

## Overview

This TSM contains a wide range of 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 materials provide multiple opportunities for revisiting the text several times.

This article tackles a topic that many people feel squeamish about: eating insects. The writer explains that many people around the world eat insects as a normal part of their diet. She then gives four reasons why eating insects is a good idea: the health benefits, the ease of farming insects, the environmental benefits, and the availability of edible bugs – and provides information to support each one. There is also a section about the insects we already consume in factory-processed foods. The article concludes with the suggestion that insects might be the answer to world food shortages and a brief, humorous, step-by-step description of how to make cricket flour.

This article:

- provides facts and information about insects as a source of food
- puts forward a logical argument to support the idea of using insects as food
- has photographs, a map with a key, a table, and drawings to illustrate the text
- includes non-continuous text, text boxes, and subheadings.

A PDF of the text and an audio version as an MP3 file are available at [www.schooljournal.tki.org.nz](http://www.schooljournal.tki.org.nz)

### Texts related by theme

“The Jungle in My Garden” Junior Journal 52 | *The Buzz of Bees* Connected L2 2012 | “Ants on the March” SJ 2.4.10 | “Worms for Dinner?” SJ Part 1 No. 5 2008

## Text characteristics from the year 4 reading standard

### Bug Grub to the Rescue

So we're all eating insects, even if we don't know it. Maybe these little creatures can help us to solve a big problem. More than 7.4 billion people live on our planet. That number is increasing all the time. Scientists are starting to wonder how we'll be able to find enough food to feed our growing population. Bugs might be the best way to solve food shortages in the future.

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some abstract ideas that are clearly supported by concrete examples in the text or easily linked to the students' prior knowledge

cow	710	28	1.0
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\*1 kJ = 1000 joules

2. It's cheap and easy to farm insects. They take up a lot less space than cattle, pigs, or even chickens. Many insects also get most of the liquid they need from their food, so they don't need lots of extra water to drink. They really are easy-care farm animals.

3. Eating insects helps to protect our environment because insect farmers don't need to use as much land or water as other farmers. We can also

some places where information and ideas are implicit and where students need to make inferences based on information that is easy to find because it is nearby in the text and there is little or no competing information

### Four Great Reasons to Eat Insects

1. Insects are an excellent health food. They are full of the things we need to help us grow and stay healthy, including protein, fibre, good fats, vitamins, and minerals.

#### Comparing Insects with Other Foods

100 grams of:	Energy (kJ)*	Protein (grams)	Iron (milligrams)
termite	2565	34	0.75
caterpillar	1550	28	35.5
fish	915	27	3.5
cow	710	28	1.0

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3. Eating insects helps to protect our environment because insect farmers don't need to use as much land or water as other farmers. We can also help protect our crops by eating pest insects, such as locusts.

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#### Edible Insects around the World

Insects are eaten in almost 80 percent of the world's countries. Some are eaten as special treats, and others are a part of the daily diet.

KEY  
Edible insect species per country  
none  
under 10  
10-100  
100-300  
above 300



a straightforward text structure, such as a structure that follows a recognisable and clear text form

other visual language features that support the ideas and information, for example, text boxes or maps



Reading standard: by the end of year 4

# Text and language challenges

(Some of the suggestions for possible supporting strategies may be more useful before reading, but they can be used at any time in response to students' needs.)

## VOCABULARY

### Possible supporting strategies


- Possibly unfamiliar words and phrases, including “entomophagists”, “protein”, “fibre”, “good fats”, “vitamins”, “minerals”, “easy-care”, “protect”, “pest”, “locusts”, “edible”, “habit”, “own environment”, “wild food”, “huhu grubs”, “bug grub”, “growing population”, “food shortages”, “grind”
- Place names, including “Hokitika”, “West Coast”, “South Island”, “Hauraki Gulf”, “Canterbury”, “Otago”

- Identify words or phrases that may be unfamiliar. Give students some background before they start reading. *This text has some scientific terms you will know and some you may not have heard before. It also names many places in New Zealand and many different insects.*
- Note that some common terms the writer uses, such as “people around the world”, “easy-care”, and “their own environment”, need to be seen in context. Discuss what they mean in the article.
- Remind students of strategies for working out unfamiliar vocabulary, such as looking at the context, using knowledge of word patterns and prefixes or suffixes, and making connections to prior knowledge.
- Find the place names on a map of New Zealand.
- *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 terms used to describe insects, such as “bugs” and “creepy-crawlies”
- An understanding that we use capitals for place names and events
- Some knowledge of the geography of New Zealand and the world
- Familiarity with te reo Māori terms
- An understanding that some words have more than one meaning, for example, “cricket”
- Some awareness of world food shortages and the reasons for these
- An understanding that food is broken down in our bodies to allow us to live and grow

- Prompt students' prior knowledge of insects. Ask them to talk with a partner to recall what they know. Discuss what various insects look and feel like – and might taste like! You could develop a chart of similarities and differences between insects, covering their appearance, size, structure, and so on. Some students from other cultures may be familiar with eating insects. Provide a positive, safe environment for them to share their knowledge.
-  Create a shared Google Doc so the class can add images and descriptions of insects. Project the document for the class to see as it develops.
- Prompt students to notice which words have capital letters and to recall their purpose.
- Make links between the bracketed syllable breaks to support the pronunciation of “entomophagists” and the decoding strategy used for unknown words.
- Provide information about world food shortages and discuss the reasons for these.
- Explain that food is composed of vitamins and minerals that our bodies need to live and how our digestive system breaks down food to extract these things.

## TEXT FEATURES AND STRUCTURE

### Possible supporting strategies

- A non-fiction article providing information, supported by photographs, illustrations, a table, and a map with a key
- Headings
- Sidebars
- A numbered list

- Before reading, remind the students of what they are likely to find in an article.
- Have the students work with a partner to flick through the article and identify the visual features.
- Prompt prior knowledge of persuasive texts. *Some texts make us change our minds about things. Talk with your partner about what writers do to persuade us to see their point of view.*



Sounds and Words

# Possible curriculum contexts

## ENGLISH (Reading)

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

## ENGLISH (Writing)

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

## SCIENCE (Living World)

Level 2 – Life processes: Recognise that all living things have certain requirements so they can stay alive.

## SOCIAL SCIENCES

Level 2 – Understand how people make choices to meet their needs and wants.

## Possible first reading purpose

- To find out why people choose to eat bugs

## Possible subsequent reading purposes

- To find out why insects could be the food of the future
- To identify the benefits of eating insects
- To think about managing food shortages

## Possible writing purposes

- To write a personal response to the ideas expressed in “Bugbix for Breakfast” (quick-write)
- To write a personal narrative about a favourite meal
- To explain a food chain
- To describe the pros and cons of farming insects
- To create a menu for a “bug café”



The New Zealand Curriculum

## Instructional focus – Reading

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


**Science (Living World)** Level 2 – Life processes: Recognise that all living things have certain requirements so they can stay alive.

**Social Sciences** Level 2 – Understand how people make choices to meet their needs and wants.

### First reading

- Set the purpose for reading.
- Skim and scan the article together, prompting students to identify the main topic: eating insects.
- Invite responses from the title and model thinking aloud. *Hmm, that name reminds me of a breakfast cereal I enjoy ... I'm not sure I'd enjoy Bugbix though!*
- Prompt prior knowledge of information texts – the subheadings, maps, diagrams, and photographs. *What features will we find in an information text?*
- Read the first paragraph aloud and invite a response. Have students discuss with a partner what they usually have for breakfast – and what they think of eating insects.
- Work through the rest of the text together, supporting students where necessary.
- Question students to check that they are grasping the main idea(s) from each section.

### If the students struggle with this text

- Ask questions to clarify understanding. *What is another name for bugs? How many bugs can you think of?*
- Break the text into manageable chunks and have the students discuss each section in pairs, with guiding questions.
- **DIGITAL TOOLS**  Project the PDF of the article for the students to view, zooming in on each section when discussing it.
- Share-read where appropriate, ensuring that the students are thinking about the content and ideas. Leave sections for them to read for themselves.
- Create a chart to record names of insects and facts about them and have students add to it as they read.
- Explain that this text may challenge their ideas of what healthy eating is all about.
- Have students talk with a partner, and provide opportunities for discussion.
- Prompt students to reread the headings to support their understanding of the different sections.

**Subsequent readings** How you approach subsequent readings will depend on your reading purpose.

#### The teacher

Reread the first sentence on page 26: “Insects are an excellent health food.”

Ask the students to consider what makes a food “healthy”.

Lead a discussion about the things we need in our diet, such as protein, carbohydrates, fats, vitamins, and minerals and what we need to eat to get these.

Direct students to the comparison chart on page 26.

- *Check how many grams of protein you get from 100 grams of caterpillars ... and from 100 grams of cow (beef).*
- *Where would you rather get your protein from?*

Prompt some mathematical reasoning.

- *How many grams of termites would we need to get the same amount of protein as we get from 100 grams of caterpillars?*

Provide opportunities for discussion and debate to consider the health benefits of eating insects.

Ask the students to identify other ideas in the text about whether eating insects is a good thing or a bad thing and list them under “For” or “Against”.

- *Do you think the writer is in favour of eating insects?*
- *What does she say that makes you think that?*
- *Is she trying to make her readers think that eating insects is a good idea?*

Direct students to the written and visual text that talks about ant lollipops and chocolate-covered grasshoppers (page 31). Invite their response.

#### The students:

- work collaboratively to find information in the text that helps them to classify the foods into healthy, unhealthy, and in-between
- discuss and decide where insects fit into the classification
- list the arguments the writer makes for eating insects and the arguments she makes against eating them
- use information in the text to evaluate the arguments for and against eating insects.

## Subsequent readings (cont.)

### The teacher

The “big problem” of a world food shortage is a serious one, but it may be an abstract concept for children living in New Zealand. Consider the difference between eating bugs “for fun” as at a wild food festival, and from necessity, because they are all that’s available.

Lead discussion about the things we are used to eating to develop an understanding of “habit”. Refer to the section headed “Why Are Some People Scared of Eating Insects?”

Direct students to the paragraph headed “Bug Grub to the Rescue” and to the concept of the problem of a world food shortage.

Have students use the world map (page 27) to identify areas where there are plenty of edible insects and where people may not have enough to eat.

### The students:

- make connections to prior science knowledge about the need to eat: all living things have certain requirements to stay alive
- list the foods they are used to eating, including meals at home, at fast-food chains, and on special occasions
- make connections with the concept on page 28: “People got used to eating what they could find in their own environment” and discuss what they think it means
- discuss how they feel about eating insects and whether or not reading the text has made them think differently about eating bugs or whether it has put them off the idea
- identify what the author did to persuade them one way or the other.

### GIVE FEEDBACK

- *When we were discussing the world food shortage, you referred back to the idea about people eating what they can find in their environment. That was a really good connection between the text and real life.*

### METACOGNITION

- *Some of the ideas in this article seemed funny and some were serious. Tell me which parts you thought were funny. Why was that? Which are the serious parts? How do you know when an author is being deliberately funny or when they are being serious?*



Reading standard: by the end of year 4



The Literacy Learning Progressions



Assessment Resource Banks

# Instructional focus – Writing

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

**Science (Living World)** Level 2 – Life processes: Recognise that all living things have certain requirements so they can stay alive.

**Social Sciences** Level 2 – Understand how people make choices to meet their needs and wants.

## Text excerpts from “Bugbix for Breakfast”

## Examples of text characteristics

## Teacher (possible deliberate acts of teaching)

Page 28

Every March, people from all over the country go to the small town of Hokitika, on the West Coast of the South Island. They go there to try out the weird and wonderful food at a big wild food festival. These festivals are becoming more and more popular around New Zealand. At wild food festivals, people can nibble barbecued huhu grubs and crunch through pan-fried grasshoppers. Yum!

### SUPPORTING DETAILS

*Writers choose words and phrases to convey what they mean as clearly as they can. They choose specific adjectives and nouns and add expressive verbs to describe action. The content often includes supporting details.*

Prompt recall of effective writing – including clear details for the reader. Guide students through the paragraph about wild foods festivals on page 28. Ask them if they think there is enough detail to find out what is going on.

Have the students work with a partner as you question.

- *What events are people going to?*
- *Who is going?*
- *Where are these events?*

Have students identify the words that describe the food and the words that describe how people eat the wild food.

- *How does the writer describe the food?*
- *What are the wild foods being eaten?*
- *How are the people eating them?*

Discuss the effect.

- *Do the descriptive words make the bugs sound yummy?*

Have students write a personal narrative about a favourite meal and read it to a partner.

Invite them to use specific nouns, descriptors, and verbs and to add details.

- *How do you let your readers get a strong image of what’s happening?*
- *How will they know how you were feeling?*

Page 32

### How to Make Cricket Flour

1. Take a lot of crickets.
2. Dry them out in a hot oven.
3. Grind them up into a powder.

### ORGANISING OUR IDEAS

*A writer shapes and organises their ideas into an appropriate structure for the purpose.*

### VISUAL LANGUAGE FEATURES

*Illustrations and diagrams support meaning in some texts.*

Provide students with examples of life cycles and food chains in the natural world.

Explain how we can see the order of things represented with pictures.

Model a simple food chain, for example, grass to sheep to human.

Have students work collaboratively to create a food chain that includes insects and uses drawings and arrows.

As students attempt to explain their food chain, prompt them to recall sequencing.

English language learners will benefit from the opportunity to recycle language. One activity that uses all four language modes is a skills flow. Provide students with diagrams of a life cycle, food chain, or recipe (with one diagram for each stage or step in the process). Read aloud a description of the process and ask the students to number each diagram in the right order. Once confirmed, they can cut out the diagrams and glue them in order in their writing book (leaving enough space beside each diagram to write a description). Next, in pairs, they give a verbal retelling of the process, using the pictures as prompts. Afterwards they write their own description of the process alongside each diagram. Finally, they read their text to a partner. Encourage students to focus on using procedural language such as action verbs, time conjunctions, descriptive adjectives, and so on.

Text excerpts from  
“Bugbix for Breakfast”

Examples of text characteristics

Teacher  
(possible deliberate acts of teaching)

Page 31

Some people are already farming insects for food. A company in the South Island is selling ants and locusts that are gathered in Canterbury and Otago. You can order these insects in some restaurants. There are also shops that sell pizzas, muffins, and crackers made with cricket flour. And you can buy bags of chocolate-coated grasshoppers, fried bamboo worms, mixed bugs, or flying termites to munch on while you watch your favourite movie. That should keep you hopping!

**USING STRUCTURE  
APPROPRIATE FOR AUDIENCE  
AND PURPOSE**


*Writers make deliberate choices about which ideas to include and how to order them for their purpose and to suit their audience.*

Discuss how the writer is trying to make insect food sound appealing. Identify the words and phrases that help to do this.

Make connections with what we know about menus – what they include, the descriptive words, the price, the illustrations. Provide the students with examples of menus for them to consider.

Have them create a menu, choosing words and phrases to make the food sound appealing. Encourage them to be creative and enjoy making decisions about what to include in their writing.

Before writing, create class lists of technical words that describe ways of cooking, for example, “fry”, “boil”, “roast”, and “grill”. They could also start a collection of descriptive food words. Show them how to use a thesaurus to find similar words.

 Students could use a digital tool such as [Postermywall](#) to create a professional-looking menu.

**GIVE FEEDBACK**

- *You have labelled each part of your food chain, and the direction of the arrows is clear. Your audience will be able to easily follow the sequence.*

**METACOGNITION**

- *How did you feel about the photographs and illustrations in this article? Did they influence what you think about eating insects? Why or why not?*



**Writing standard: by the end of year 4**

**The Literacy Learning Progressions**