**ACTIVITY: What’s poisonous?**

**Activity idea**

In this activity, students learn about toxins and poisons and research what’s poisonous in New Zealand.

By the end of this activity, students should be able to:

* describe how at least one historical poison disaster helped people in the future
* explain the difference between toxins (natural toxins) and other poisons
* explain how poisons/toxins can be useful
* describe and talk about toxic animals, plants or food in New Zealand
* explain what to do in a case of poisoning and describe what the National Poison Centre is.

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**Introduction/background**

This activity encourages students to work together to complete and present a project. Initially, the students surf through time, looking at some poison incidents in history. Through teacher questioning and discussion, they will realise that poison disasters in history have led to discoveries that help keep future generations safe (such as the Minamata disaster or the London Great Smog).

Students then look more closely at poisons and toxins and are led to realise that some poisons are manufactured, while others, toxins (sometimes referred to as natural toxins), are produced naturally in nature. Students are also made aware that we can use some toxins (in very small doses) to our advantage.

The research requires students to work as a group. They research an aspect of something poisonous in New Zealand based on articles from the context. This includes animals, plants or bacteria (which cause food to become toxic). They then present what they find out in the form of a large illustrated poster or chart to the class. The class is encouraged to ask questions for the group to answer – simulating an aspect of a scientist’s work (communicating with others).

Note: If a group chooses to research the grey side-gilled sea slug, there are a number of articles about this toxic animal in the Toxins context. This might be helpful for students who have difficulty searching the internet.

Finally, through reading and discussing the article on the National Poisons Centre, students are made aware of what to do in an emergency with poisoning.

**What you need**

* Access to or copies of the articles [Poisons and toxins](https://www.sciencelearn.org.nz/resources/368-the-national-poisons-centre), [The National Poisons Centre](https://www.sciencelearn.org.nz/resources/368-the-national-poisons-centre), [Poisonous plants in New Zealand](https://www.sciencelearn.org.nz/resources/369-poisonous-plants-in-new-zealand), [Poisonous animals in New Zealand](https://www.sciencelearn.org.nz/resources/370-poisonous-animals-in-new-zealand) and [Food poisoning](https://www.sciencelearn.org.nz/resources/371-food-poisoning)
* Access to the Toxins timeline [Poisons](https://www.sciencelearn.org.nz/resources/1904-poisons-timeline)
* Access to the internet

**What to do**

1. In pairs, students work their way through the Toxins timeline [Poisons](https://www.sciencelearn.org.nz/resources/1904-poisons-timeline) to look at some historical and developmental aspects of poisons. Discuss some of the developments. What did people find out about poisons over time? What were some changes to the laws? Why?
2. Have students search the internet for ‘Minamata disaster’. What happened? What did people learn from this?
3. Find out what a poison and a toxin is. In small groups or pairs, have students read [Poisons and toxins](https://www.sciencelearn.org.nz/resources/368-the-national-poisons-centre). This article makes a distinction between a general poison and a toxin. Some scientists don’t recognise this distinction. To them, poisons and toxins are the same. They use the term ‘natural toxins’ or ‘biotoxins’ to describe poisons produced within or by living organisms. Also in this article, the deadly toxin botulinum is mentioned. Botulinum is the most powerful neurotoxin ever discovered. What is a neurotoxin? Find out how it affects organisms (including people). Can you see why botulinum (in very, very small doses) is used for reducing wrinkling of the skin? It is also used for sedation. Search the internet and find out how else toxins can be useful. (Try searching ‘uses for toxins’, ‘natural toxins and pesticides’, ‘toxins and medicines’.)

***Research activity***

1. Divide the class into groups of about 3–4. One-third of these groups researches toxic animals in New Zealand, another third of these groups researches toxic plants in New Zealand and the remaining third researches food poisoning. Each group develops a poster or chart about an aspect of their research to share with the class.
2. Each group initially reads the article relevant to them – [Poisonous plants in New Zealand](https://www.sciencelearn.org.nz/resources/369-poisonous-plants-in-new-zealand), [Poisonous animals in New Zealand](https://www.sciencelearn.org.nz/resources/370-poisonous-animals-in-new-zealand) and [Food poisoning](https://www.sciencelearn.org.nz/resources/371-food-poisoning).

1. Students choose an aspect of the article they would like to pursue further such as poisonous fungi, poisonous spiders, *Campylobacter* or ways to avoid food poisoning.
2. Students find out more about their chosen topic using the internet.
3. Students design and a make poster or chart as a group on chosen topics.
4. Each group presents their poster to the class. Each person in the group contributes to the presentation.
5. Allow time for the class to put questions to the groups to answer. Initially, you may need to encourage the class to think of questions while a group is presenting. Encourage them to write the questions down and ask them at the end.
6. Finally, as a class, read and discuss the article on [The National Poisons Centre](https://www.sciencelearn.org.nz/resources/368-the-national-poisons-centre).