



The Learning Progression Frameworks describe significant signposts in reading and writing as students develop and apply their literacy knowledge and skills with increasing expertise from school entry to the end of year 10.

## Overview

This TSM contains information and suggestions for teachers to pick and choose from, depending on the needs of their students and their purpose for using the text. The material provides multiple opportunities for revisiting the text.

Water is the basis of life on Earth. It's everywhere, and it's familiar to all students. However, many students will not be aware of how water changes form. The text provides an introduction to this aspect of chemistry and introduces aspects of the water cycle, which they will explore further when they are working at level 3 of *The New Zealand Curriculum*.

This article:

- explains how water can exist in three forms – solid, liquid, and gas – and how it can change back and forth between these forms

- looks at the processes involved in these changes (evaporation, condensation, freezing) and makes links to examples that students can relate to
- includes a simple activity to illustrate the way water changes form
- provides the opportunity for students to interpret and use a text with a range of non-fiction features for wider learning purposes.

A PDF of the text is available at [www.schooljournal.tki.org.nz](http://www.schooljournal.tki.org.nz)

### Texts related by theme

“Water Worries” SJ L3 April 2012 | “Captured in Ice” Connected L3 2017 | “What Makes the Weather?” Connected L3 2012

## Text characteristics Opportunities for strengthening students’ reading behaviours

need fresh water, and most of the fresh water on Earth is frozen in icebergs and glaciers. A lot more of it is under the ground, and some fresh water hangs in the air as clouds or mist. Only a very small amount of fresh water is available to use, and that water must be shared between humans, other animals, and plants.

So, fresh water is very important. It is a taonga – a treasure. We need to take care of it so there will always be enough. Fresh water means life for all the living things on Earth.

some abstract ideas that are clearly supported by concrete examples, requiring students to make links to other parts of the text and to their prior knowledge

### The disappearing act

You've just made water appear by breathing onto something cold. Now let's see if you can make water disappear.

#### You will need:



a straightforward text structure, such as a structure that follows a recognisable and clear text form, requiring students to make links to their prior knowledge to navigate the text

Water can be:

- liquid like the water in rain, rivers, lakes, and the sea
- solid like the ice in glaciers, icebergs, hail, and snow
- gas (called water vapour), which is invisible.



some words and phrases that are ambiguous or unfamiliar, requiring students to use the context, illustrations, diagrams, and/or written explanations to gain meaning



visual language features that support the ideas and information, for example, text boxes or maps, requiring students to make links within the text to gain understanding



Go to The Learning Progression Frameworks – Reading: “Making sense of text: vocabulary knowledge” and “Making sense of text: using knowledge of text structure and features” to find detailed illustrations showing you how students develop expertise and make progress in these aspects.

## VOCABULARY

## Possible supporting strategies

- Scientific language, including “liquid”, “solid”, “gas”, “water vapour”, “evaporation”, “water droplets”, “condensation”, “condensing”, “water cycle”, “groundwater”, “living things”, “form”
  - Colloquial language, including “like magic”, “Hang on a moment”
  - Possibly unfamiliar language, including “surface”, “flow”, “soak”, “shortages”
- Identify words or phrases that may be unfamiliar. Remind the students of strategies for working out unfamiliar vocabulary, such as looking at the context and thinking about the surrounding information, finding root words, using knowledge of word patterns and prefixes or suffixes, and making connections to prior knowledge.
  - Most of the scientific words are explained in the text or by photographs and diagrams. Support the students to make links between the text and the visual supports.
  - The word “form” has several meanings. Check that students understand the scientific meaning as used in this text.
  - Make a “Water” chart and use mind-mapping to add words related to water as the students discuss and read the article.  
 You could use a digital tool such as MindMup to do this.
  - *The English Language Learning Progressions: Introduction*, pages 39–46, has useful information about learning vocabulary.
  - See also [ESOL Online, Vocabulary](#), for examples of other strategies to support students with vocabulary.

## SPECIFIC KNOWLEDGE REQUIRED

## Possible supporting strategies

- Familiarity with the various forms of water
  - Understanding that water changes back and forth from solid to liquid to gas
  - Basic understanding of the water cycle
  - Knowledge that seas and oceans are salt water and the amount of fresh water on Earth is relatively small
  - Understanding that water vapour is invisible water – it is not steam
- Review what the students already know about water. Ask them what they know about the various forms water can take. *What have you noticed about how water changes form? When water has changed from one form to another, can it change back again?* Use a familiar example (such as the life cycle of a frog or a monarch butterfly) to discuss the concept of a cycle – something that continuously flows from one thing to the next. Prompt the students to think about the forms of water they have already discussed and to suggest where those forms might fit in the water cycle.
  - Provide a selection of photographs, illustrations, and words that describe various forms of water, for example, “glacier”, “ocean”, “lake”, “rain”, “a water droplet”, “steam”, “vapour”, “snow”, “hail”, “a puddle”. Working in pairs, have students cut these out and arrange them onto a chart under the headings “Solid”, “Liquid”, and “Gas”.
  - Boil water in a jug. Make sure the students can see the steam. *Where do you think the steam goes?*

## TEXT FEATURES AND STRUCTURE

- The features of a non-fiction text, including subheadings, captions, photographs, diagrams, and bullet points
- Short paragraphs that support the reader to deal with small amounts of information at a time
- A logical structure that leads from simple ideas to more complex ideas
- Subheadings with two purposes: some signpost the content (“The water cycle”, “Taking care of our water”) while others are designed to spark interest (“Magic water”, “The disappearing act”)
- A conversational tone and the direct address to the reader
- Clear explanations using familiar examples (such as rain and hail)
- The language of instruction, including imperatives and numbered steps
- The language of scientific explanations, including present tense, action verbs, and scientific words, which begin with a description and follow with an explanation, for example, “The water cycle” section on page 6
- The use of rhetorical questions
- Repetition of words and phrases (for example, “changes”, “changes back”, “also change”)
- Elements of persuasive language

## Possible supporting strategies

- Preview the text with the students, pointing out the subheadings and discussing their effectiveness in catching the reader's attention and signalling content and ideas.
- Remind the students that the photographs and diagrams support the ideas and information.
- Point out the double-page spread on pages 4–5. Ask the students what sort of text this is and how it differs from the rest of the text. *How can you tell? Have you read other texts like this? What are they?*
- Rhetorical questions can be confusing for English language learners. Check that they know to read on to find out how the author has answered the question.
- Distribute a chart with the following headings: “Action verbs”, “Adverbs”, and “Nouns”. Using the instructional text “The disappearing act” on pages 4–5, have students find all the words that fit the headings and add them to the chart. Ensure they understand the meaning of each heading then model the task. Discuss what they notice.
- Use “The water cycle” text as a cloze exercise. Copy the text, then delete all the action verbs and leave a gap for each missing word. Ask the students to fill in the gaps with words that make sense. For some English language learners, you could provide a list of the deleted words to insert.
- Discuss the language and features of explanatory texts, identifying the descriptive paragraph followed by the two explanatory paragraphs. *Supporting English Language Learning in Primary Schools (SELLIPS): Years 3 and 4*, pages 26–31, has ideas for scaffolding English language learners to understand the content, language, and vocabulary used in instructions, and pages 32–37 offer ideas for supporting English language learners to understand and create explanations.
- Assist students to understand the structure of an argument by annotating the text on page 7, “Taking care of our water”. Together identify the key idea (the writer's argument), the main points, and the elaboration of each point.



Sounds and Words

## Possible curriculum contexts



*The Literacy Learning Progressions: Meeting the Reading and Writing Demands of the Curriculum* describe the literacy knowledge, skills, and attitudes that students need to draw on to meet the demands of the curriculum.

### ENGLISH (Reading)

Level 2 – Ideas: Show some understanding of ideas within, across, and beyond texts.

Level 2 – Structure: Show some understanding of text structures.

### ENGLISH (Writing)

Level 2 – Structure: Organise texts, using a range of structures.

### SCIENCE MATERIAL WORLD

Level 2 – Observe, describe, and compare physical and chemical properties of common materials and changes that occur when materials are mixed, heated, or cooled.

### Possible first reading purpose

- Find out how water changes from solid to liquid to gas.

### Possible subsequent reading purposes

- Understand how the water cycle works
- Identify why water is a taonga.

### Possible writing purposes

- Write a short summary of the main information about water
- Explain why water is important to us
- Explain how water can change from one form to another
- Describe an experiment that shows how water changes.



The New Zealand Curriculum



Go to the Learning Progression Frameworks – Reading: “Acquiring and using information and ideas in informational texts”, “Making sense of text: using knowledge of text structure and features”, and “Reading to organise ideas and information for learning” to find detailed illustrations showing how students develop expertise and make progress in these aspects.

### First reading

- Remind the students of strategies that are particularly useful on a first reading, such as rereading to look for clues, asking questions, making connections with their prior knowledge, and/or reading on to see if the meaning becomes clearer.
- Scan the article together, looking at the photographs, illustrations, and diagrams. Clarify that this is a non-fiction article.
- Ask the students to make predictions about the content and think about the questions they would like the text to answer. This is a good opportunity to identify the students who are using the strategy effectively and those who aren't by listening carefully to their questions about water's magical properties.
- Share the purpose for reading.
- Draw a mind map, as suggested in the Vocabulary section on page 2 of these notes. Ask the students to add ideas to the map as they read.
- Have the materials ready so the students can carry out the suggested activities, either before or after the reading. Have the students record what they learn from these experiences on their mind map.

### If the students require more scaffolding

- Model how to scan by thinking aloud. Show how you would interpret headings and diagrams to make predictions and ask questions about the text. *I can see that there are numbers by the photos on pages 4 and 5. They must be showing the steps for the activity.*
- Chunk the text into sections and prompt the students to ask questions about each section. *Look at page 2. Why is the article called “The Blue Planet”? What is the main idea in the text? Why has the writer included the photo of Earth? What other questions do you have?*
- Help the students to interpret the water cycle diagram on page 6 by making links between the text and the diagram. *The text says that the water vapour rises high into the sky. Have a look at the diagram. Where can you see the water vapour rising?*

**Subsequent readings** How you approach subsequent readings will depend on your reading purpose. Where possible, have the students work in pairs to discuss the questions and prompts in this section.

### The teacher

Give the students printouts of page 6 and focus their attention on the water cycle diagram. Take them through its features, explaining that headings, captions, and labels add important information to a diagram. Prompt them to realise that the arrows indicate sequence.

Have the students explore the connections between the diagram and the text by drawing arrows that link parts of the text to parts of the diagram.

Then ask them to explain the diagram to a partner. Review the key vocabulary they have recorded on their mind maps and encourage them to use these words in their explanations. Listen to what the students say and correct any misconceptions.

Ask the students to rate how effective the diagram was in helping them to understand the water cycle and to suggest any ways it might be improved.

If the students need further practice at understanding the water cycle and the associated scientific vocabulary, you could create a barrier exercise for them to complete. Make two copies of the diagram (A and B), and on each copy, remove some of the labels and arrows. Make sure that each diagram has different labels and arrows deleted. The students work in pairs, one using diagram A and the other using diagram B. Without looking at their partner's diagram, they take turns to ask questions and share information to complete their diagram. They can check their answers with each other and then with the original diagram in the text.

### The teacher

Focus on the section “Taking care of our water” (page 7).

Give the students printouts and have them work in pairs to summarise the writer's argument, decide on their response, and present their summary and response to the rest of the group. Encourage debate if there is disagreement, but work towards a shared statement.

### The students:

- discuss the features of a diagram and identify the purpose of each feature
- explore the relationship between the text and the diagram, making links to better understand the relationships between parts of the water cycle
- explain the water cycle in their own words to deepen their understanding by using the text, diagram, and their mind maps
- identify the purpose of a diagram and evaluate the water cycle diagram against the purpose
- explain their approach for reading diagrams.

### The students:

- identify and summarise the writer's argument
- co-construct a joint summative statement
- identify the techniques the writer and designer have used to persuade the reader of the importance of caring for water
- with support, discuss which techniques appeal more to logic and which appeal more to the emotions.

### GIVE FEEDBACK

- *You used the words “liquid”, “solid”, “gas”, “evaporation”, and “condensation” accurately in your explanation of the water cycle. These are very useful words to know – we'll be using them a lot more in our learning in science.*

### METACOGNITION

- *What information did you get from the diagram that you didn't get from the text? How did the text help you understand the diagram?*



# Instructional focus – Writing

**English** Level 2 – Structure: Organise texts, using a range of structures.

**Science Material World** Level 2 – Observe, describe, and compare physical and chemical properties of common materials and changes that occur when materials are mixed, heated, or cooled.

 Go to The Learning Progression Frameworks – Writing: “Creating texts to communicate current knowledge and understanding”, “Writing meaningful text: using knowledge of text structure and features”, and “Using writing to think and organise for learning” to find detailed illustrations showing you how students develop expertise and make progress in these aspects.

## Text excerpts from “Our Blue Planet”

## Examples of text characteristics

## Teacher (possible deliberate acts of teaching)

Page 7

So fresh water is very important. It is a taonga – a treasure. We need to take care of it so there will always be enough. Fresh water means life for all the living things on Earth.

### SUMMARISING

*A summary is a short version of a text. It contains the main points and is written in the reader’s own words. A good summary shows that the reader has understood the text and provides a useful reference to return to later. Writers create summaries by:*

- *writing a first sentence that tells the reader the main content of the text*
- *using keywords to write topic sentences that summarise the main facts*
- *leaving out opinions and examples*
- *writing in the simple present or simple past tense.*

Tell the students that summarising what they have read is a good way of clarifying their understanding. Model how to use the headings and topic sentences to identify the main points on the first two pages.

Remind the students that their mind maps already have most of the key words for the topic. Work with the students to co-construct a summary of the first page. When you are sure that they are confident, have them write summaries in pairs.

**DIGITAL TOOLS**  They could use a collaborative digital tool such as Google Docs for this.

Discuss and evaluate any tricky issues and good ideas as a group.

- *Does the section “The disappearing act” contain new facts that we should include, or is it an interesting addition that’s not necessary for the summary?*
- *I heard your partner suggest that one way to summarise the information about what happens to rain is to use a set of bullet points. What do you think of that?*

Have the students swap and compare their summaries to check that:

- *the purpose is clear*
- *the meaning is the same as that intended by the writer*
- *there is no unnecessary information*
- *the sentences are logically linked*
- *apart from the key words, the summaries are written in their own words.*

Page 7

Hang on a moment – if there’s so much water on our planet, why do we have water shortages? It’s because almost all the water on Earth is sea water, and sea water is salty.

### STRUCTURE OF AN EXPLANATION

*Writers often choose specific words and clauses such as “it’s because”, “this ...”, and “so” to signpost that the following text is going to explain something that has gone before.*

Have the students reread page 7 and identify the words that signal an explanation.

If you haven’t already done so, work with the students to analyse the techniques the writer and designer have used to explain why water is important. Then have the students write their own explanation on a topic of their choice. Discuss who needs to know this information to determine an audience and purpose for their writing. Encourage them to use signal words to make their explanations clear.

Page 4

What to do:

1. Find a space on the concrete.
2. Carefully pour a small puddle of water onto the concrete.

### DESCRIBING A PROCESS

*Writers describe a process by saying what happens in order. They use bullets, numbering, and/or sequence words to show the order of the actions. They might also include the purpose of an action and visual information such as photographs or diagrams to make the process clear to readers.*

Have the students conduct an experiment into how water changes and then describe what happens. For potential experiments, you could use the *Connected* items suggested on page 1 of this TSM (Related texts), Building Science Concepts Books 15 or 31, or this activity on the Science Learning Hub: [Looking at water – solid, liquid, or gas](#).

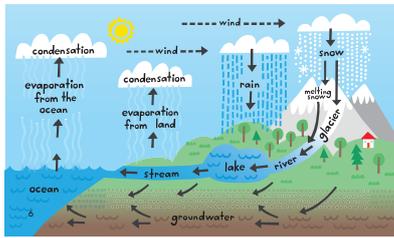
Review the science experiment on pages 4–5. Have the students use this as a model for writing their own procedural text. They could illustrate the process with photographs. Remind the students that photographs usually need to be labelled so that readers know what they are showing.

## Text excerpts from “Our Blue Planet”

## Examples of text characteristics

## Teacher (possible deliberate acts of teaching)

Page 6



### DIAGRAMS

Labelled diagrams, such as cycles or flow charts, help readers by visually clarifying a process. The sequence is broken down into stages, although in practice, those stages may all occur at the same time.

Have the students identify parts of their explanations that could be illustrated with a diagram. Remind them of what they have learnt about the features of a diagram and create a set of success criteria for a clear and effective diagram. Have them draw their own diagram, and then ask them to review their partner’s diagram.

- What has your partner done that is effective?
- What could your partner change to make it better?

### GIVE FEEDBACK

- You’ve made a great job of explaining the process we used for our experiment. You’re right – the list of “What you need” and the numbered steps for the method are very similar to the way recipes are written.

### METACOGNITION

- Did writing about water help you understand why water is important and how it can change form? Why or why not?
- What have you learnt from drawing your diagram that you could use next time you have to draw a diagram for science?



The Literacy Learning Progressions