

Achievement Standard

Subject Reference Physics 2.5

Title Demonstrate understanding of atoms and radioactivity

Level 2 **Credits** 2 **Assessment** External

Subfield Science

Domain Physics

Status Expiring **Status date** 17 November 2011

This achievement standard is expiring. Assessment against the standard must take place before the expiry date set out below.

Expiry date 31 December 2011 **Date version published** 17 November 2011

This achievement standard involves knowledge and understanding of phenomena, concepts, and principles related to atoms and radioactivity.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Identify or describe aspects of phenomena, concepts or principles. 	<ul style="list-style-type: none"> Give descriptions or explanations in terms of phenomena, concepts, and/or principles. 	<ul style="list-style-type: none"> Give concise explanations that show clear understanding in terms of phenomena, concepts, and/or principles.

Explanatory Notes

- This achievement standard is derived from *Physics in the New Zealand Curriculum*, Learning Media, Ministry of Education, 1994; Level 7 achievement objectives, p. 24.
- Assessment will be limited to a selection from the following:

Phenomena, Concepts and Principles:

Models of the atom (Dalton, Thomson and Rutherford), gold foil experiment, radioactive decay, half life, conservation of atomic and mass number in alpha, beta and gamma emission reactions, ionising ability, penetration ability and behaviour in a magnetic field.

- 3 Real life contexts will be used whenever possible. Requisite information about the context used will be supplied.
 - 4 The following descriptions provide guidance on the typical level of performance for achievement, achievement with merit, and achievement with excellence. Both the complexity of the situation and problem-solving process will determine the grade. Statements, descriptions and explanations can be written, diagrammatic, graphical or numerical. The descriptions or explanations could include quantitative discussions.
 - Achievement will typically involve single aspects related to phenomena, concepts or principles.
 - Achievement with merit will typically involve reasons.
 - Achievement with excellence will typically have minimal irrelevancies.
 - 5 Minor computational or transcription errors will not be penalised if the process used to calculate the solution is clearly indicated and is valid.
 - 6 Both negative index (eg ms^{-2}) and slash notation (eg m/s^2) will be acceptable when writing units. Negative index notation will be used when supplying data.
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Replacement Information

This achievement standard has been replaced by AS91172.

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

0226