



Teacher information: Chemistry

OVERVIEW

STEM Online NZ is a free interactive teaching and learning resource for NCEA external standards in STEM subjects.


Designed specifically for New Zealand teachers and students by subject-specialist teachers, this resource combines interactive learning content, videos, animations, quizzes, game-based content, as well as classroom experiments and activities, all with a distinctly Kiwi flavour.

These highly interactive resources will help teachers, particularly those who are not subject specialists, teach STEM subjects. They are designed to support teachers and engage students with content that is fun, relevant, contextual and exciting.

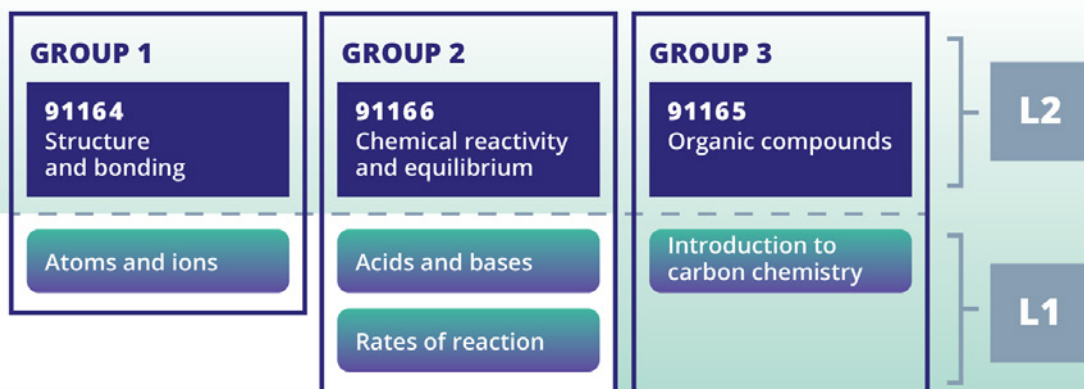
STEM Online NZ supports classroom teaching and can be implemented in a variety of ways to best suit the needs of the school, teacher and students. It has been developed as a blended solution combining traditional and e-learning practices, with the content tailored to appeal to New Zealand teenage students. The locations, characters, activities and language will be familiar to them. Teachers can choose to use the full course, pick elements of the online material to supplement their own teaching, or use it for homework. Students can use it for revision purposes.

COURSE DESIGN

Structure



Sections combine to form existing L1 standard **90944 Acids and bases**.



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COURSE DESIGN

Approach

Our approach to the design of these courses is to make them flexible to the needs of different schools and the changing educational environment.

- Works with one year and two year programmes.
- Different standard combinations can be selected.
- Strong content links and lead in to current Level 2 standards has been retained.
- Adaptable to future NCEA changes:
 - content sections can be easily adapted to match future Level 1 standards
 - can be linked to 'big ideas'.

DEVELOPMENT TIMELINES

Group 1	<i>Development 2020</i> Atoms and ions phased release from August 2020 Structure and bonding release Jan 2021
Group 2	<i>Development 2021</i> Acids and bases & Rates of reaction release early 2021
Group 3	<i>Development 2021</i>

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CHEMISTRY PROGRAMME OPTIONS

Our courses have been designed to function as components of both one-year and two-year chemistry programmes.

ONE-YEAR PROGRAMMES



Approach

- Level 1 has been split into four sections of learning.
- Three full standards are available at Level 2.

(Level 1 content exceeds the requirements of Level 1 standards where additional concepts are required to support learning at Level 2)

Standards: Level 1

90944 Demonstrate understanding of aspects of acids and bases	4 credits	External	Full coverage (3 sections)
90932 Demonstrate understanding of aspects of carbon chemistry	4 credits	External	Partial coverage

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Sections combine to form existing L1 standard **90944 Acids and bases**.

Atoms and ions

Acids and bases

Introduction to carbon chemistry

Rates of reaction

Three sections (**Atoms and ions**, **Acids and bases** and **Rates of reaction**) combine to cover all the required learning for standard; *90944 Demonstrate understanding of aspects of acids and bases*.

Introduction to carbon chemistry is a Level 1 course that introduces many of the key concepts of organic chemistry. It includes much of the content for the Level 1 external; *90932 Demonstrate understanding of aspects of carbon chemistry*.

Standards: Level 2

91164 Demonstrate understanding of bonding, structure, properties and energy changes	5 credits	External	Full coverage
91166 Demonstrate understanding of chemical reactivity	4 credits	External	Full coverage
91165 Demonstrate understanding of the properties of select organic compounds	4 credits	External	Full coverage

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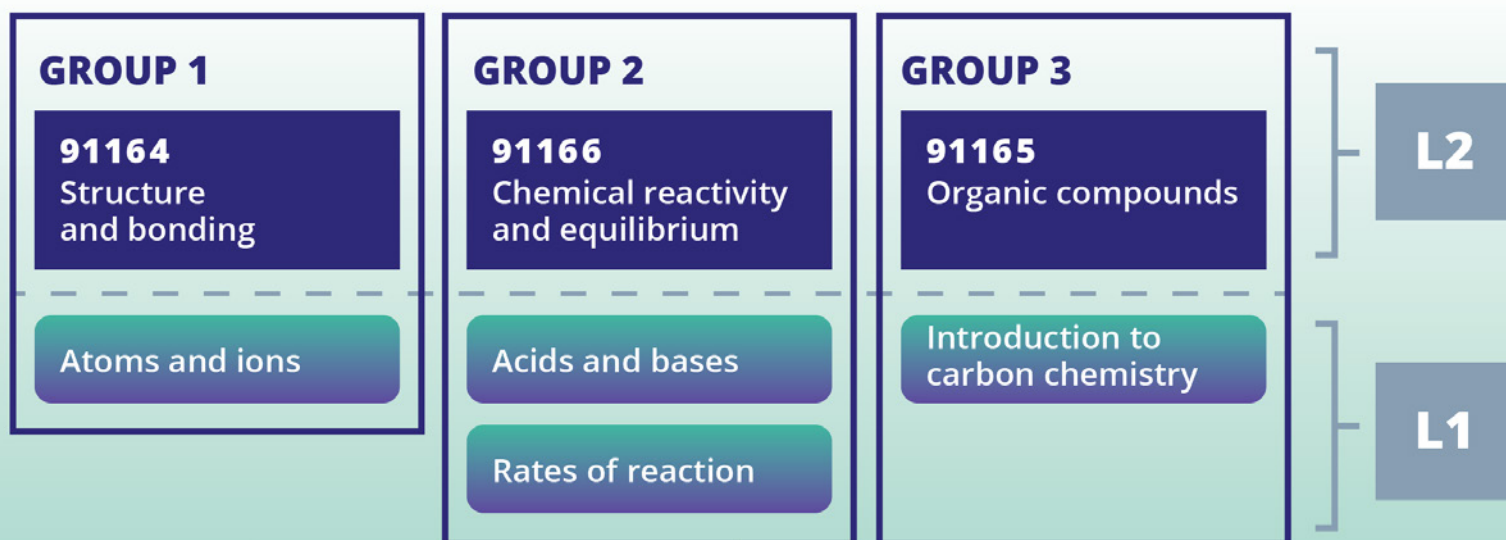
TWO-YEAR PROGRAMMES (LEVELS 1 & 2)



Approach

Each group contains introductory content at Level 1, and full coverage of a specific standard at Level 2.

(Level 1 content exceeds the requirements of Level 1 standards where additional concepts are required to support learning at Level 2)



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Standards: Group 1*

91164 Demonstrate understanding of bonding, structure, properties and energy changes	Level 2	5 credits	External	Full coverage
90944 Demonstrate understanding of aspects of acids and bases	Level 1	4 credits	External	Partial coverage

Standards: Group 2*

91166 Demonstrate understanding of chemical reactivity	Level 2	4 credits	External	Full coverage
90944 Demonstrate understanding of aspects of acids and bases	Level 1	4 credits	External	Partial coverage
90930 Carry out a practical chemistry investigation, with direction	Level 1	4 credits	Internal	Full coverage

****Group 1 plus group 2 provides full coverage for 90944.***

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Standards: Group 3

91165 Demonstrate understanding of the properties of select organic compounds	Level 2	5 credits	External	Full coverage
90932 Demonstrate understanding of aspects of carbon chemistry	Level 1	4 credits	External	Full coverage



More information

Check out our website for more information and to enrol:

<https://www.stemonline.auckland.ac.nz/>

Check out this link for more details on how our courses are structured:

<https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/a/238/files/2017/09/STEM-Online-NZ-overview.pdf>