National Moderator Report 2026
Chemistry and Biology

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 2025. It also provides further insights from moderation material viewed throughout the year and outlines the Assessor Support available for the Level 1 Sciences – Science, Chemistry and Biology, and Physics, Earth and Space Science. Please note this report does not introduce new criteria, change the requirements of the standard, or change what we expect from assessment.

Insights

92020: Demonstrate understanding of the relationship between a microorganism and the environment

Performance overview:

Understanding that all living things are related and live as part of interconnected systems is helpful when approaching this standard.

Evidence that met the requirements of this standard described a life process of a microorganism and described an abiotic or biotic factor of the interconnected environment that affects the life process of the microorganism, using observations.

Practices that need strengthening:

The requirements for Merit and Excellence need to relate to a life process that has been described in the response.

In a disease context, biotic factors such as an animal or plant host are also the interconnected environment.

Merit requires linking a change to an abiotic or biotic factor of the interconnected environment to the effect on the life process of the microorganism, rather than the microorganism as a whole. For example, evidence that links a change in the immune system of a human host to the effect on the microorganism does not meet the requirements of the standard.

Excellence requires examining how the life process of the microorganism, rather than the microorganism itself, affects an abiotic or biotic factor of the interconnected environment. For example, evidence that examines how the microorganism causes disease or symptoms in the human host does not meet the requirements of the standard.

92021: Demonstrate understanding of chemical reactions in context

Performance overview:

This standard requires students to show an understanding of at least three different chemical reaction types from the five possible reaction types outlined in the standard.

Students met the standard's requirements with evidence of using predictable patterns or observations to link the reaction type to the context beyond the laboratory and referencing conservation of mass to support the description of the reactants and products.

Practices that need strengthening:

Students who achieved higher grades explained the relationship between the reactants and the products with reference to the conservation of mass for Merit, and explained the links to the context using the predictable patterns and relevant observations. The relationship needs to include an explanation or an annotated diagram to show how the elements within the reactants rearrange to form the products, with the quantity of each element in the reactant(s) and product(s).

For Excellence, the evidence needs to discuss an implication related to the conservation of mass in context for each of the three different chemical reaction types used. The evidence also needs to reference predictable patterns, observations, and equations.

Supporting information, such as equations, should be provided to students as a separate resource.

91920: Demonstrate understanding of a science-informed response to a local issue

Performance overview:

This standard requires the description of a science idea that informs a science perspective involved in the issue, outlines another perspective from a group relevant to the issue, and identifies a science-informed response to the issue. The standard also requires an understanding of tiakitanga in the context of responsible science practice in the local issue.

Practices that need strengthening:

Students who met the standard clearly identified the issue and a response without confusing the two if they overlapped. For example, while fluoridating water supply could be a response to tooth decay, fluoridation of water supplies could be an issue itself and would require a different science-informed response. Similarly, using sodium fluoroacetate could be a response to mammalian pests in Aotearoa, but the use of sodium fluoroacetate for pest control could also be an issue, requiring an appropriate response.

Describing a science idea involves describing a science concept related to the issue, rather than an observation or statement of a fact. Students who met the standard described a science idea at level 6 of the New Zealand Curriculum.

A perspective is a particular way of regarding an issue that is shared by a group. If the group is too general, perspectives may vary. For example, perspectives within groups such as Māori, Pacific Peoples, or teenagers may vary. Students who met the standard in relation to outlining a second perspective clearly identified a group by name, including statements from individuals representing the views of the group they represent. Examples of groups include iwi or hapū, a local council, a company or business, etc.

Students who met the standard identified a science-informed response, rather than proposing or making a science-informed response themselves.

Students who showed an understanding of tiakitanga connected the science response to the principles of care and responsibility.

91921: Demonstrate understanding of the use of a range of scientific investigative approaches in a context

Performance overview:

This standard requires students to carry out a range of investigative approaches and describe the purpose of each of the approaches they used during their investigation.

The use of a template often helped students to stay focused on the purpose of the investigative approaches.

One context is required by this standard. The context can come from any area of science. Some possible examples are a local stream, rock types and formation in Aotearoa, or how space suits protect astronauts. It is easier for students to remain within the context when they have an overarching question. A sub-question for each investigative approach contributes to answering the overarching question.

Student-gathered evidence is required to support their description or explanation of the investigative approaches.

Practices that need strengthening:

The purposes of the investigative approaches need to be described with evidence. These purposes are for each approach in general, rather than the aims of the student investigations. The supporting evidence needs to come from the student's investigation.

For Excellence, the focus is on analysing how the range of investigative approaches used by the student contribute to understanding the context or overarching question.

Evidence gathered when the student carried out their investigative approaches needs to be used to support their response at all levels of achievement.

92044: Demonstrate understanding of human-induced change within the Earth system

Performance overview:

This standard requires students to describe change within the Earth system that has resulted from human activity.

Evidence that met the standard's requirements used relevant science ideas to show the effect of the change on at least two spheres (atmosphere, biosphere, geosphere, hydrosphere) within the Earth system.

Practices that need strengthening:

Using science ideas to describe the effects of human-induced change is required to achieve the standard, rather than using science ideas to describe the change itself.

For Merit, science ideas need to be used to explain how the change affects at least two spheres in the Earth system. For Excellence, the evidence needs to discuss the science implications of the change within at least two spheres within the Earth system. Students who did this well used the science ideas to show how a change in one sphere resulted in a change in another sphere.

92045: Demonstrate understanding of a physical phenomenon through investigation

Performance overview:

The standard requires selection of a phenomenon that provides the opportunity for at least two relationships to be investigated. The evidence often came from two investigations.

To achieve the standard, students are required to describe relationships in the phenomenon. For example, increasing the release height of a parachute increases the time taken to fall. Students are also required to describe at least two relevant physics concepts.

Practices that need strengthening:

The standard requires a connection between physical quantities. Where the phenomenon involved thermal insulation or friction, students who were supplied with insulation values (R-values) or friction values (coefficient of friction) had the opportunity to describe the relationship.

For Merit, the explanations focus on how the concepts relate to the phenomenon and how the relationships (connections between physical quantities) are involved.

Students who achieved Excellence were able to discuss significant physics concepts involved in the phenomenon.

To give feedback on this report click on this link.

Assessor Support

NZQA offers free 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.

Exemplars, National Moderator Reports, clarifications, and webcasts are hosted on the NZC Subject pages on the NZQA website.

Subject Pages

Online learning modules and the Assessor Practice Tool are hosted on Pūtake, NZQA's learning management system. You can access these through the Education Sector Logon.

Log in to Pūtake

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 assessorsupport@nzqa.govt.nz for more information or to lodge a request for support.