

Westland High School Internal Assessment Task Sheet

Socio-scientific issue affecting a NZ or Pacific region

A company wishes to **mine gold and/or other minerals near Hokitika**. The process the company plans to use will result in **significant amounts of runoff with high pH, heavy metals and sediment**.

This assessment activity requires you to **prepare a report that outlines the chemical processes involved and the effect on the environment** of this extraction method.

You will be assessed on the comprehensiveness of your report and on your evaluation of the impact of, and issues that have arisen from, chemical processes.

You have **two weeks of in-class and out-of-class time** to individually complete a draft for feedback. **After receiving feedback, you have a further week** to improve your report.

This assessment task is to investigate a **socio-scientific issue which has a direct relevance to a New Zealand region**, and integrate the chemical processes related to the issue to develop an **informed response** - a response backed up with scientific evidence.

A **socio-scientific issue** refers to a current issue that has an impact on individuals and society. It has both **chemistry, earth and space science, and social implications**. The issue is one for which people hold different opinions or viewpoints. Social implications may be **economic, ethical, cultural, or environmental**.

Investigate a socio-scientific issue involves research and the collection of primary and/or secondary scientific information and/or data from a **variety of sources** such as **websites, interviews, resource sheets, photos, videos, and reference texts**. The information **must include scientific sources**.

An informed response flows logically from collected and **integrated biological and earth and space science information**. **Integrated scientific information** comes from different sources and is rewritten in your own words with paragraphs that flow in a logical manner, by linking the end of one to the next, rather than jumping from one idea to another.

Your teacher may provide you with extra resource material and/or suggest relevant information sites or possible new directions for your research.

Achievement Standard Earth and Space Science 91411: Investigate a socio-scientific issue in an Earth and Space Science context Credits: 4 Level: 3 Version: 2	Achievement Standard Chemistry 91389: Demonstrate understanding of chemical processes in the world around us Credits: 3 Level: 3 Version: 2
Achievement	Achievement
Investigate a socio-scientific issue in an Earth and Space Science context.	Demonstrate understanding of chemical processes in the world around us.
Achievement with Merit	Achievement with Merit
Investigate in depth a socio-scientific issue in an Earth and Space Science context.	Demonstrate in-depth understanding of chemical processes in the world around us.
Achievement with Excellence	Achievement with Excellence
Investigate comprehensively a socio-scientific issue in an Earth and Space Science context.	Demonstrate in-depth understanding of chemical processes in the world around us.

Conduct research on **Acid mine drainage** to gather information and report on the following points to meet the **Chemistry** and **Earth and Space Science** criteria:

Achieved level	Check
1. Select a valid range of relevant scientific information on the issue , from a variety of sources – in particular in relation to a NZ region.	
2. Explain the earth and space science of the issue (as above, but explain how waterways are polluted and this pollution travels to the oceans)	
3. Give an account of the chemical processes related to an environmental issue	
4. Support the account of the chemical processes related to the issue, with chemistry vocabulary, symbols, conventions, and equations . This includes the correct use of sub and super-scripts and linking any equations to the account of the chemical processes.	
5. Describe and explain the key impact (economic, ethical, cultural, or environmental) of the issue on individuals – (e.g. environmental pollution of water by nitrates can cause cancer)	
6. Describe and explain the key impact (economic, ethical, cultural, or environmental) of the issue on society – (e.g. cancer of large number of people is harmful and devastating to a large amount of people, loss of clean waterways prevents recreation)	
7. Describe your personal response (your own point of view) to the issue based on the earth and space science information. (say what you think – but say what information made you choose that)	
8. Describe a societal response (at the level of family, whānau, or a small or large group) to resolve the issue and explain why you chose these. (e.g. suggest that dairy and meat is taxed more, laws restricting pollution allowed)	
Merit level – above with more detail to ensure you:	
9. Explain in detail the issue, the key impacts on individuals and society, and the personal and societal responses to the issue.	
10. Make and explain links between the chemical processes.	
11. Make and explain the consequences of the chemical processes for people and/or the environment.	
12. Integrate chemistry vocabulary, symbols, conventions, and equations with the explanations of the chemical processes.	
Excellence level – above with more detail, plus ONE of these:	
13. Evaluate the issue and the impact on individuals and society	
14. Elaborate on the consequences of the chemical processes for people and/or the environment.	
15. Consistently integrate chemistry vocabulary, symbols, conventions, and equations with the explanations of the chemical processes.	
16. Justify a personal response to the issue	
17. Evaluate a societal response to the issue.	