	1	**Credits**	4	**Assessment**	External
Subfield	Science				
Domain	Chemistry				
Status	Registered	**Status date**	5 November 2007		
Planned review date	28 February 2009	**Date version published**	5 November 2007		

This achievement standard involves the description of characteristic properties and reactions of metals, acids and bases.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
• Describe characteristic properties and reactions of metals, acids and bases.	• Explain characteristic properties and reactions of metals, acids and bases.	• Apply an understanding of characteristic properties and reactions of metals, acids and bases.

Explanatory Notes

1 This achievement standard is derived from *Chemistry in the New Zealand Curriculum,* Learning Media, Ministry of Education, 1994, achievement objectives 6.2 and 6.3, p. 18.

2 *Metals* are limited to Li, Na, Ca, Mg, Al, Zn, Fe, Pb, Cu, Ag and Au.

3 *Acids* are limited to HCl, H_2SO_4, HNO_3, CH_3COOH.

4 *Bases* are limited to metal oxides, hydroxides, carbonates, and hydrogen carbonates.

5 Assessment of the *characteristic properties and reactions of metals* will involve a selection from the following:
- physical properties – electrical conductivity, thermal conductivity, density, lustre, malleability and ductility
- relating the properties of metals to their uses
- relating the relative reactivity of metals to their uses and method of extraction from their ores
- observations and word/balanced equations for reactions of metals with oxygen, water and acids.

6 Assessment of the *characteristic properties and reactions of acids and bases* will involve a selection from the following:
- effects on litmus, universal indicator
- pH value
- observations of reaction of acids with carbonates and hydrogen carbonates
- naming products and writing word/balanced equations for reactions of acids with bases.

7 Assessment may involve identification and explanation of factors affecting rates of reaction, restricted to changes in concentration, temperature and surface area.

8 A table of ions will be provided.

9 A periodic table showing symbols, atomic numbers and molar mass values only will be provided.

Quality Assurance

1 Providers and Industry Training Organisations must be accredited by NZQA 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