

## Achievement Standard

<b>Subject Reference</b>	Chemistry 2.4		
<b>Title</b>	Describe the nature of structure and bonding in different substances		
<b>Level</b>	2	<b>Credits</b>	4
		<b>Assessment</b>	External
<b>Subfield</b>	Science		
<b>Domain</b>	Chemistry		
<b>Registration date</b>	20 October 2004	<b>Date version published</b>	20 October 2004

This achievement standard involves describing the bonding in simple molecules and the nature of various types of solids.

### Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> <li>Describe the bonding in simple molecules and the nature of types of solids.</li> </ul>	<ul style="list-style-type: none"> <li>Link selected properties of simple molecules and different types of solids to their structure.</li> </ul>	<ul style="list-style-type: none"> <li>Discuss properties of substances in terms of structure and bonding.</li> </ul>

### Explanatory Notes

- This achievement standard is derived from achievement objectives 7.1, 7.2 and 7.3 in *Chemistry in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1994, p. 23.
- Simple molecules* have no more than four electron pairs about any atom (including multiple-bonded species). Students may be required to draw Lewis structures of simple molecules and determine shape and polarity.
- Types of solids* are restricted to molecular, ionic, metallic and covalent network. The *nature* of solids will be limited to the type of constituent particles (ions, atoms or molecules) and the attractive force between them (ionic, covalent or metallic bonds or weak intermolecular forces).

- 4 Properties of solids include:
    - electrical conductivity
    - melting point
    - solubility in polar and non-polar solvents.
  - 5 Structures and properties may be assessed in the context of trends across the periodic table.
  - 6 Terms:
    - *Describe* requires the student to identify, name, draw, give characteristics of or an account of.
    - *Discuss* requires the student to show understanding as to how or why something occurs by linking chemistry ideas/principles. It may involve students in justifying, relating, evaluating, comparing and contrasting, analysing.
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### 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