

Field Sciences**Review of Level 2 *Chemistry* achievement standards**

Domain	ID	Subject reference
Chemistry	AS91161	2.1
	AS91162	2.2

The Ministry of Education has reviewed the achievement standards listed above.

New Registration date **November 2018**

Date new versions published **November 2018**

Planned review date **December 2019**

Summary of review and consultation process

New achievement standards were developed in response to concerns from NZQA Moderators and the Ministry of Education about alignment of these two existing *Chemistry* standards to the New Zealand Curriculum (NZC) and Te Marautanga o Aotearoa (TMoA).

The new standards were developed by subject experts (teachers from secondary and tertiary settings) all of whom are practitioners who have experience with the existing practical Chemistry standards at Level 2 as well as a deep curriculum knowledge.

The wider sector has been made aware of the new standards via subject association (NZIC) communications, Chemistry teachers' Facebook page and an NZQA newsletter to all schools.

Draft versions of the standards were shared with two small teacher groups in September, 2018 but have not undergone wider consultation. While the new standards and associated assessment resources have not been trialled with students, teachers have trialled the tasks to ensure the activities work and produce feasible data. This approach was taken in light of the fact that teachers will recognise the importance of shifting assessment practice around quantitative and qualitative analysis as soon as possible rather than waiting until the Review of Achievement Standards to implement change.

The Ministry is confident that Chemistry teachers will recognise the themes of the new standards and relate them to the existing, more procedural ones and that the transition will be quite straightforward.

Main changes resulting from the review

- Two new Level 2 achievement standards were developed to replace the two existing Level 2 standards that are considered to be less well aligned to the NZC, particularly in terms of how they reflect the nature of Science Achievement Objectives of the Science learning area.

For a detailed description of the review of, and the changes to, these *Chemistry* standards see the [Appendix](#) at the end of this report.

Impact on existing organisations with consent to assess

Current consent for			Consent extended to		
Nature of consent	Classification or ID	Level	Nature of consent	Classification or ID	Level
Standard	91161	2	Standard	91910	2
Standard	91162	2	Standard	91911	2

Impact of changes on [Exclusions List](#)

For transition purposes, the following exclusions will apply for new achievement standards.

Achievement standard	Excluded against each of these standards
AS91910	AS91161
AS91911	AS91162

Detailed list of achievement standards – classification, title, level, and credits

The following summary shows the changes made to the standards as a result of the review. All changes are in **bold**.

Key to review category	
A	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
B	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
C	Major changes that necessitate the registration of a replacement standard with a new ID
D	Standard will expire and not be replaced

Internally assessed achievement standards categorised as category C expire at the end of	December 2019
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Sciences > Science > Chemistry

ID	Ref	Title	Level	Credit	Review Category
AS91161	2.1	Carry out quantitative analysis	2	4	C
AS91910	2.1	Carry out a practical investigation into a substance present in a consumer product using quantitative analysis	2	4	
AS91162	2.2	Carry out procedures to identify ions present in solution	2	3	C
AS91911	2.2	Carry out an investigation into chemical species present in a sample using qualitative analysis	2	3	

Development of two achievement standards in Chemistry - Level 2

Process of aligning standards with New Zealand Curriculum (NZC)

The standards were developed by subject experts (teachers from secondary and tertiary settings). The writers are all practitioners who have experience with the existing practical Chemistry standards at Level 1 as well as a deep knowledge of the NZC. The standards were developed from first principles to align with the nature of Science Achievement Objectives of the NZC and to address the two key questions posed within the Chemistry domain – what is this? (requiring qualitative analysis) and how much is there? (requiring quantitative analysis).

Addressing credit parity

The expert practitioners did not consider the learning and assessment time required under the replacement standards necessitated any change in credit value relative to the existing 2.1, 2.2 standards. They understand the work required to demonstrate the learning for each standard and are familiar with expectations for other domains. The credit allocation was made in alignment with this.

What has changed (summary)

These new achievement standards replace two existing *Chemistry* achievement standards.

The standards were re-developed in response to significant concerns from Ministry of Education and NZQA Moderators regarding their poor alignment to the NZC. Both existing practical Chemistry standards (2.1, 2.2) are strongly procedural and the step-ups from Achieved to Merit and Excellence were poorly related to quality of evidence. In addition, achievement rates were disproportionate to other standards so that the credibility of the existing standards was questionable.

These new “investigation” standards provide opportunities for making use of rich contexts for both teaching and learning of two fundamental aspects of the Chemistry investigation process – quantitative and qualitative analysis.

They also address issues of key evidence in terms of the requirements for Achieved, Merit and Excellence.

Transition

A transition period is desirable, during which teachers can use the existing, more familiar standards while they explore the implications and potential of the new standards.