

Assessment Specifications

Level 3 Calculus 2025

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General information

Domain:	Chemistry
Standards:	91390, 91391, 91392
Assessment method:	Examination, end of year
Assessment medium:	Printed paper

[Chemistry subject page](#)

[National secondary examinations timetable](#)

Information relating to all achievement standards

The examination format will be the same for each achievement standard.

Questions may be asked within a variety of appropriate contexts, some of which may be unfamiliar to the candidates. Any context-specific formulae will be provided in the examination.

The content is specified in the Explanatory Notes to each achievement standard.

All working should be shown in calculations. Numerical answers should be rounded to an appropriate number of significant figures (usually three significant figures). Correct units must be included.

In calculations, candidates will be expected to use the molar mass values given with the question, or on the periodic table provided in the resource booklet.

Candidates should be familiar with relevant practical work.

Equipment required

Use of an [approved scientific or graphics calculator](#) is required.

Resources or information supplied

The resource booklet for Level 3 Chemistry can be found at the [Chemistry subject page](#).

It will contain:

- relevant chemical formulae needed for Level 3 Chemistry, e.g. $n = cV$
- a copy of the periodic table – giving element symbols, atomic numbers, and molar masses
- a list of nine complex ions, with their formulae.

Special notes

Symbols, nomenclature, spelling and formatting will follow IUPAC conventions as much as possible. These are shown in the reference sheet [Quantities, Units, Symbols and Nomenclature used in NCEA Chemistry Level 3 and Scholarship Examination Papers](#).

This will not be provided in the examination.

Special assessment conditions

Refer to the NZQA website for further information:

[Aromatawai special assessment conditions](#)

Specific information for individual achievement standards

Standard:	91390
Title:	Demonstrate understanding of thermochemical principles and the properties of particles and substances
Version:	2
Number of credits:	5
Assessment medium:	Printed paper

The concept of resonance, Hund's rule, and the stability of half-filled sublevels will not be assessed.

The value of the specific heat capacity of water ($4.18 \text{ J g}^{-1} \text{ }^\circ\text{C}^{-1}$) will be provided when required.

Standard:	91391
Title:	Demonstrate understanding of the properties of organic compounds
Version:	2
Number of credits:	5
Assessment medium:	Printed paper

Constitutional isomers are those that have the same molecular formula, but a different structural formula.

Systematic naming of amines is restricted to primary amines. Candidates will not be expected to recall the common names of amino acids.

Knowledge of principles of organic chemistry covered in [Chemistry Level 2 AS 91165](#) will be assumed.

Standard:	91392
Title:	Demonstrate understanding of equilibrium principles in aqueous systems
Version:	2
Number of credits:	5
Assessment medium:	Printed paper

Candidates are expected to recognise common strong acids (HCl, HBr, HNO₃, H₂SO₄); strong bases (KOH, NaOH); weak acids (HF, CH₃COOH, and NH₄⁺); weak bases (NH₃, CH₃NH₂, and CH₃COO⁻). Less familiar weak acids and bases may be included in the context of appropriate resource information. Values of K_b or pK_b will not be provided, but may be derived and used in calculations.

Knowledge of the following complex ions will be assumed: [Ag(CN)₂]⁻, [Ag(NH₃)₂]⁺, [Al(OH)₄]⁻, [Cu(NH₃)₄]²⁺, [Pb(OH)₄]²⁻, [Zn(OH)₄]²⁻, [Zn(NH₃)₄]²⁺, [Ni(NH₃)₆]²⁺, and [Ni(CN)₄]²⁻. This list of complex ions (with formulae) will be given in the Resource Booklet. Less familiar complex ions may be included in the context of appropriate resource information.
