

## Achievement Standard

|                            |   |                               |                  |
|----------------------------|---|-------------------------------|------------------|
| <b>Subject Reference</b>   | Earth and Space Science 3.5                                     |                               |                  |
| <b>Title</b>               | Demonstrate understanding of processes in the atmosphere system |                               |                  |
| <b>Level</b>               | 3   | <b>Credits</b>                | 4                |
|                            |   | <b>Assessment</b>             | External         |
| <b>Subfield</b>            | Science   |                               |                  |
| <b>Domain</b>              | Earth and Space Science   |                               |                  |
| <b>Status</b>              | Registered  | <b>Status date</b>            | 04 December 2012 |
| <b>Planned review date</b> | 31 December 2020  | <b>Date version published</b> | 17 November 2016 |

This achievement standard involves demonstrating understanding of processes in the atmosphere system.

### Achievement Criteria

| Achievement  | Achievement with Merit  | Achievement with Excellence  |
|--|---|--|
| <ul style="list-style-type: none"> <li>Demonstrate understanding of processes in the atmosphere system.</li> </ul> | <ul style="list-style-type: none"> <li>Demonstrate in-depth understanding of processes in the atmosphere system.</li> </ul> | <ul style="list-style-type: none"> <li>Demonstrate comprehensive understanding of processes in the atmosphere system.</li> </ul> |

### Explanatory Notes

- This achievement standard is derived from *The New Zealand Curriculum*, Learning Media, Ministry of Education, 2007, Level 8, and is related to the material in the *Teaching and Learning Guide for Earth and Space Science*, Ministry of Education, 2010 at <http://seniorsecondary.tki.org.nz>. The standard is aligned to the Earth systems and Interacting systems achievement objective of the Planet Earth and Beyond strand.

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](#) for the relevant learning area.

- Demonstrate understanding* involves:
  - explaining processes and links within the processes in the atmosphere system.

*Demonstrate in-depth understanding* involves:

- explaining links between the processes in the atmosphere system.

*Demonstrate comprehensive understanding* involves:

- discussing the complexity of the atmosphere system.
- 3 *Processes in the atmosphere system* will be selected from:
- atmosphere composition – gases, aerosols including clouds, gradients, temperature, pressure, density
  - atmospheric circulation
    - convection cells - Hadley, Ferrel, Polar
    - wind belts - Trade, Westerlies, Polar Easterlies, Doldrums
    - Coriolis effect
  - transport of matter and heat energy – water, gases, aerosols from volcanic eruptions
  - cycles – water, carbon; biological pump and physical pump
  - climate – global and regional trends – temperature, precipitation, weather.
- 4 Assessment Specifications for this achievement standard can be found at <http://www.nzqa.govt.nz/qualifications-standards/qualifications/ncea/subjects/>.
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### 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