



Overview

“The Big Dig” describes the 2011 slip in the Manawātū gorge, giving an insight into repairing such an enormous slip and the scale of the problems that needed to be dealt with.

This article:

- includes information about managing the repairs, about the engineering procedures, and about the operation of machinery

- contains photographs of the site, showing different stages in the repairs and the machinery used
- provides opportunities for students to think critically about the impact of the slip on people’s lives.

A PDF of the text is available at www.schooljournal.tki.org.nz

Texts related by theme “Robot Challenge” SJ L3 October 2013 | “Knee Deep” SJ L4 October 2013

Text characteristics from the year 5 reading standard

CROSS-SECTION OF THE SLIP

This cross-section shows progress by February 2012. Almost half the debris had been removed and the hillside had been cut into a series of benches.

Material removed (170 000 cubic metres)

Material yet to be removed (200 000 cubic metres)

29 February 2012

River Road

Hard Work

In the days before Christmas, everyone was still hard at work. At the road level, a 20-tonne digger scooped up great masses of rock and earth. A loader dumped the loose material into trucks, which came and went up to 250 times a day. Because there was so much activity, people were assigned as spotters. They used binoculars to scan the hillside for any unstable boulders and had radios to warn of danger. Changeable weather made working on the hillside for any unstable boulders and had radios to warn of danger.

mixed text types (for example, a complex explanation may be included as part of a report)

trucks detoured through their town. These trucks as their surface wasn’t built to cope with heavy traffic. The third and fourth benches were dug into the hillside, and after that, the Bandit was no longer needed. This meant that the machines had to keep going and dig all the way down to the road. There was no other way off the hillside. And so the digging continued. By the time the slip was finally cleared, 370 000 cubic metres of rock and earth had been trucked away. If that doesn’t mean anything ... imagine Wellington’s stadium being filled with so much dirt that it spills out over the roof.

The third and fourth benches are cut into the hillside. ▼

sentences that vary in length and in structure (for example, sentences that begin in different ways and different kinds of complex sentences with a number of subordinate clauses)

Hard Work

In the days before Christmas, everyone was still hard at work. At the road level, a 20-tonne digger scooped up great masses of rock and earth. A loader dumped the loose material into trucks, which came and went up to 250 times a day. Because there was so much activity, people were assigned as spotters. They used binoculars to scan the hillside for any unstable boulders and had radios to warn of danger. Changeable weather made working on the hillside for any unstable boulders and had radios to warn of danger.

a significant amount of vocabulary that is unfamiliar to the students (including academic and content-specific words and phrases), which is generally explained in the text by words or illustrations

the hillside for any unstable boulders and had radios to warn of danger. Changeable weather made working on the slip tough. David McGonigal says that some days, gale-force winds and rain “it was a fifteen-minute climb up the slope. Crews had to use a rope to pull themselves up. We had to chopper in our supplies – even the portable toilets!”

illustrations, photographs, text boxes, diagrams, maps, charts, and graphs that clarify or extend the text and may require some interpretation

Possible curriculum contexts

TECHNOLOGY (Technological Practice)

Level 3 – Planning for practice: Undertake planning to identify the key stages and resources required to develop an outcome. Revisit planning to include reviews of progress and identify implications for subsequent decision making.

ENGLISH (Reading)

Level 3 – Language features: Show a developing understanding of how language features are used for effect within and across texts.

ENGLISH (Writing)

Level 3 – Language features: Use language features appropriately, showing a developing understanding of their effects.

Possible reading purposes

- To find out what happened as a result of the big slip
- To find out how a problem caused by the slip was resolved
- To understand how the public were affected by the slip.

Possible writing purposes

- Describe another technical problem and how it was resolved
- Describe the impact of the slip on different groups of people
- Construct a chart of the problems and solutions in the repair of the slip.



Text and language challenges

VOCABULARY:

- Possible unfamiliar words and phrases, including “pelting”, “torrent”, “detours”, “established”, “trucking firms”, “torrential”, “debris”, “quandary”, “stabilised”, “unstable material”, “budge”, “assigned”, “spotters”, “binoculars”, “changeable”, “mush”, “affected”, “announced”, “restore”, “levelled”, “modern history”
- Subject-specific vocabulary: “deep course”, “New Zealand Transport Agency’s state highways manager”, “cubic metres”, “engineers”, “geologists”, “lasers”, “benched the hillside”, “rock anchoring”
- Words used in an unusual context or way: “to chopper”, “heavy traffic”, “truck/trucked/trucking”, “cut the landslide”, “wrapped up”, “benches/benched/benching”
- The slang word “grunty”
- Affixes: “torrent/torrential”, “stabilise/ stabilised/unstable”
- Names of people and places
- A short glossary
- Use of the language of time to connect events.

Possible supporting strategies

Some of these suggestions may be more useful before reading, but they can be used at any time in response to student needs.

- Identify key vocabulary your students may have difficulty with. Preview the words and have them identify those they are unsure of. Support their understanding, for example, model, explain, and record the words in discussions of the topic prior to reading. Feed in and clarify the vocabulary while previewing illustrations. Remind them to use the context and glossary to help solve word meanings as they read.
- Review and clarify meanings after reading, noting words used in unusual ways and the meaning of affixes.
- Draw the students’ attention to the map on page 4 and remind them to refer to it.
- Support their understanding of the time scale and sequence of events. Review what they know about language for signalling time and sequence. Have them scan the text in pairs for examples. Start or add to a chart of this language. Add to the chart during and after reading.
- Co-construct or support the students to create a timeline consisting of the main events and, if appropriate, the associated verb phrases and signal words. Note that identifying the sequence of events when it isn’t explicitly signalled can be challenging (for example, third paragraph on page 3).
- See ESOL Online, Vocabulary, for examples of strategies to support students with vocabulary. The English Language Learning Progressions: Introduction, pages 39–46, has useful information about learning vocabulary.

SPECIFIC KNOWLEDGE REQUIRED:

- Some understanding of road maintenance
- Some awareness of infrastructure (roading)
- Knowledge of geographical features
- Knowledge of occupations
- Some understanding of the mathematical concepts of scale, size, and volume.

Possible supporting strategies

- Make connections to prior knowledge of road maintenance by having the students share experiences of stopping for road works.
- Discuss the types of roads – state highways, rural roads, and town roads – and who looks after them. You may need to explain that the government takes responsibility for facilities like schools and hospitals, as well as systems like national roads, which are there for everyone to use.
- Question their understanding of the land forms and reinforce the technical vocabulary as they explore the photographs.
- Prompt the students to use their prior knowledge to make connections with the context to consider what the “geologist” and “engineer” might do on this project.

TEXT FEATURES AND STRUCTURE:

- A factual recount, which includes explanations of some technical aspects and processes related to the topic
- Sub-headings, which support the key stages of the repair
- Many simple sentences, which support the clear flow of information
- Mix of present, future, and past tenses
- Photographs, a diagram, and a map, providing supporting information
- Analogies to support the concepts of size and volume.

Possible supporting strategies

- Use their discussion and a scan of the sub-headings to help the students make connections to prior knowledge of recounts and their expectations of the structure and the information.
- Support the students to use the first reading to get a sense of the information and ask questions about information and ideas they need to clarify.
- For students who will find this text challenging, use the photographs, diagrams, and sub-headings to thoroughly preview the content before the first reading. For example, after reading the first paragraph together, assign pairs or individuals to one of the sub-headings, pictures, or images. Have them make predictions about the text based on their sub-heading, and so on. Have the students share and discuss their predictions. Feed in and record and display information about key vocabulary, concepts, text features, and text structure.
- Prompt them to visualise the processes. If necessary, help them to picture each sentence, for example, the description of “the Bandit”.
- Remind students to use the illustrations to find supporting information, for example, the description of “benching” on page 6.



Instructional focus — Reading English

(Level 3 – Language features: Show a developing understanding of how language features are used for effect within and across texts.)

First reading

Pause and encourage the students to share their initial response to the title and the first photograph. Skim the text to help them identify the structure and get a sense of the article. Prompt them to use the sub-headings to identify the focus of each section.

Remind them of the word-solving strategies they know, and ask them to make notes of words or ideas they may need to clarify at the end of the session.

Prompt them to visualise the information to help make sense of the processes and ideas, for example, the quandary of the loose material and then the solution on page 5.

Ask questions to help students reflect on their initial understandings of the article and invite them to share any questions they still have, for example:

- How did skimming the text before you started help you read the article?
- What questions do you still need answers to?
- What have you learned about benching?

If the students struggle with this text:

- Draw their attention to the sub-heading as the topic for the following section.
- Break the text into manageable sections.
- Prompt them to use all sources of information to clarify the meaning of vocabulary, for example, the sentence, the surrounding sentences, the glossary, and illustrations.
- Draw their attention to the time words and verb forms to support the shifts between events, for example, the use of continuous present and future tense in the opening paragraph to set the scene by describing what led to “The Big Dig”.
- Provide opportunities to clarify what happened by revisiting the text, reading and discussing the main ideas in each section.

Subsequent readings

The teacher:

Prompt students to make connections between their prior experiences and information in the text as they clarify their understanding.

- Why did everyone want the road cleared quickly?
- How is the main highway better than the detour?
- How does the previous paragraph help clarify your understanding of “quandary”?
- What was meant by “so much activity” that spotters were needed?

The teacher:

Ask questions to support students as they reread the text to identify problems and solutions.

- What problems resulted from the torrential rain in October?
- What actions were taken to solve these problems?
- Why does the loose rock and soil need to be dug out of the hillside from the top down?
- What steps were put in place to get people and equipment to the top of the slip?

The teacher:

Ask students to turn to a partner to share their opinions of how the slip impacted on the lives of the people involved.

- How were local communities affected?
- What did it mean for the workers at the slip site?
- How were other groups of people affected?
- What do you think of the writer’s opinion that no slip in New Zealand’s modern history has affected so many people?

GIVE FEEDBACK

- By the end of the second reading of the text, you had answered all the questions you had at the end of the first reading. I notice you are using surrounding text to help solve word meaning and this is helping you to read with greater understanding.

The students:

- Make connections with prior experiences as they identify the issues and evaluate the implications on people’s lives.
- Identify from the description of the detour that the main highway is wider and straighter and infer that it is safer.
- Reread the two paragraphs about the October slip to link information about “debris crashing down” and the hillside not being stable to clarify that “quandary” is a serious problem.
- Visualise the scene and make connections with the danger of loose material and the number of trucks and people moving below the slip to infer why someone was needed to watch the hillside.

The students:

- Make notes on a graphic organiser as they review the text to locate information linking problems and solutions.
- Integrate information across paragraphs to make connections between the problems of the October slip and the solutions that were put in place.
- For students who need more scaffolding, you could provide a graphic organiser with some sections filled in. Model locating and connecting information about the problems and solutions, and then have the students complete the graphic organiser. This approach allows for simple differentiation. Students who are very confident with the text can create their own graphic organiser, students needing more support can be provided with one and given modelling for how to use it, and students who need even more support could have a graphic organiser with some parts filled in and be supported to complete it.
- Draw on information across the text to summarise how the equipment and the workers got to the top of the slip. Have them share their summary with a partner and justify their decisions using evidence from the text. Scaffold this by having the students take notes and together extract the key points and then co-construct a writing frame for the summary. See ESOL Online: Writing for more examples of supporting writing.

The students:

- Discuss the evidence from the text and their prior knowledge to make inferences about the impact on local communities.
- Think critically about the impact on workers at the site and share positive and negative impacts.
- Draw on their prior experiences of being held up by road works to explore the inconvenience and costs to motorists, local farmers, and businesses.
- Make connections between their personal knowledge of landslips and their understanding of modern history to form and share their view of the writer’s opinion.

METACOGNITION

- What helped you make the inference that everyone preferred the highway to the detour road?
- How did discussing your summary with your partner help you understand the article?

Instructional focus – Writing English

(Level 3 – Language features: Use language features appropriately, showing a developing understanding of their effects.)

Text excerpts from “The Big Dig”

Travel took up to twenty minutes longer on these narrow, winding routes. Trucking firms faced higher fuel costs. People needed to leave earlier for work and trips. Everyone wanted the road cleared quickly.

It was a long wait – but the road had to be made safe. Some people were affected more than others. Businesses in Woodville had fewer customers; Ashhurst residents had to cope with all the extra cars and trucks detoured through their town.

... after that, the Bandit was no longer needed. This meant that the machines had to keep going and dig all the way down to the road.

A winter’s night – and heavy rain is pelting down, soaking into the steep hillside of the Manawatū Gorge. Eventually, the ground can hold no more water. A torrent of rocks and mud pours down, burying the highway and spilling into the Manawatū River. When road workers see the slip the next morning, they say it will take a week to clean up. They are wrong.

By May, the team had benched the hillside and cleared the slip from the road. Shortly afterwards, they levelled a stretch of temporary road. This meant that cars could travel in one direction only, while the repair work wrapped up.

It sounds like the end of the story – but it wasn’t. Heavy rain caused the Manawatū River to rise 7 metres above its normal level. The floodwater washed away the rock beneath the temporary road.

Examples of text characteristics

MAKING EVERY SENTENCE COUNT

By varying sentence structures, writers make their writing more interesting and easier to understand. Sentences can start in different ways and can vary in length, in type, in the order of the ideas, and in the number of clauses and phrases they contain.

USING THE PRESENT TENSE FOR DRAMATIC EFFECT

Writers sometimes change from past tense to the present tense to describe a previous event. This has the effect for the reader of making the event seem as if it is happening now.

LINKING IDEAS BETWEEN PARAGRAPHS

The last sentence in one paragraph and the first sentence in the next can provide a clear connection of ideas and events. In a recount, this is often a word signalling time. A writer can use other devices such as providing contrasting or opposing information as a link – depending on the purpose of the text.

Teacher

(possible deliberate acts of teaching)

Explain that by varying our sentences, we can make our writing more meaningful and interesting. Ask questions as students analyse each excerpt in small groups to discover the kinds of sentences. What do you notice about the first group of sentences?

- What do they start with?
- Why are these simple sentences?
- What makes the first sentence longer?

Prompt them to notice the three different structures in the sentence in the other excerpts.

- How many ideas are in each sentence?
- What difference does the dash make?
- What does the semicolon tell you about the two parts of the sentence?
- How could the last sentence be written? Would it sound as good?

As they draft their writing, prompt students to think about their beginnings and the length of their sentences. Have them select and share sentences they are pleased with in groups.

In order to begin using different sentence structures in their writing, some students may need:

- explicit explanations of the meanings and structures of example sentences
- models of how to use the structures
- opportunities to co-construct sentences using the structures
- opportunities to complete sentences using a range of structures
- prompting and guidance on using the structures in their writing
- feedback on their use.

Prompt the students to infer why the writer has used the present tense in this paragraph.

- What are we usually told about what tense to use when recounting a previous event?

Give the students guidance about when the present tense might be appropriate – fiction, newspaper articles, introductions (not straight academic writing).

- What do you feel as you read this paragraph?
- How has the writer created that effect? What do you notice about the verbs?

Encourage the students to pick an idea in their writing that could be more dramatic in the present tense, and have them attempt it.

Explain that as well as time words, writers can connect ideas between paragraphs in other ways.

Direct the students to focus on the contrasting ideas of the last sentence of the first paragraph and the first sentence of the second paragraph.

- What is the reader being told at the end of the last sentence in the first paragraph?
- How does that link into the opening sentence in the next paragraph?
- What is the idea the writer is giving you from one paragraph to the next?

Prompt them to review their writing and see if they can strengthen the connections between paragraphs. They could read their partner’s writing and give feedback on the links. As they revise their writing, students can try to make a link between paragraphs.

GIVE FEEDBACK

- You created real impact with the use of the present tense to describe getting caught in the traffic jam. I could feel your panic about being late for the Mystics netball game.
- I noticed you tried some different sentence beginnings. The added variety makes your writing interesting to read.

METACOGNITION

- Find something you’ve tried for the first time in your writing that you are really pleased with. With your partner, discuss how it has improved your message.
- What changes did you make to your writing after you shared your draft with your partner? Why? How have those changes improved your writing?

 Writing standard: by the end of year 5

 The Literacy Learning Progressions