The Eighth Wonder of the World

by Sue Gibbison
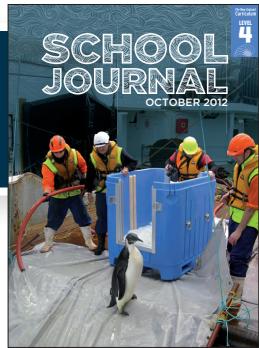
Overview

This article describes the loss and possible rediscovery of the famous Pink and White Terraces. It describes the unusual events immediately prior to the eruption that covered these iconic natural features and goes on to explain how new technology is being used to map and scan the bottom of Lake Rotomahana to find the Pink and White Terraces. The article also brings into focus the meeting of two cultures and makes reference to the relationship between the colonial government of the 1880s and the tangata whenua. More questions are raised than answered.

There are shifting time periods, indicated by dated headings, so a range of past and present verb forms is used. The tone of the article is conversational with an underlying sense of drama. The mix of historical and scientific information provides opportunities to support students to inquire into how people make decisions that impact on communities, in this case the people of Tūhourangi, with a focus on how exploration and innovation create opportunities and challenges as people attempt to solve problems or mysteries.

Texts related by theme   **"On the Dinosaur Trail"** SJ 4.1.11 | **"Voyage of Exploration"** *Connected* 4, 2012

Text characteristics from the year 8 reading standard

academic and content-specific vocabulary

illustrations, photographs, text boxes, diagrams, maps, charts, and graphs, containing main ideas that relate to the text's content
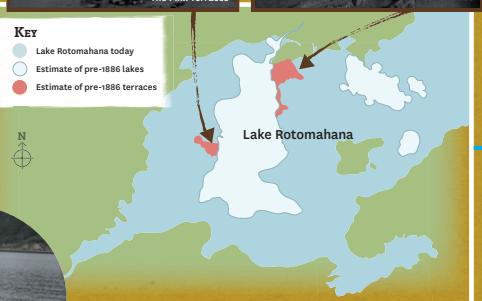
elements that require interpretation, such as complex plots, sophisticated themes, and abstract ideas

sentences that vary in length, including long, complex sentences that contain a lot of information

non-continuous text structures and mixed text types

Reading standard: by the end of year 8

Possible curriculum contexts

CURRICULUM (Social Sciences**)**

Level 4: Understand how formal and informal groups make decisions that impact on communities.

ENGLISH (Reading)

Level 4 – Ideas: Show an increasing understanding of ideas within, across, and beyond texts.

ENGLISH (Writing)

Level 4 – Language features: Use a range of features appropriately, showing an increasing understanding of their effects.

Possible reading purposes

- To find out about the eruption of Mt Tarawera and the disappearance of the Pink and White Terraces
- To explore the impact of the loss of the Pink and White Terraces on the tangata whenua
- To find out about a project to discover the exact location of the Pink and White Terraces.

See Instructional focus – Reading for illustrations of some of these reading purposes.

Possible writing purposes

- To explain a natural phenomena in your local environment
- To describe a project to restore an important landmark or iconic environmental feature
- To put forward your opinion or point of view on what should happen to the Pink and White Terraces.

See Instructional focus – Writing for illustrations of some of these writing purposes.

The New Zealand Curriculum

Text and language challenges

VOCABULARY:

- Possible unfamiliar vocabulary, including "disembarked", "cascading", "cauldron", "compensation", "autonomous", "surged", "geothermal", "torpedo-shaped", "scanner", "sediment"
- Te reo Māori, including place names: "Te Wairoa", "Rotomahana", "Te Ariki", "Te Tarata", "Te Otukapuarangi", "Tarawera"; people: (Sophia) "Hinerangi", "Tūhoto Ariki", "Ngātoroirangi"; local iwi: "Tūhourangi", "Te Arawa"; and nouns, including "tohunga", "waka", "taua".

Possible supporting strategies

On a chart or whiteboard, show the students how words can be broken into syllables and focus on the prefixes "dis", "auto", and "geo". Explore their meanings by brainstorming other known words with the same prefix. Model how to use this knowledge to predict the meanings.

Pre-teach the Māori words as appropriate. Some words may have familiar parts that students can use to work out the meanings, for example, "roto" (lake).

Identify unfamiliar words that students need to prioritise for their learning. *The English Language Learning Progressions: Introduction*, pages 39–46, has some useful information about learning vocabulary.

SPECIFIC KNOWLEDGE REQUIRED:

- History and location of Mt Tarawera and Lake Rotomahana
- Knowledge of volcanic eruptions
- Knowledge of what happened to the Pink and White Terraces
- Knowledge of the role of technology in locating and mapping ocean/lake floors
- Awareness of issues impacting various iwi around land, water, and resource use and control
- Title "The Eighth Wonder of the World".

Possible supporting strategies

Use images, photos, DVDs, and the Internet to provide more information about the Mt Tarawera eruption and its consequences. Audio and visual materials are useful supports for building vocabulary and conceptual knowledge. They can be used as prompts for building a vocabulary list before reading.

Find out if students have heard the expression the "Seven Wonders of the World". Explain what these are and support them to predict why the Pink and White Terraces were called the eighth wonder.

Students who have a first language other than English will benefit from exploring new concepts in this language before reading. If possible, you could provide written, audio, or audiovisual material in their first language.

TEXT FEATURES AND STRUCTURE:

- Mixed text type, including historical recount and present-day explanation
- A range of past and present verb forms
- Some passive structures
- Use of adjectival phrases, including "fine autumn morning", "like a giant staircase"
- Maps, diagrams, photos, and information boxes used to clarify information and to provide extra detail and information.

Possible supporting strategies

Preview the text with students, noting its organisation according to specific time periods – from 1886 to the present and then to the future. Remind the students that they will meet different verb forms according to the time frames. Review some of the different forms and then select small chunks of text from different sections. Have the students use clues to establish the time frame, note the verb forms, and discuss and record the forms and their meanings.

Explain that writers add detail to nouns in several ways – sometimes by using several adjectives to precede a noun, sometimes by including a phrase that adds detail and description about place, time, position, and so on. Break the sentences into parts, showing the noun and the words or phrases that add detail. Ask students to work in pairs to innovate on the structures to give different meanings, including adding other words and phrases. It's useful to provide a purpose for changing the details, for example, by providing different nouns or giving them pictures to describe.

Ask the students to explore in pairs the link between the maps and photos on pages 34 and 35 and on pages 36 and 37. Prompt them to use the arrows and connecting lines to work out the changes to the lake after the eruption and the possible location of the Pink and White Terraces.

Sounds and Words

Instructional focus – Reading

Social Sciences (Level 4: Understand how formal and informal groups make decisions that impact on communities.)

English (Level 4 – Ideas: Show an increasing understanding of ideas within, across, and beyond texts.)

Text excerpts from "The Eighth Wonder of the World"	Students (what they might do)	Teacher (possible deliberate acts of teaching)

The villages of Te Ariki and Te Wairoa were buried. More than a hundred people had been killed. And the Pink and White Terraces were gone, most people thought forever.

The government of the day took advantage of the disaster by buying their land.

Although the tourists eventually came back, local Māori had lost control of both their land and the tourism industry associated with it. In 2004, the government paid compensation to the Te Arawa people for this loss of land …

*The students **locate** information that describes the eruption and **ask and answer** questions about the size and magnitude of the eruption to **infer** that it was massive.*

*They **integrate** information about the eruption with information in the fact box to **think critically** about the actions of the government and their impact on the local iwi. They **synthesise** information to **make inferences** about the long-term consequences of the eruption on the Te Arawa people, and they **ask questions** about the compensation paid in 2004.*

PROMPT the students.

- What do you know about the Mount Tarawera eruption?
- What extra information does the text provide? Look back over the text and preview the photos and diagrams.
- When you put all this information together, what inferences can you make about the size and the impact of the eruption?

ASK QUESTIONS to support the students to make links between the eruption and the consequences.

- What do you think "the government of the day took advantage of the disaster by buying their land" means?
- Why might Tūhourangi have sold their land to the government?
- What were the consequences for Tūhourangi of the loss of their land? What benefit was or wasn't there to Tūhourangi?

MODEL how you use the text to support your understanding.

- I know that photos and maps are provided in articles to give extra information that will help us get a clearer idea of what we are reading. So I notice that the black-and-white photos of the Pink and White Terraces were taken before the eruption. I see there is a white line from each photo to a place on the map. Talk with a partner about why you think the lines are there and how they help you.

Darter contains a scanner that maps the surface of the lake floor.

Gudgeon contains a different scanner, which uses sound signals to help identify the kinds of materials on the bottom of the lake …

Ultimately, they hope to use this data to piece together the story of what happened to the pink and white geothermal systems …

Sixty metres down, Gudgeon has found several crescent-shaped structures that are very hard. Could these be what remain of the terraces?

*The students **locate and evaluate** information in the images and **integrate** this with the information in the text to **draw conclusions** about the purpose of the project. They **ask and answer** questions about the scanners and **synthesise** this information to predict what they think the scanners will find.*

*They **make connections** between the photo showing the lake in 1880 and the image created by the computer. They **integrate** this with the information in the photos to **draw conclusions** about what the scientists actually discovered.*

PROMPT the students.

- What information do the two photos of the AUVs provide?
- Why do you think they were included? How do they add more detail?
- What do the two dotted lines on the photo and the computer image suggest to you? Talk with a partner.
- Discuss whether you think the photos are evidence that they found the Pink and White Terraces. Explain your reasons to your partner.

ASK QUESTIONS

- What inferences have you made about the impact of the loss of land on the Te Arawa people?
- How do you think they would respond to the possible rediscovery of the Pink and White Terraces?

It would seem that the Pink and White Terraces haven't been lost forever …

They're already certain that a "very big geothermal system" lies buried at the bottom of the lake, …

Any developments would need to have the blessing of those whose ancestors died during the eruption.

*The students **make connections** between the discovery and the loss faced by the Te Arawa people to consider the outcomes of this discovery – on the environment and on the people. They **ask and answer questions** and **synthesise** information to form their own opinions about what should happen next and who should be involved in making the decisions.*

DIRECT the students to read the first paragraph on page 38.

- What do you think should happen next?
- What should the people making the decisions take into account?
- What would you recommend?

GIVE FEEDBACK

- I can see how you came to those conclusions about the impact of the loss of land on Tūhourangi by integrating those three statements. Use that strategy again as we read the next section about the mapping of the lake floor to work out what the scientists hope to find.

METACOGNITION

- How did you integrate information from the photos and maps with the text? How did it help you? Was there other information that you think might have been useful?
- How do you make inferences from a range of information? What thinking processes do you use? What makes it easy or hard?
- What do you do to synthesise information across the text?

Reading standard: by the end of year 8

The Literacy Learning Progressions

Assessment Resource Banks

Instructional focus – Writing

English (Level 4 – Language features: Use a range of features appropriately, showing an increasing understanding of their effects.)

Text excerpts from "The Eighth Wonder of the World"	Examples of text characteristics	Teacher (possible deliberate acts of teaching)

On a fine autumn morning, fifteen people walked the zigzag path from Te Wairoa village to Lake Tarawera.

There they saw a strange sight. The creek beside the boathouse was completely dry!

Nobody had ever heard of this happening before.

Some people were nervous about going out on the lake, but didn't want to miss …

They were halfway across the lake when another strange event occurred.

SETTING THE SCENE

Writers engage their readers by describing what is most important in the setting. This enables readers to visualise the place, the people, the feeling, the characters, the sights, smells, or whatever the writer chooses as most important. When recounting an event, the selection of details may be more focused on foregrounding the event.

EXPLAIN

- The writer has taken us straight to the scene by telling us when the event happened and by telling us it was a fine autumn morning, so we can use our prior knowledge to get a sense of what it was like. Notice how sparingly she has used the language. This is often more effective than describing in great detail how warm it was, what the sun looked like, and so on.

MODEL

- Look at the other examples on this page. The writer is also setting the scene by hinting that something unusual or even mysterious is going to happen.

PROMPT

- Find the clues the author gives us. How has she done this?

- What makes this effective?

ASK QUESTIONS

- Look at your own settings. Have you given readers the right amount of information so they can visualise the place and the events, without going into too much detail?

- Have you foreshadowed, giving the reader a sense of what is going to happen?

Geothermal activity in the central North Island is said to have begun with Ngātoroiriangi, a tohunga from the Te Arawa canoe.

Tourists first began visiting the thermal attractions around Rotorua in the mid-nineteenth century.

FACTS BOXES

Fact boxes provide extra information that supports the topic and provides specific detail and background. They may be facts and statistics that add weight to an argument, or they may give another side to a story, depending on what the writer decides the audience needs.

EXPLAIN

- Writers use fact boxes when the information or facts sit slightly outside the main body of the article, but they want to provide extra background for the reader.

PROMPT

- Do you need to support your article with a fact box? Why are you making that decision?

- What information do you think your reader needs? Share your reasons with your writing partner. See if they agree that your facts and information add more useful information. Ask them what else they think you might include.

MODEL

- In this sentence, "beside the boathouse" is modifying the creek by giving us information about where it was. The author has used this same technique by saying "a crater of boiling water". The phrase "of boiling water" gives us information about the crater. I can really imagine what it looks like!

The creek beside the boathouse …

… steam rose from a crater of boiling water.

Then two yellow torpedo-shaped, remote-controlled vehicles, …

… which uses sound signals to help identify the kinds of materials on the bottom of the lake, …

ADJECTIVAL PHRASES AND CLAUSES

Adjectival phrases and clauses modify and describe nouns. They provide more detail and specific information activating the reader's imagination. They may be a word, several words, a phrase, or a clause.

EXPLAIN

- Often I ask you to add detail to your writing. Adding adjectival phrases or clauses, which provide more information about a noun, is an effective way of including more precise detail.

For students who find adding adjectival phrases or clauses challenging, focus on one or two purposes (for example, identifying place) and create charts of adjectival phrases or clauses under these headings. Provide plenty of examples and model innovating on them to create new sentences. Use activities such as clozes, matching phrases/clauses and pictures, matching sentence halves, and co-constructing sentences to provide scaffolding and practice.

GIVE FEEDBACK

- You've used several really good adjectivals in this piece. What makes them effective is that you haven't overdone them and you've included specific descriptions, which really add to your main point.

- I notice that you've taken your reader straight into the old bus to set the scene. The way you've told me just enough without giving everything away is very engaging.

METACOGNITION

- Tell me why you deleted this whole paragraph? What didn't work? What is better about the replacement paragraph?

- How would you evaluate the effectiveness of your setting? What advice would you give yourself?

Writing standard: by the end of year 8

The Literacy Learning Progressions