Te Kura
Te Aho o Te Kura Pounamu
The correspondence school

CHEMISTRY CHO3031Y1B
TOPIC RESOURCE INFORMATION

ACHIEVEMENT STANDARD 91389 (VERSION 2) CHEMISTRY 3.3
Demonstrate understanding of the chemical processes in the world around us
Level 3, Internal assessment
3 credits

B. 1080 PEST CONTROL

Achievement	Achievement with Merit	Achievement with Excellence
The student submits a report that: • States the reasons why pest control is needed. • Describes the manufacture of 1080. • Describes the effect of 1080. • Describes the chemistry of how 1080 works. • Describes the issues that have arisen using 1080. • Describes changes made to how, when and where 1080 is distributed. • Suggests possible alternatives to 1080. • Is supported by the use of typical chemistry vocabulary, symbols, conventions and equations. • Shows understanding of Level 3 chemistry.	The student submits a report that: • Explains the reasons why pest control is needed. • Gives an in-depth explanation of the manufacture of 1080. • Gives an in-depth explanation of the effect of 1080. • Gives an in-depth explanation of the chemistry of how 1080 works (and its breakdown) relating to solubility and Kreb's cycle. • Gives an in-depth explanation of the issues that have arisen using 1080. • Gives an in-depth explanation of changes made to how, when and where 1080 is distributed. • Suggests possible alternatives to 1080. • Has explanations integrate chemistry vocabulary, symbols, conventions and equations. • Shows in-depth understanding of Level 3 chemistry.	The student submits a report that: • Explains the reasons why pest control is needed. • Gives a comprehensive explanation of the manufacture of 1080 (shows understanding of esters). • Gives a comprehensive explanation of the effect of 1080. • Gives a comprehensive explanation of the chemistry of how 1080 works (and its breakdown) relating to solubility and Kreb's cycle • Gives a comprehensive explanation of the issues that have arisen using 1080. • Gives a comprehensive explanation of changes made to how, when and where 1080 is distributed • Compares and contrasts possible alternatives to 1080. • Has consistent integration of chemistry vocabulary, symbols, conventions and equations. • Shows comprehensive understanding of Level 3 chemistry.

ASSESSMENT TIPS

To achieve this standard, you need to present your report **in your own words** and **show your understanding of level 3 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!

Background

1. What is 1080?
2. Why is 1080 used for?
3. Why does New Zealand use 1080?

Chemistry: How oceans are becoming more acidic

4. Can I explain terms like 'solubility', 'esters', 'rate of reaction', 'hydrolysis', 'acetate', 'electronegativity', 'isomer', 'salt' and 'LD50'?
5. Can I write equations for how 1080 is made, dissolution in water and its interaction in the Kreb's cycle?
6. Have I written my equations using correct chemical language (e.g. using subscripts and states)?
7. Can I apply my understanding of ligands from CHO3061 to explain the effect of citrate on calcium ions?
8. Can I draw molecules to explain how 1080 tricks the body?
9. Can I explain the hydrolysis of esters?
10. Have I drawn my own molecules and not just copied and pasted pictures from the internet?
11. Can I explain the what affects the breakdown of 1080 and why this is important?

Advantages and disadvantages

1. Can I describe at least two issues associated with using 1080?
2. Can I explain some of the interventions that are carried out to minimise harm?
3. Can I compare 1080 with other methods of pest control?

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 in your log book, CHO3031A. When you write your report, use these key words rather than the text given in the links.

TOPIC RESOURCES
1080 PEST CONTROL

Your first source is the modules you should have completed – CHO3001, CHO3051, CHO3052.

EXTRA SOURCES FOR MORE DETAIL

GENERAL OVERVIEW

1. www.doc.govt.nz/nature/pests-and-threats/predator-free-2050/
2. www.doc.govt.nz/nature/pests-and-threats/methods-of-control/1080/
3. www.sciencelearn.org.nz/resources/1157-protecting-native-birds
4. https://sci.waikato.ac.nz/bioblog/2009/11/topical-1080.shtml
5. https://en.wikipedia.org/wiki/1080_usage_in_New_Zealand
6. https://youtu.be/VBjUrSOkBFc Māori persepective
7. www.stuff.co.nz/environment/67189805/Q-A-Pest-control-poison-1080
8. https://en.wikipedia.org/wiki/Sodium_fluoroacetate

CHEMISTRY OF HOW 1080 IS MADE AND HOW IT WORKS (THIS SHOULD BE YOUR KEY FOCUS)

9. www.youtube.com/watch?v=PPyViicHpVo
10. https://youtu.be/hNJmHIBMF20
11. www.inchem.org/documents/pims/chemical/pim494.htm#2.1 browse bits and pieces in this rather long article
12. www.sciencedirect.com/topics/neuroscience/sodium-fluoroacetate

ISSUES AROUND USING 1080

13. www.doc.govt.nz/nature/pests-and-threats/methods-of-control/1080/1080-poison-whats-in-the-bait/
14. www.doc.govt.nz/nature/pests-and-threats/methods-of-control/1080/why-we-use-aerial-1080/
15. www.doc.govt.nz/nature/pests-and-threats/methods-of-control/1080/1080-safety-and-transparency/
16. www.doc.govt.nz/parks-and-recreation/things-to-do/hunting/what-to-hunt/deer/deer-repellent-on-1080/
17. www.sciencelearn.org.nz/resources/1113-the-biodegradable-possum-bait-station
18. www.stuff.co.nz/national/blogs/in-our-nature/8954961/Why-1080-is-a-dirty-word
19. http://1080science.co.nz/1080-chemistry/
20. www.forestandbird.org.nz/resources/frequently-asked-questions-about-1080

OTHER POSSIBLE SOLUTIONS

21. www.sciencelearn.org.nz/resources/1082-biological-control-of-possums
22. predatorfreenz.org/
23. www.youtube.com/watch?v=0220zh1beFQ
24. www.sciencemediacentre.co.nz/2018/09/05/1080-use-in-nz-expert-qa/
25. www.1080facts.co.nz/1080-bait-and-delivery.html
26. www.doc.govt.nz/nature/pests-and-threats/methods-of-control/1080/1080-safety-and-transparency/

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