



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 2024. It also provides further insights from moderation material viewed throughout the year and outlines the Assessor Support available for Chemistry.

Insights

91387: Carry out an investigation in chemistry involving quantitative analysis

Performance overview:

This standard requires students to select an investigation that allows them to explore a possible trend or pattern in the quantity of a substance.

Collected data that enabled a trend to be investigated and a report outlining the investigation and results met the standard's requirements.

Practices that need strengthening:

For a trend, one variable needs to be changed to determine if that variable influences the quantity of a substance. For a pattern, the quantity of a substance is measured in relation to a measurable variable(s) – such as distance from a given location, depth of samples, or collecting data from two locations to investigate a pattern.

Describing a procedure that includes the preparation of the samples is needed to achieve the standard. Students who did this well outlined the steps to make the samples for testing, and described the conditions they were stored in or exposed to.

For Excellence, students need to justify the steps taken in relation to the reactions and nature of the sample. Students who did this well discussed the relevance of adding particular reactants in the procedure to the relevant reactions required, in order to allow the quantity of the dependent variable to be calculated.

91388: Demonstrate understanding of spectroscopic data in chemistry

Performance overview:

This standard requires students to interpret spectroscopic data to identify an unknown organic molecule.

Evidence that identified discrete aspects of the structure from each of the three spectroscopic techniques (infrared, mass and ^{13}C nuclear magnetic resonance) met the standard's requirements.

Practices that need strengthening:

Justification of the correct structure by integrating aspects from all three spectroscopic techniques is required for Excellence. Students who did this well integrated the three spectroscopic techniques to show how the aspects consistently align with each other to confirm the molecule's structure.

Tasks that supplied the spectroscopic data without any possible structures allowed students to fully integrate aspects from the three techniques to justify the structure, rather than focusing on ruling out the possible structures.

91393: Demonstrate understanding of oxidation-reduction processes

Performance overview:

This standard requires students to explain both oxidation and reduction for electrochemical and electrolytic processes.

Evidence that clearly described either the change in the oxidation number of the relevant element or the number of electrons lost/gained for oxidation and reduction in both cell processes, as well as referring to the requirement of energy for the electrolytic process and the cell potential/standard reduction potentials for the electrochemical process, met the requirements of the standard.

Practices that need strengthening:

The justification of the spontaneity of electrolytic and electrochemical processes is a key requirement for Excellence. Students who did this well justified the spontaneity of both the electrolytic and electrochemical processes by using either the cell potential calculation or the relative oxidant/reductant strength based on the standard reduction potentials.

Assessor Support

NZQA offers online support for teachers as assessors of NZC achievement standards. These include:

- Exemplars of student work for most standards*
- National Moderator Reports*
- Online learning modules (generic and subject-specific)**
- Clarifications for some standards*
- Assessor Practice Tool for many standards**
- Webcasts*

*hosted on the NZC Subject pages on the NZQA website.

**hosted on Pūtake, NZQA's learning management system. Accessed via Education Sector Login.

We also may provide a speaker to present at national conferences on requests from national subject associations. At the regional or local level, we may be able to provide online support.

Please contact workshops@nzqa.govt.nz for more information or to lodge a request for support.

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