

# Chemistry Senior Syllabus 2007

## Subject guide

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### What is Chemistry all about?

Chemistry is the investigation of the material universe through the exploration of the substances of which matter is composed, the investigation of their properties and reactions, and the use of such reactions to form new substances. Chemistry will help you to understand the links between the macroscopic properties of the world and the subatomic particles and forces that account for those properties. The application of chemistry enables us to make sense of the physical world.

### What will you learn?

In Chemistry, subject matter is derived from key concepts and key ideas. The key concepts are organised under the headings of 'Structure' and 'Reactions'.

You will progressively explore and develop your understandings of these over the course of study through six to twelve units of work.

#### Structure

- All matter is composed of atoms.
- Materials can be categorised and represented symbolically and their macroscopic properties can be explained and predicted from understandings about electronic structure and bonding.

#### Reactions

- Specific criteria can be used to classify chemical reactions.
- Chemical reactions involve energy changes.
- The mole concept and stoichiometry enable the determination of quantities in chemical processes.
- Specialised qualitative and quantitative techniques are used to determine quantity, composition and type.
- Chemical reactions are influenced by the conditions under which they take place and, being reversible, may reach a state of equilibrium.

### How will you learn?

When you study Chemistry you will be involved in many interesting learning activities, including:

- examining national science initiatives
- using various forms of technology and equipment
- researching from primary and secondary sources, while applying the principles of research ethics
- interpreting data from wide-ranging sources, including media
- analysing current strategies or policies of the issue being investigated

- analysing strategies and evaluating effectiveness or improvements and proposing and/or implementing strategies for improvement
- formulating hypotheses and testing them
- participating in fieldwork
- conducting interviews
- predicting impact of recommendations of a science report or experiment
- making decisions and solving problems
- undertaking experiments and engaging in active research projects, independently and with others
- participating in forum discussions and debates
- sharing information mutually beneficial to the group
- advocating for change.

## How will you be assessed?

Assessment in Chemistry gives you opportunities to demonstrate *Knowledge and conceptual understanding, Investigative processes and Evaluating and concluding*.

In Chemistry, assessment instruments include:

- extended experimental investigations — within this mandatory category, instruments are developed to investigate a hypothesis or to answer a practical research question
- supervised assessments — within this mandatory category, instruments such as written tests are used, and conducted under supervised conditions to ensure authentication of student work
- extended response tasks — within this category, instruments are developed in response to a Chemistry question, circumstance or issue and while they are essentially non-experimental they may draw on primary experimental data.

In Year 12, you will be expected to complete at least four and a maximum of six assessment instruments, of which one will be an extended experimental investigation and at least one supervised assessment.

## How can parents/carers help?

Your parents/carers may help you by:

- discussing different views of current Chemistry issues with you
- encouraging and helping you to find suitable websites, documentaries, journals and other resources
- encouraging you to take part in school-based activities, including field trips, and extracurricular activities
- offering their services as guest speakers if they are involved in this area of study or related industry
- encouraging safe and ethical behaviour
- contacting your school to establish communication with your teachers to help understand the work undertaken at senior level, and to become familiar with assessment requirements.

## Where can Chemistry take you?

This subject contributes four credits towards the Queensland Certificate of Education (QCE). If you would like to learn more about this certificate, please visit the QCE page on the QCAA website [www.qcaa.qld.edu.au/589.html](http://www.qcaa.qld.edu.au/589.html).

An understanding of chemistry is relevant to a range of careers, including those in forensic science, environmental science, engineering, medicine, pharmacy and sports science. Additionally, chemistry knowledge is valuable in occupations that rely on an understanding of materials and their interactions, such as art, winemaking, agriculture and food technology. You might use this course as a foundation to pursue further studies in chemistry. Through the study of Chemistry you will become a more informed citizen, able to use chemical knowledge to inform evidence-based decision making and engage critically with contemporary scientific issues.

For further information about future tertiary pathways, consult the QTAC Guide to Tertiary Courses [www.qtac.edu.au](http://www.qtac.edu.au).

## More information

This subject guide relates to courses developed from the Chemistry Senior Syllabus 2007 (amended 2014). If you would like more information, please:

- visit the QCAA subject page [www.qcaa.qld.edu.au/1952.html](http://www.qcaa.qld.edu.au/1952.html)
- email [senior.syllabuses@qcaa.qld.edu.au](mailto:senior.syllabuses@qcaa.qld.edu.au).