

# CHEMISTRY CHO1O21Y1

## INTERNAL ASSESSMENT ACTIVITY

### ACHIEVEMENT STANDARD 90931 (VERSION 3) CHEMISTRY 1.2

Demonstrate understanding of the chemistry in a technological application

Level 1, Internal

2 credits

### STUDENT INSTRUCTIONS

#### Overview:

In this activity you will be examining your ability to:

- process information from different sources
- apply your understanding of chemistry to explain how technology is used to meet the needs of society
- collect together your ideas and produce a report
- present them in a way that can be clearly followed by someone else. Possible ways you can present the information include a typed report, a poster or a recorded video
- You may be able to gain digital technology credits if you present your information in a particular way (for example: brochure or Powerpoint). Contact your digital technology teacher to find out the specific requirements for these unit standards.

#### Conditions:

- This is an open book assessment. You must choose only **one** of the given options.
- Refer to the Resource information pdfs (i.e. CHO1012Y1A Building materials) for a list of sources of topic information and web links to help you complete this task. If you cannot find these, please contact your teacher.
- There is **no time limit** for this activity.
- You must complete this activity **in your own words**. If you copy from other people's work, your task will immediately be given a 'not achieved grade' or may be sent back to you as a resubmission, depending on the circumstances. It is important that **you show your understanding of NCEA Level 1 Chemistry**.
- Plagiarism detection software may be used to check this is your own work.

#### Supervisor requirements:

- Supervision is not required for this assessment.
- Upload your assessment to the CHO1021Y1 assessment dropbox when you have completed it.



# ASSESSMENT CRITERIA

## ACHIEVEMENT STANDARD 90931 (VERSION 3) CHEMISTRY 1.2

Demonstrate understanding of the chemistry in a technological application

| Achievement  | Achievement with Merit  | Achievement with Excellence  |
|--|---|--|
| Demonstrate understanding of the chemistry in a technological application. | Demonstrate in-depth understanding of the chemistry in a technological application. | Demonstrate comprehensive understanding of the chemistry in a technological application. |

### EXPLANATORY NOTES

*Demonstrate understanding* typically involves providing characteristics of, or an account of, the chemistry related to the use of the chosen application.

*Demonstrate in-depth understanding* typically involves explaining how or why the chemistry applies to the use of the chosen application.

*Demonstrate comprehensive understanding* typically involves linking the chemistry applicable to the chosen application with its use. The linking may include explaining, elaborating, justifying, relating, evaluating, comparing and contrasting, or analysing.

# ASSESSMENT ACTIVITY

## CHEMISTRY

### TASK

Choose **one** of the following topics. Extra information is given in the Information resource pdfs for each topic.

Your presentation should show your understanding of the chemistry at the macroscopic level (what you see), submicroscopic level (particles) and model level (formulae and equations).

### A. BUILDING MATERIALS

Cement and limestone are used as building materials, both for structural as well as for decorative purposes.

Apply your understanding of the chemistry of acids, bases and salts to explain the advantages and disadvantages of using cement and limestone for these purposes.

Your information should show understanding of how these materials are produced or obtained, how they cope with air and acidic material like acid rain, and link the chemistry to their use.

Key modules that you should have completed already are SCO1051, SCO1052, SCO1053, and CHO1052.

### B. CHEMICALS IN THE HOME

Baking powder and Epsom salts are common items in homes.

Apply your understanding of the chemistry of acids, bases and salts to explain what they are used for, and how they work.

Your information should also show understanding of how these materials are produced (both commercially as well as how you could do it in a laboratory).

Key modules that you should have completed already are SCO1051, SCO1052, SCO1053, and CHO1052.

### C. MANUFACTURE OF AMONIA

Ammonia has many different uses in New Zealand.

Apply your understanding of chemical reactions and non-metals to explain how ammonia is manufactured and how and why it is used. Use your understanding of molecules and the separation of gases to link the properties of the starting material to how they are used to manufacture ammonia and when and the chemistry of how it is used.

Key modules that you should have completed already are SCO1051, SCO1052, SCO1053, and CHO1043.

#### **D. MANUFACTURE OF STEEL**

Steel is widely used in New Zealand in many different applications.

Apply your understanding of chemical reactions and metals to explain how steel is manufactured at Glenbrook, including how iron sands can be separated from ordinary sand and the importance of coal and calcium carbonate in the process. Use your understanding of the physical and chemical properties of metals and the metallic bonding model to link the chemistry of steel to some of its uses.

Key modules that you should have completed already are CHO1041, CHO1042, SCO1052, and SCO1053.

#### **E. PRODUCTION OF PETROL**

Petrol and diesel are extremely important for New Zealand's economy and way of life.

Apply your understanding of carbon chemistry to explain the difference between petrol and diesel and how these are obtained from crude oil. Use your understanding of molecules and boiling points to link the properties of the materials to how they are obtained and how they are used in different vehicles like cars and trucks.

Key modules that you should have completed already are SCO1051 or CHO1041, CHO1031 and CHO1032.

#### **F. PRODUCTION AND USE OF PLASTICS**

Plastics are considered so useful that they are being used in nearly every aspect of our lives. An awareness is growing of the effects of plastic on humans and the environment.

Apply your understanding of polymers to explain how polyethene and polypropene are manufactured and how they are used in society.

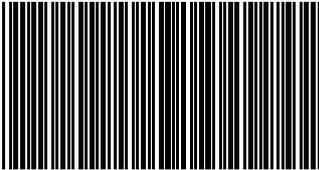
Your information should also link the chemistry of their properties to explain why these plastics are so suitable.

Key modules that you should have completed already are SCO1051 or CHO1041, CHO1031, and CHO1033.

### **WHAT TO DO NEXT**

**Upload your assessment activity to the CHO1021Y1 assessment dropbox. If you have not already done so, you must also upload your log sheet to the CHO1021A dropbox.**

**CH01O21Y1**



| <b>STUDENTS - PLACE STUDENT ADDRESS LABEL BELOW OR WRITE IN YOUR DETAILS.</b> |       |
|---|-------|
| Full name   | _____ |
| ID No.  | _____ |
| Address<br>(if changed)   | _____ |