

# Tons of Tomatoes

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Year 4



## Overview

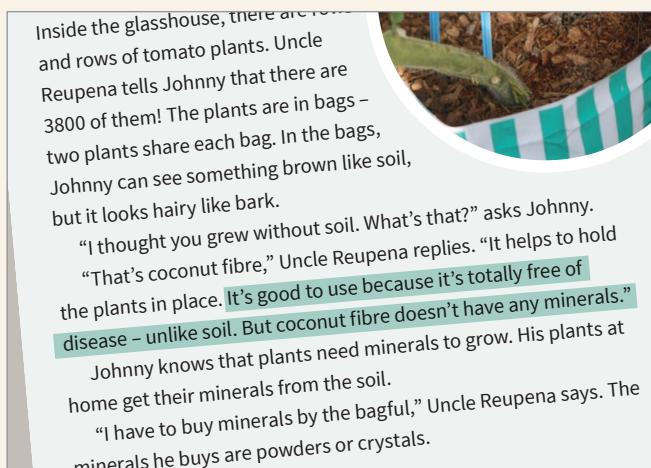
“Tons of Tomatoes” shows readers inside a hydroponics glasshouse, where Johnny’s Uncle Reupena grows tomatoes. Along with Johnny, readers learn about hydroponics. Students will be able to make connections and comparisons with what they already know about growing plants. The article is well illustrated with photographs and is supported by an interview with Uncle Reupena.

This article:

- includes factual information about what plants need to grow
- provides opportunities to make connections with prior knowledge
- provides opportunities to make and justify inferences and to think critically about a person’s choices.

Texts related by theme “Gardens with Edge” Connected 2 2010 | “Picking Peas” SJ 1.4.10

## Text characteristics from the year 4 reading standard



Inside the glasshouse, there are rows and rows of tomato plants. Uncle Reupena tells Johnny that there are 3800 of them! The plants are in bags – two plants share each bag. In the bags, Johnny can see something brown like soil, but it looks hairy like bark.

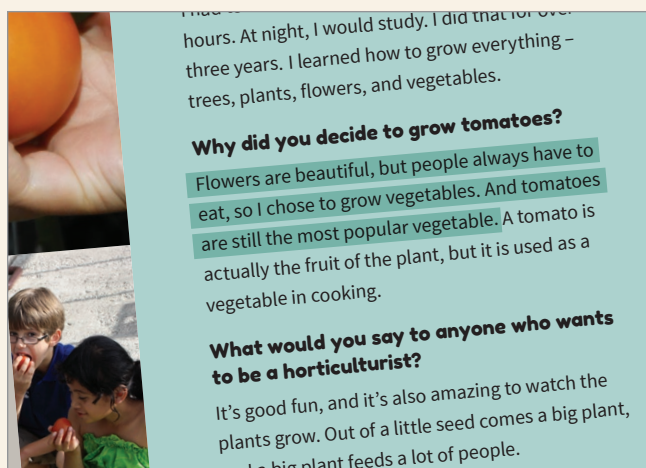
“I thought you grew without soil. What’s that?” asks Johnny.

“That’s coconut fibre,” Uncle Reupena replies. “It helps to hold the plants in place. It’s good to use because it’s totally free of disease – unlike soil. But coconut fibre doesn’t have any minerals.”

Johnny knows that plants need minerals to grow. His plants at home get their minerals from the soil.

“I have to buy minerals by the bagful,” Uncle Reupena says. The minerals he buys are powders or crystals.

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



hours. At night, I would study. I did that for over three years. I learned how to grow everything – trees, plants, flowers, and vegetables.

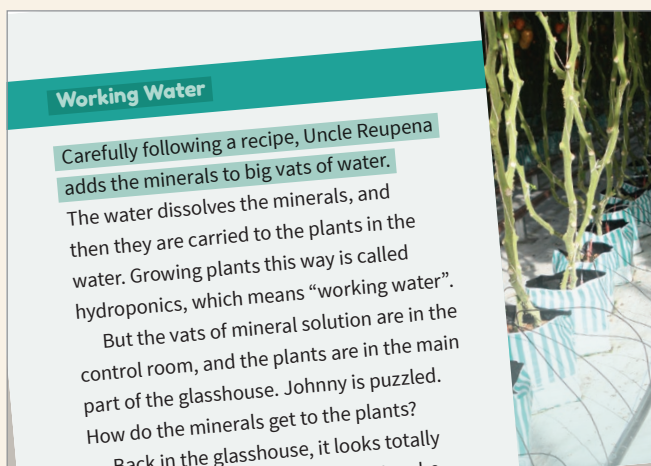
**Why did you decide to grow tomatoes?**

Flowers are beautiful, but people always have to eat, so I chose to grow vegetables. And tomatoes are still the most popular vegetable. A tomato is actually the fruit of the plant, but it is used as a vegetable in cooking.

**What would you say to anyone who wants to be a horticulturist?**

It’s good fun, and it’s also amazing to watch the plants grow. Out of a little seed comes a big plant, and a big plant feeds a lot of people.

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



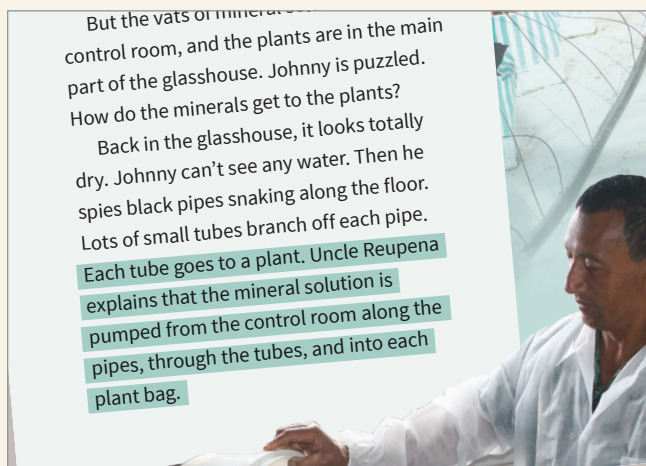
**Working Water**

Carefully following a recipe, Uncle Reupena adds the minerals to big vats of water. The water dissolves the minerals, and then they are carried to the plants in the water. Growing plants this way is called hydroponics, which means “working water”.

But the vats of mineral solution are in the control room, and the plants are in the main part of the glasshouse. Johnny is puzzled. How do the minerals get to the plants?

Back in the glasshouse, it looks totally

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



But the vats of mineral solution are in the control room, and the plants are in the main part of the glasshouse. Johnny is puzzled. How do the minerals get to the plants?

Back in the glasshouse, it looks totally dry. Johnny can’t see any water. Then he spies black pipes snaking along the floor. Lots of small tubes branch off each pipe. Each tube goes to a plant. Uncle Reupena explains that the mineral solution is pumped from the control room along the pipes, through the tubes, and into each plant bag.

some compound and complex sentences, which may consist of two or three clauses

Reading standard: by the end of year 4

## Possible curriculum contexts

### SCIENCE (Living World)

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

### ENGLISH (Reading)

Level 2 – Purposes and audiences: Show some understanding of how texts are shaped for different purposes and audiences.

### ENGLISH (Writing)

Level 2 – Purposes and audiences: Show some understanding of how to shape texts for different purposes and audiences.

### Possible reading purposes

- To find out what a boy discovers on a visit to his uncle's tomato farm
- To learn how tomatoes can be grown hydroponically
- To compare hydroponics with regular growing methods.

### Possible writing purposes

- To chart and describe the similarities and differences between two different growing methods
- To describe the work of a family member or friend
- To research and describe another way in which technology is used in food production.



The New Zealand Curriculum

## Text and language challenges

### VOCABULARY

- Possibly unfamiliar words and phrases, including “rich soil”, “coconut fibre”, “vats”, “dissolves”, “glasshouse”, “vines”, “delicate”, “transform”, “Imagine”, “adjust”, “sample”, “crop”, “cram”, “picking machine”, “horticultural”, “apprenticeship”, “nursery”, “horticulturist”
- The technical or topic-related vocabulary: “minerals”, “crystals”, “solution”, “hydroponics”, “meter”
- The word family: “pollen”, “pollinated”, “pollination”, “pollinate”
- The Samoan names and places that may be unfamiliar: Reupena, Magiagi, Leulumoenga.

### Possible supporting strategies

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

- Remind the students to use strategies they know, for example, word families, to work out the meaning of unfamiliar words and phrases.
- List and review the technical vocabulary, using the context (and other familiar contexts, such as salt or sugar in food or hot drinks) to support students to understand meanings. For English language learners, provide visual, audio, and/or graphic supports; examples in context; and opportunities for repetition.
- The students may need support to pronounce words, both Samoan names and technical words. Check your own pronunciation first, then show the students how to use familiar chunks to sound out words.

For students who may find the vocabulary difficult, select key vocabulary items and preview them before reading. See *ESOL Online, Vocabulary*, for strategies to support students with vocabulary.

### SPECIFIC KNOWLEDGE REQUIRED

- Familiarity with the life cycle of plants and what they need to grow
- Familiarity with seeing, eating, and possibly growing or picking tomatoes
- Some scientific knowledge of solutions (for example, experience of dissolving crystals)
- Ability to infer meaning, in particular, to make comparisons between traditional and hydroponic gardening that are implied though the text.

### Possible supporting strategies

- Use a chart or simple graphic organiser to record the life cycle of the tomato. As the students read, prompt them to relate what is being described in the text to the stages of the life cycle.
- Brainstorm what the students know about growing plants. Refer to the brainstorm during reading, prompting them to identify how Uncle Reupena makes sure the tomatoes receive what they need. Use these discussions to introduce or reinforce key vocabulary. You could start a class dictionary on the topic of horticulture. (Class-created dictionaries can sometimes be more specific, accessible, and useful to students than general dictionaries.)
- Discuss the parts of the life cycle that Johnny sees on his two visits. Check that the students can infer the stages that are not actually seen by Johnny, for example, seed germination, flowering, and fruiting.

### TEXT FEATURES AND STRUCTURE

- Factual article, told in the third person, followed by an interview
- Explanation of the hydroponic growing process
- The relaxed, informal tone
- Use of headings, photographs, a glossary, and an interview
- The similes: “as big as twenty classrooms”, “as long as three buses”, “flying around the glasshouse like a bee”
- The metaphor: “black pipes snaking”
- The opportunities to compare different ways of growing tomatoes
- The use of an interview to provide biographical information
- The values of family, service, and caring for the needs of others that are implied in the interview.

### Possible supporting strategies

- Review the students' knowledge of nonfiction writing and the kind of information they expect to find in it.
- During a subsequent reading, support the students to discuss and identify the author's purpose in using an interview. Prompt them to discuss the questions the author chose to ask and the information the answers reveal.
- Many students benefit from previewing a text orally before reading. Give students some of the photos without the text. Have the students work in pairs to describe what they see. Share each pair's photo and ideas eliciting and recording key vocabulary and concepts. Give pairs or small groups of students the subheadings (except for the interview) and ask them to make predictions about what's in each section. As a whole group, share and record the predictions. Have them check the predictions as they read. Allow students who share a first language other than English to explore the topic in this language.



Sounds and words

# Instructional focus – Reading

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

**English** (Level 2 – Purposes and audiences: Show some understanding of how texts are shaped for different purposes and audiences.)

## First reading

- Support the students to activate prior knowledge about where our food comes from. Focus their thinking on the way vegetables are grown and what plants need to be able to grow.
- Draw their attention to the format of the text, including the title and subheadings, the use of photographs, the glossary, and the interview. Remind them to use these features as they read.
- Encourage the students to find information and make inferences by using words in the text, their own knowledge, and their ideas about what's implied, for example: *What are the pros and cons of using coconut fibre? When you read about the bees, what did you infer about why Uncle Reupena replaces them every three weeks? How did you do that?*
- Ask questions to help the students make connections and comparisons with what they already knew about growing plants, for example: *Which pieces of information were new for you? What did you already know that was similar? What's the same and what is different from what you knew about growing plants?*

### If the students struggle with this text

- Review the article before reading, examining the photographs together and discussing the bolded words. Support the students to pronounce and understand the technical words, especially “hydroponics”, “apprenticeship”, and “horticulturist”. You could write up a word family for “pollen”, using the words in the text and discussing how knowing the base word helps to work out the other words. Refer to possible supporting strategies for vocabulary on the previous page.
- It may be useful to help the students to turn the headings into questions.
- Prompt them to read one section at a time, using the headings, glossary, and photographs to answer their questions.
- Support them to self-monitor by sharing the information they have found from each section with a partner.
- Remind them to pause and think about what they already know, for example: *Why does Uncle Reupena follow a recipe? How can using what you know about recipes help you understand what he's doing?*
- Support the students to record notes on a chart to clarify the sequence of events. *What does Uncle Reupena do first? Then what does he do? If necessary, support the students to infer the change of time between Johnny saying goodbye on page 23 and returning six months later. What will Johnny notice on this visit? Why do you think that?*

## Subsequent readings

### The teacher

Use a two-column chart and ask questions to record information as the students compare traditional and hydroponic growing in the first two pages.

- What did you already know about growing plants? What does “rich soil” mean? What does it look like? Why is it important?
- What pieces of information in these two pages help you to notice the differences between regular and hydroponic growing? Record each piece of information on the chart.
- How much land might it take to grow 3800 single plants? How would this compare with the space Uncle Reupena uses?
- What can you infer about the benefits of hydroponic growing?
- What questions do you have about this way of growing plants?
- For students who need extra support, you could model filling in part of the chart or provide versions of the chart with some spaces filled in, and support them to complete it. With English language learners in particular, be aware of the difference between asking them to transfer information from the text and asking them to produce their own words to fill in the chart. The latter requires more support.

### The teacher

Prompt the students to consider the pros and cons of traditional and hydroponic gardening, using information in the text, what they know about plants, and inferences they can make.

- How does Uncle Reupena make sure his plants get what they need? How does this compare with what happens in nature?
- Would the way tomatoes are grown make any difference to their flavour? Why do you think that?
- How do you think tomatoes at the supermarket or a farmers' market are grown? How could you find out?

### GIVE FEEDBACK

- Numi told us about her grandparent's vegetable garden and how they grow their tomatoes. This information was really useful because it helped us to compare garden growing with glasshouse growing.
- I saw that you reread the part about checking up and discussed it with your partner. You said it was a bit like testing the swimming pool water for chlorine. That connection helped you both to understand what Uncle Reupena did and why he did it. You've now got a good understanding of a scientific way of doing things.

### METACOGNITION

- How did imagining Uncle Reupena flying around like a bee help you understand why it was better for him to use real bees? You were able to “see” Johnny's visualisation to understand his actions.
- Tell me how you worked out what “his hands would be part of the picking machine” meant. I could see you were puzzled at first!

### The students:

- connect with and share their own experiences of growing plants, identifying the ways their connections helped them to understand the article
- reread and identify information about growing tomatoes and suggest where it belongs on the chart
- ask questions and discuss how each form of growing is different, sharing their own knowledge and adding knowledge they have gained from their first reading
- use this understanding to infer that minerals make soil “rich” and that they can be supplied in a way that does not need a lot of earth and space
- integrate information (with support) in this part of the text to understand that hydroponic growing requires less land than traditional growing
- ask questions about the reasons growers choose different methods for growing tomatoes.

### The students:

- identify what Uncle Reupena does to make sure his plants grow healthy and strong and they compare this with how plants grow in nature
- ask questions about the way other fruits and vegetables are grown, for example, why some produce is sold as “organic” or “GE free”
- consider the questions Uncle Reupena asks about the taste test and make connections with their own experiences of eating tomatoes. They discuss why they do or do not like tomatoes and share the tomato qualities they think are important to customers. They could extend the discussion to the ways they eat tomatoes, for example, fresh in a salad or sandwich, in tomato sauce, fried, or cooked in a pasta sauce.

Reading standard: by the end of year 4

The Literacy Learning Progressions

Assessment Resource Banks

# Instructional focus – Writing

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

**English** (Level 2 – Purposes and audiences: Show some understanding of how to shape texts for different purposes and audiences.)

## Text excerpts from “Tons of Tomatoes”

## Examples of text characteristics

## Teacher (possible deliberate acts of teaching)

### Working water

Carefully following a recipe, Uncle Reupena adds the minerals to big vats of water. The water dissolves the solid minerals, and then they are carried to the plants in the water. Growing plants this way is called hydroponics, which means “working water”.

### EXPLANATIONS

*An explanation of a process tells readers what happens. Details show what was used and what happened. It often shows a cause and its effect and the order of the actions. An explanation can also include a definition of specialist words and terms used to describe a process.*

Ask questions to help the students refine an explanation.

- What will your readers already know? What do they need to know, for example, to understand the causes and effects?
- If you’re explaining a process, what words help show the sequence of events?
- If you’re using a word or term readers won’t know, how can you help them understand it?

Support students to write explanations by co-constructing a simplified description of the process of growing tomatoes hydroponically (without the complication of the narrative). Develop a three-column writing frame together. In the first column, create rows for the sections of a process and describe the type of information in each section. In the second column, add notes from the information in the text. In the third column, write the paragraphs, including any necessary subheadings. Support the students to use the writing frames.

Useful language areas are sequence markers and sentences for describing cause and effects (sentences using “because”, “due to”, “this means”, “this makes”) and sentences for describing purposes (“in order to”, “so that”).

Give English language learners opportunities to brainstorm and plan their writing in their first language.

He’s walking towards a house that’s as big as twenty classrooms.

“Tomatoes are actually vines,” Uncle Reupena says. “They can grow as long as 30 metres – that’s as long as three buses!”

### SIMILES

*A simile says that one (less familiar) thing is like another (more familiar) thing. Similes help readers connect with something they already know, often in a way that helps them visualise.*

Ask the students to share their work with a partner.

- Read each other’s writing (aloud, if you wish) and find a place where a simile would help readers visualise or understand something better.
- What could you use that will help your readers? Is there something familiar you could liken this to?
- Try out some different similes together, then choose the one that best meets your own writing purpose and would interest your readers.

What was it like to do an apprenticeship and what did you learn?

I had to work hard in a nursery every day for nine hours. At night, I would study. I did that for three-and-a-half years. I learned how to grow everything – trees, plants, flowers, and vegetables.

### PLANNING AN INTERVIEW

*An interview gives readers first-hand information about a person, for example, about the work they do. It is important to plan the questions in advance and limit them to three or four that will get the most interesting information for the audience.*

Ask questions to guide the students as they plan an interview.

- Why do you want to interview this person? What does he or she have that will add detail to your article and interest your readers?
- What kinds of questions are most likely to get the person to share that information with you?
- If you start with a long list of questions, how can you choose the three or four best ones? What criteria will you use?
- How will you record the answers so you can write them accurately later?

Remind students to avoid questions that could be answered with yes or no – open questions invite the interviewee to give a fuller answer.

### GIVE FEEDBACK

- You took notes and made sketches of the process before you wrote your explanation. I can see how this planning helped you find the words that your audience will understand.
- You’ve cut your big list of questions down to three. Every question should get the kind of information you know your audience will enjoy. You’ve also left it open for your interviewee to add anything extra. I look forward to seeing the results.

### METACOGNITION

- What changes did you have to make to be sure your audience would understand your explanation?
- Was it helpful to work on similes with a partner? Tell us about the discussions you had and the way you made your final choices.
- The interview went well, and your questions got the information you wanted. What advice would you give to other students about doing an interview with an expert?

 Writing standard: by the end of year 4

 The Literacy Learning Progressions