

## Achievement Standard

**Subject Reference** Chemistry 1.4

**Title** Demonstrate understanding of aspects of selected elements

**Level** 1      **Credits** 4      **Assessment** External

**Subfield** Science

**Domain** Chemistry

**Status** Registered      **Status date** 17 November 2011

**Planned review date** 31 December 2020      **Date version published** 20 November 2014

This achievement standard involves demonstrating understanding of atomic structure and the organisation of the periodic table, and the properties and uses of selected metals, non-metals, and non-metal compounds.

***Mutual exclusion exists between this standard and AS90946.***

### Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> <li>Demonstrate understanding of aspects of selected elements.</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate in-depth understanding of aspects of selected elements.</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate comprehensive understanding of aspects of selected elements.</li> </ul>

### Explanatory Notes

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 6. It is aligned with the Material World strand, and is related to the material in the *Teaching and Learning Guide for Chemistry*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>.

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](#).

- Demonstrate understanding* typically involves describing, identifying, naming, drawing, giving an account of, or defining aspects of elements. This may require the use of chemistry vocabulary, symbols and conventions (including names and formulae), and completing word equations.

- 3 *Demonstrate in-depth understanding* typically involves explaining aspects of elements. This may require the use of chemistry vocabulary, symbols and conventions (including names and formulae), and writing word equations or completing given symbol equations.
- 4 *Demonstrate comprehensive understanding* typically involves linking aspects of elements when explaining, elaborating, justifying, relating, evaluating, comparing and contrasting, or analysing. This may require the use of chemistry vocabulary, symbols and conventions (including names and formulae), and writing balanced symbol equations.
- 5 *Aspects of elements* will be selected from:
- atomic structure and the organisation of the periodic table (a periodic table will be provided)
    - electron arrangement (limited to the first 20 elements)
    - trend down a group (similarity of reaction, reactivity)
    - trend across a period (position of metals and non-metals).
  - properties of metals, their reactivity and uses:
    - activity series
    - alloys.
  - properties and uses of non-metals and selected compounds:
    - sulfur, aqueous chlorine, allotropes of carbon and oxygen (ozone), nitrogen
    - selected compounds include – sulfuric acid, ammonia, sulfur dioxide.
- 6 *Selected elements* are limited to – K, Na, Li, Mg, Ca, Al, Cu, Fe, Zn, Pb, Ag, C, N, O, S, Cl, Br, I.
- 7 Properties are physical and chemical.  
Physical properties may include – melting and boiling points (state), colour, lustre, hardness, ductility and malleability, electrical and thermal conductivity, density.  
Chemical properties may include reaction with oxygen. For metals, chemical properties may also include reactions with water and acids (HCl, H<sub>2</sub>SO<sub>4</sub>).
- 8 Assessment Specifications for this achievement standard can be accessed through the Chemistry Resources page found at [www.nzqa.govt.nz/ncea/resources](http://www.nzqa.govt.nz/ncea/resources).

**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