

Achievement Standard

Subject Reference Physics, Earth and Space Science 1.3

Title Demonstrate understanding of the effect on the Earth of interactions between the Sun and the Earth-Moon system

Level 1 **Credits** 5 **Assessment** External

Subfield Science

Domain Science - Core

Status Approved **Status date** December 2023

Planned review date December 2028 **Date version published** December 2023

Purpose Statement

Students are able to demonstrate understanding of the effect on the Earth of interactions between the Sun and the Earth-Moon system.

Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Demonstrate understanding of the effect on the Earth of interactions between the Sun and the Earth-Moon system 	<ul style="list-style-type: none"> Explain the effect on the Earth of interactions between the Sun and the Earth-Moon system 	<ul style="list-style-type: none"> Analyse the effect on the Earth of interactions between the Sun and the Earth-Moon system

Explanatory Notes

1 *Demonstrate understanding of the effect on the Earth of interactions between the Sun and the Earth-Moon system* involves:

- describing observations of interactions between the Sun and the Earth-Moon system
- describing science ideas that support the observations
- describing the effect of the interactions on the Earth.

Explain the effect on the Earth of interactions between the Sun and the Earth-Moon system involves:

- explaining the interactions and the effect of the interactions on the Earth, linking science ideas and observations.

Analyse the effect on the Earth of interactions between the Sun and the Earth-Moon system involves:

- integrating science ideas with observations into a discussion of how the effect of the interactions varies on the Earth.

2 *Interactions* are when two or more objects or systems have an effect upon one another.

For the purposes of this achievement standard, *interactions between the Sun and the Earth-Moon system* include:

- positioning of the Sun, the Earth, and the Moon relative to each other
- tilt of the Earth relative to the Sun
- orbit of the Earth around the Sun
- orbit of the Moon around the Earth
- spin of the Earth on its axis relative to the Sun.

3 *Observations* can be from any data or media that captures a quality or quantity of an interaction or observable pattern.

Observable patterns are:

- tides
- day and night
- seasons
- Moon phases
- lunar eclipses
- solar eclipses
- latitudinal or temporal variation in any of the observable patterns listed above.

4 Refer to the NCEA [glossary](#) for Māori, Pacific, and further subject-specific terms and concepts.

5 This achievement standard is derived from the Science Learning Area at Level 6 of *The New Zealand Curriculum*: Learning Media, Ministry of Education, 2007.

Replacement Information

This achievement standard, AS92044, AS92045, and AS92047 replaced AS90935-AS90939.

Quality Assurance

- 1 Schools and institutions must have been granted consent to assess by NZQA before they can register credits from assessment against achievement standards.
- 2 Schools and institutions with consent to assess must engage with the moderation system that applies to those achievement standards.

Consent and Moderation Requirements (CMR) reference 0233