

# CHEMISTRY CHO1O21Y1A

## TOPIC RESOURCE INFORMATION

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

Demonstrate understanding of the chemistry in a technological application

Level 1, Internal

2 credits

## A. BUILDING MATERIALS

Achievement	Achievement with Merit	Achievement with Excellence
<p>The student submits a report that:</p> <ul style="list-style-type: none"> <li>• Describes what acids, bases and salts are and how they relate to the pH scale.</li> <li>• Describes the uses of each building material.</li> <li>• Briefly describes the manufacture/production of each given building material.</li> <li>• Makes some links between their physical and chemical properties and their use.</li> <li>• Briefly describes how acid rain forms and its effect on building materials.</li> <li>• Includes at least three relevant chemical equations to support their understanding of the chemistry.</li> <li>• Uses typical chemistry vocabulary, symbols, conventions and equations.</li> </ul>	<p>The student submits a report that:</p> <ul style="list-style-type: none"> <li>• Explains what acids, bases and salts are and how they relate to the pH scale.</li> <li>• Describes the manufacture/production of each given building material.</li> <li>• Explains how their physical and/or chemical properties apply to their use.</li> <li>• Explains how acid rain forms and its effect on building materials.</li> <li>• Includes relevant symbol chemical equations showing the chemistry of their use.</li> <li>• Uses typical chemistry vocabulary, symbols, conventions and equations.</li> </ul>	<p>The student submits a report that:</p> <ul style="list-style-type: none"> <li>• Explains what acids, bases and salts are and how they relate to the pH scale.</li> <li>• Elaborates in detail how their physical and/or chemical properties apply to their use.</li> <li>• Elaborates on how acid rain forms.</li> <li>• Elaborates on the effect of acids on building materials.</li> <li>• Elaborates on treatment of the building materials to minimise the effect of acids on the building materials.</li> <li>• Includes relevant symbol chemical equations showing the chemistry of their manufacture and of their use.</li> <li>• Uses typical chemistry vocabulary, symbols, conventions and equations.</li> </ul>

# ASSESSMENT TIPS

In order to achieve this standard, your presentation must be in your own words and show your understanding of level 1 chemistry.

## TIP 1

If you have difficulty in transforming the text given in the links into your own words, then it is useful to ask yourself questions, such as those listed below. You can get friend or family member to ask you the questions and then record your answers. Transcribe your answers and then weave them into your report.

Please note that these questions are only **some** of the questions you could ask yourself, so don't limit your report to these only!

### **Acids, bases and salts** (SCO1052 is useful)

1. What is an acid?
2. What is a base?
3. What is a salt?
4. How do we measure acidity or basicity?
5. What is acid rain?
6. How does acid rain form?
7. What chemical equations have I used to support my explanations?

### **Application: Limestone** (SCO1053 is useful)

1. What is the formula for limestone?
2. Where is limestone quarried in New Zealand?
3. What are the uses of limestone (in a building context)?
4. How is limestone affected by acid rain?
5. Have I written my equations using correct chemical language (e.g. using subscripts)

### **Application: Cement** (focus on cement and not concrete)

1. What is cement?
2. How is cement made?
3. What are the uses of cement?
4. How is cement 'cured'?
5. Have I used chemical equations to support my explanations?

## TIP 2

When you read through the links or watch the videos given on *My Te Kura* or in the task, make notes using key words or phrases. When you write your report, use these key words rather than the text given in the links.

# TOPIC RESOURCES

## BUILDING MATERIALS

Your first source is the modules you should have completed – SCO1051, SCO1052 and SCO1053

### EXTRA SOURCES FOR MORE DETAIL

#### ACIDS, BASES AND SALTS

[www.chem4kids.com/files/react\\_acidbase2.html](http://www.chem4kids.com/files/react_acidbase2.html)

#### ACID RAIN

[https://en.wikipedia.org/wiki/Acid\\_rain](https://en.wikipedia.org/wiki/Acid_rain)

[www.bbc.co.uk/schools/gcsebitesize/science/add\\_ocr\\_pre\\_2011/context\\_chemistry/acidrainrev1.shtml](http://www.bbc.co.uk/schools/gcsebitesize/science/add_ocr_pre_2011/context_chemistry/acidrainrev1.shtml)

[www.chemistry.wustl.edu/~edudev/LabTutorials/Water/FreshWater/acidrain.html](http://www.chemistry.wustl.edu/~edudev/LabTutorials/Water/FreshWater/acidrain.html)

[www.all-science-fair-projects.com/print\\_project\\_1356\\_118](http://www.all-science-fair-projects.com/print_project_1356_118) (This link also has a number of videos)

#### LIMESTONE

[http://flexiblelearning.auckland.ac.nz/rocks\\_minerals/rocks/limestone.html](http://flexiblelearning.auckland.ac.nz/rocks_minerals/rocks/limestone.html)

<http://sciencelearn.org.nz/Contexts/A-Fizzy-Rock/Science-Ideas-and-Concepts/Limestone-uses>

<http://sciencelearn.org.nz/Contexts/A-Fizzy-Rock/Science-Ideas-and-Concepts/Carbonate-chemistry> (a good section on solubility and the reaction of acids)

<http://sciencelearn.org.nz/Contexts/A-Fizzy-Rock/Sci-Media/Animations-and-Interactives/Calcination> This explains how limestone is converted into lime which gets used to make cement.

#### CEMENT

<https://en.wikipedia.org/wiki/Cement>

[www.buideazy.com/newplans/eazylist/cement.html](http://www.buideazy.com/newplans/eazylist/cement.html) (How cement is made)

<https://en.wikipedia.org/wiki/Carbonatation> (chemistry of cement with carbon dioxide)

Additional sources may be used and must be quoted (full web link) in the bibliography to verify the source.