National Moderator Report 2024
Earth and Space Science

The following report gives feedback to assist assessors with general issues and trends that have been identified during external moderation of the internally assessed standards in 2023. It also provides further insights from moderation material viewed throughout the year and outlines the Assessor Support available for Earth and Space Science.

Insights

91410: Carry out an independent practical Earth and Space Science investigation

Performance overview:

To achieve this standard, students need to conduct a valid scientific investigation in an Earth and Space Science (ESS) context. This valid context must be at level 8 of the curriculum. This investigation further builds on the requirements of 91187 by requiring the students to make a detailed link between the investigation and the Earth and Space Science behind it. Students need to give appropriate explanations of the ESS at curriculum level 8. The chosen investigation needs to be selected and carried out by the student. Investigations based on geology or astronomy meet the requirements of the standard and make for valid pattern seeking investigations.

Practices that need strengthening:

Issues identified with this standard occur when students conduct investigations that do not have a direct link to Earth and Space Science or are not at level 8 of the curriculum. For example, many students selected rockets, but looked at changing acid concentration to get horizontal distance and linked this to chemical concentration or the physics of forces, not to Earth and Space Science. Additionally, the Earth and Space Science surrounding rockets is at curriculum level 7 and does not meet the requirements of the standard. Level 3 tasks should have no scaffolding, as this may give students too much guidance or limit possible responses.

91412: Investigate the evidence related to dating geological event(s)

Performance overview:

To achieve this standard, the evidence needs to explain a geological event and the evidence related to estimating the date the event occurred. Students need to use at least two relevant different geological methods for dating the explained event. The methods chosen must be able to allow for cross correlation of the dates to give a more accurate final estimate of the date of the event.

Practices that need strengthening:

Appropriate methods need to be chosen by the student to give the most accurate estimate of the date of the event. For example, U/Pb dating would not be used to date the last time the Alpine Fault moved, as the percentage error is beyond the date of the last time the fault moved. Carbon dating could be useful here, because it is used to date events up to 60,000+ years old. Carbon dating cannot be used for geological events older than 100,000 years old because the age cannot be validly verified. For Excellence, students need to be able to use cross correlation between their two methods to give the final age of their chosen geological event.

Assessor Support:

Online

NZQA's learning management system (Pūtake) offers 150+ easy to access courses, materials and products. These are designed to support teachers, as assessors, to improve their assessment of NCEA standards.

Online, subject-specific or generic, bite-sized learning modules and short courses are now available to complement the traditional face-to-face workshops that NZQA offers. These online courses can be accessed using your Education Sector Logon.

Subject-specific course/workshops available for Earth and Space Science include:

- 91190: Extreme Environments
- 91411: Socio-scientific issue

Online Making Assessor Judgements workshops are also available throughout the year. These workshops are structured to guide teachers to improve their understanding of each grade level by examining several full samples of student work. The following standards are available for enrolment in 2024:

- 91189: Investigate geological processes in a New Zealand locality
- 91412: Investigate the evidence related to dating geological event(s)

Feedback from teachers for these workshops indicates that more than 74% of participants agreed or strongly agreed that the content in the module was beneficial:

> "*Although I was a bit skeptical that this was going to provide me with better understanding of the standard (and marking it), I found I've picked up more certainty about making judgements about the work my students might produce. I'm also more secure about guiding them through the selection of their topic and setting it up so that they are able to complete a successful investigation.*"

Exemplars of student evidence for all standards at each level of achievement are available on the NZQA subject page for Earth and Space Science

NZQA will continue to provide generic modules and workshops designed to improve general assessment practice. The following modules and workshops will be available in 2024:

- Assessment Approaches, an online workshop exploring different methods of assessment
- Culturally Responsive Assessment
- Assessment Guidance – Reviewing Your Practice
- Tāku Reo, Tāku Mahi – My voice, My work, a guide to managing authenticity
- Why Less is More, a guide to reducing volumes of student evidence
- Integrated Assessment
- Modes of Assessment
- Alternative Assessment
- Acknowledging Sources

> "*This was great! I liked that I could choose from different scenarios, see how sources are used and the way the student answered the question."*

"Reassuring and very thorough. Easy to use/follow."

We will also continue to offer the Transforming Assessment Praxis programme, an online workshop relevant to all subjects which helps assessors learn about re-contextualising assessment resources and collecting evidence in different ways, in order to better meet the needs of students.

Check the NCEA subject pages on the NZQA website regularly, as more online modules, workshops and courses will be added throughout 2024.

Assessor Practice Tool

The Assessor Practice Tool (APT) will be used to support assessors with the new NCEA standards from 2024 onwards. The purpose of the APT is to allow assessors to practice making assessment judgements and immediately receive feedback on their judgements from a moderation panel. The APT will initially have material for some existing Level 3 standards, with moderated samples for the new Level 1 NCEA standard subjects being added as material becomes available. Material for the new Level 2 and Level 3 standards will be added over time, and all material for the old NCEA standards will be archived.

Material is currently available for:

- 91415: Investigate an aspect of astronomy

Workshops and Presentations

The Best Practice Workshops offered by Assessment and Moderation continue to be viewed by the sector as significantly contributing to improved assessor practice:

"I thought the workshop was very clear and helpful, there were a lot of varied examples of ākonga work discussed and opportunity for participants to discuss and ask questions."

We offer several options of online workshops and presentations for events to support assessors with the assessment of internally assessed standards. These can be subject-specific, or general assessment support, and tailored to the audience. Virtual presentation slots, online workshops or webinars can be requested to provide targeted support to local, regional or national audiences.

To give feedback on this report click on this link.