



## Overview

This article presents facts and phenomena about the moon, such as tides and phases of the moon. It's a companion piece to "Cool Facts about a Hot Place" (*School Journal*, Level 2, October 2015). Together they provide a great platform for exploring the Planet Earth and Beyond science strand.

As with the earlier text, "Night Light" is broken up into small sections, each with a clear subheading that states a fact. Each fact is explained and supported by illustrations, diagrams, and photographs. The conversational tone mixes in asides, rhetorical questions, and chatty comments, which help make the complex content engaging and accessible. The use of science-specific text features, such as diagrams, headings, and comparisons, provide a good model for science writing, while the use of

humour can also be explored as a technique for engaging the reader.

This article:

- provides important facts about the moon
- uses examples and comparisons to support concepts of scale
- has illustrations, photographs, and diagrams to support the information
- contains sidebars with additional information
- includes a glossary.

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

**Texts related by theme** "Solstice" SJ 2.4.04 | "Speed Freaks" Connected No.3, 2009 | "Cool Facts about a Hot Place" SJ L2 Oct 2015 | "Why Is the Moon Upside Down?" / Spy Connected L3, 2013

## Text characteristics from the year 4 reading standard

is about four times smaller than the sun.

Earth, and four million times smaller than the sun.

Because the moon is small, its gravity is weak. If you entered a high-jump competition on the moon, you would be able to jump a lot higher than you can on Earth.



The moon is round like a ball. The moon's diameter is measured through middle from side to side.

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

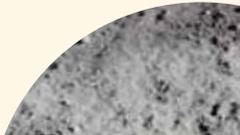
### Humans have been there.

Many spacecraft have flown past the moon, and some have landed on it. Twelve people have walked on the moon. They were astronauts from the United States. They travelled to the moon in the 1960s and 1970s to gather rock samples and do experiments.



### It has no air.

The moon has no air, so there's no sound. Astronauts'...

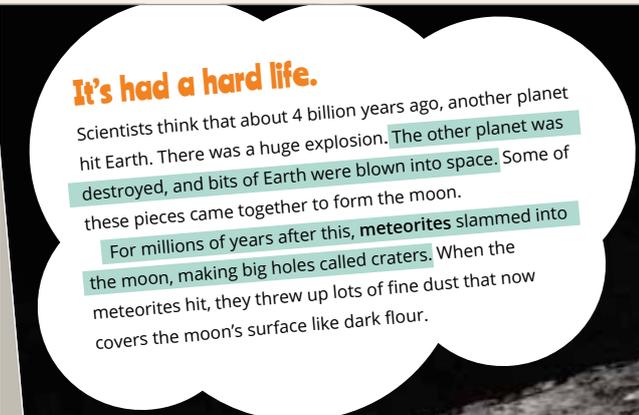


a straightforward text structure, such as a structure that follows a recognisable and clear text form

### It's had a hard life.

Scientists think that about 4 billion years ago, another planet hit Earth. There was a huge explosion. The other planet was destroyed, and bits of Earth were blown into space. Some of these pieces came together to form the moon.

For millions of years after this, meteorites slammed into the moon, making big holes called craters. When the meteorites hit, they threw up lots of fine dust that now covers the moon's surface like dark flour.

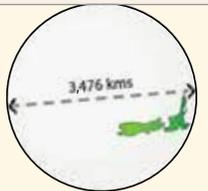


some compound and complex sentences, which may consist of two or three clauses

### It's big, but it's small.

The moon's diameter is 3,476 kilometres. That's over twice the length of New Zealand. But the moon is about four times smaller than Earth, and four million times smaller than the sun.

Because the moon is small, its gravity is weak. If you entered a high-jump competition on the moon, you would be able to jump a lot higher than you can on Earth.



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

# Possible curriculum contexts

## SCIENCE: Planet Earth and Beyond

Level 2 – Astronomical systems: Share ideas and observations about the Sun and the Moon and their physical effects on the heat and light available to Earth.

## MATHEMATICS: Geometry and Measurement

Level 2 – Measurement: Create and use appropriate units and devices to measure length, area, volume and capacity, weight (mass), turn (angle), temperature, and time.

## ENGLISH (Reading)

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

## ENGLISH (Writing)

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

## Possible first reading purpose

- To learn interesting information about the moon.

## Possible subsequent reading purposes

- To find out how visual language and diagrams help us to build our understanding of what we're reading
- To explore how the organisation of the text helps us to find information
- To use maths knowledge to make sense of scientific information about the moon.

## Possible writing purposes

- To develop questions inspired by what we have read and to find answers to those questions
- To write about a topic arising from the article, using some of the organisational features of the text as a guide (for example, why we get tides, why we don't see the moon every night, why the moon changes)
- To create diagrams and captions that represent and extend information in a scientific text (for example, diagrams representing force and magnetism).



The New Zealand Curriculum

# 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

- Scientific language: “jet-propelled”, “gravity”, “meteorites”, “astronauts”, “experiments”, “samples”, “rotate”, “axis”, “waxing”, “waning”, “reflecting”, “invisible force”, “tides”, “universe”, “orbits”, “Earth”
- Mathematical language (in the context of which they are used, these may be difficult): “four hundred times”, “second-brightest”, “diameter”
- Comparative headings: “It's near, but it's far”
- Adverbs: “gradually”, “slightly”
- Noun phrase: “the side of the moon that is reflecting the sun's light”.

## Possible supporting strategies

- Most of these words are explained within the text or by diagrams.
- Look at the glossary together to define new concepts. You may want to add new terms to the glossary that students need to explore further.
- Make a concept map of words that are used to indicate measurements of time, size, distance, age, weight, and temperature. (Although the article mostly describes these in comparative terms rather than absolute units, you could have a valuable discussion of the units used for different measurements.)
- Some English language learners may benefit from practising comparative adjectives – positive (big), comparative (bigger), superlative (biggest). Students could also place words on clines to show degrees of comparison.
- *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

- Some understanding of scale and the use of analogies to show scale
- Some understanding of huge time frames, such as “billions of years”
- Familiarity with the language of comparison
- Some knowledge of force and gravity.

## Possible supporting strategies

- Introduce concepts that students may have little prior knowledge of, such as gravity. *Building Science Concepts* may help with introducing these concepts.
- Ask students to highlight areas of the text and diagrams that they find difficult and then help to clarify them.
- Ask students to skim and scan the text, noticing the diagrams and illustrations. You may need to model how to skim and scan the first spread, reminding students to notice the headings, diagrams, and first sentences, then allow them to do the rest of the article on their own or in pairs.
- Link the concept of gravity to forces (push and pull, magnetism, or electricity) if your students are familiar with these.

## TEXT FEATURES AND STRUCTURE

- Short paragraphs that support the reader to deal with small amounts of information at a time
- Subheadings that provide clear links between ideas and help the reader to focus on what's coming next
- Clear topic sentences
- Diagrams and photos that support the content
- A glossary
- Use of quote marks to signify humour: “only”.

## Possible supporting strategies

- Review what students know about the differences between informational and fictional texts. The use of cartoon-like illustrations may confuse some students – explain how the illustrations support the humorous tone of the text, but they don't mean that the text is fiction.
- Explain to students that the diagrams support the information and ideas in the text.
- Point out the subheadings and discuss their effectiveness in catching the reader's attention.
- The use of devices such as humour and rhetorical questions can be particularly confusing for new learners of English. Check that they understand what the author is saying. Humour can also be explained with the use of illustrations or drama.
- Review the use of a glossary and, if necessary, remind students how to use it as they read.
- *Supporting English Language Learning in Primary Schools (SELLIPS): Years 3 and 4*, pages 34–37, has ideas for scaffolding English language learners to understand the content, language, and vocabulary used in explanations, for example, matching semi-completed diagrams to familiar text, sequencing sentences from a familiar explanation, labelling diagrams from a familiar text, sequencing diagrams and using these to guide the construction of an oral text.



Sounds and Words

# Instructional focus – Reading

**Science Planet Earth and Beyond** Level 2 – Astronomical systems: Share ideas and observations about the Sun and the Moon and their physical effects on the heat and light available to Earth.

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

## First reading

- Skim and scan the article together, looking at the photographs, illustrations, and diagrams.
- 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.
- Set a purpose for reading. This could be based on students' questions about the moon.
- It could be helpful to record what students already know about the moon so they can modify their ideas as they read.
- Draw a concept map and ask students for contributions. Then ask them to add ideas to the map as they read. This could be a concept map related to measurements, as described in the Vocabulary section on page 2 of these notes.

### If the students struggle with this text

- Model how to skim and scan by thinking aloud. Show how you would interpret headings and diagrams to make predictions and ask questions about the text. *How can something be near and far? I wonder why the author has chosen that heading.*
- Model how to use the diagrams: *In this diagram, I can see ... This tells me ...*
- Prompt the students to ask questions about each section. Then model or remind them how to look for the answers when they read the text themselves.
- Chunk the text into sections and set short reading goals for each section. Pause to clarify words, terms, and concepts before moving on to the next section.
- Students can work in pairs or small groups to share what they know before and after reading each section.
- To help clarify the section on the phases of the moon, show students a video clip of the moon rotating to illustrate how light hits the moon.
- Go to [Building Science Concepts](#) for ideas on how to physically illustrate the process of the moon rotating.

## Subsequent readings

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

### The teacher

Ask the students questions about finding information in the text and allow them time to discuss these in pairs.

- *What helps you to find and understand the information?*

Model how to turn a subheading into a question, for example:

- *Turning headings into "how", "why", or "what" questions can help us to focus on the information when we read. For instance, the first heading is "It's near, but it's far". If I turn this into a "how" question, it gives me a clearer sense of what I am going to read.*
- *What would that question be?*
- *Does that help you to predict what information you will find in that section?*

### The teacher

Explain that in science writing, diagrams are often used. Discuss the diagrams in "Night Light". Choose one, and model going backwards and forwards between it and the text to make sense of the overall concept. Ask students to choose a diagram or visual feature and explain to a partner how it helps them to understand the information. Ask them:

- *Was this a good way of presenting the information? Why/why not?*

### The teacher

Explain that the writer has organised and communicated the information in a specific way. Focus on the opening spread and point out some of the following features: the structure of the paragraphs (topic sentence, explanation, example), the catchy subheading, the precise language with no unnecessary information, the use of the present tense, explanatory language (such as "That's because"), direct address to the reader, conjunctions, and examples.

Have the students examine another section to identify how the organisation of the text helps to convey the ideas.

### The teacher

Explain what maths concepts are (for example, "how big", "how far"), and model how to find one in the text. Ask the students to highlight other examples of where maths is used.

Direct the students to the opening sentences on page 2 and ask them to consider that the moon is "four hundred times closer" than the sun. Have them predict how much further away from Earth the sun must be ( $400 \times 380,000 = 152$  million kilometres). Demonstrate four hundred times something using counters, a ruler, or students (take the class outside and have a student stand four hundred times further away from a specific point than another student).

Assign groups of students to look at specific parts of the text that involve maths and then ask them to demonstrate what they have understood to the rest of the class.

### The students:

- identify the features that help them to engage with the text, such as the humour, the cartoons, and the diagrams
- turn the headings into questions to think about how they signpost the information, for example, "Why is the moon big but also small?"

### The students:

- check the diagrams against the text and make links between them to better understand the information
- ask questions to clarify things they are not sure about in the diagrams and the text
- explain how some features of the diagrams work with the text to illustrate ideas more clearly
- evaluate the effectiveness of some of the visual features.

### The students:

- look at the first sentence in each paragraph to see how it tells us the paragraph's topic
- note how the explanations and examples extend the topic sentence
- identify the structural features that the writer uses to help convey the information clearly.

### The students:

- identify maths concepts in the text
- demonstrate how using examples or comparisons makes it easier for them to understand maths concepts.

### GIVE FEEDBACK

- *It was a good idea to use different-sized balls in your diagram to show the relative sizes of the moon and Earth. That made the concept very clear.*
- *I noticed that as you read the text about how the moon changes, you went back to the diagrams several times until you had a good understanding of what it was about. That was a good way of dealing with such a difficult topic.*

### METACOGNITION

- What clues helped you to predict what each section might be about?
- How has this diagram helped you to understand the text? What did you find in the text that helped you understand the diagram?



Reading standard: by the end of year 4



The Literacy Learning Progressions



Assessment Resource Banks

# Instructional focus – Writing

**Science Planet Earth and Beyond** Level 2 – Astronomical systems: Share ideas and observations about the Sun and the Moon and their physical effects on the heat and light available to Earth.

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

## Text excerpts from “Night Light”

### It’s near, but it’s far.

The moon is “only” 380,000 kilometres from Earth. That’s four hundred times closer than the sun. But travelling to the moon would be like taking two hundred trips to Australia. Spacecraft take three days to reach the moon. If you had a jet-propelled skateboard that could do 100 kilometres an hour, you’d take six months to get there.

## Examples of text characteristics

### HEADINGS AND TOPIC SENTENCES

*The writer makes it easier to follow a non-fiction text by using headings and topic sentences that contain the main points of each paragraph.*

## Teacher

(possible deliberate acts of teaching)

Focus on the use of headings and model how you decide what headings to use. *In my writing, what is going to be the best heading for this paragraph?*

Model how to plan using headings. Brainstorm ideas on a topic and then show how you would use a mind map to organise your ideas into groups with overall headings.



### DIAGRAMS AND VISUAL LANGUAGE FEATURES

*Diagrams and illustrations can help to explain information.*

Look at the language used in the diagrams. Model the thinking process a writer uses in order to select the most important information that needs to be visually shown.

- *Where in my writing could I use a diagram to better communicate an idea to the reader?*
- *How might a diagram help my reader to better understand my ideas?*
- *What are the most important things that my diagram needs to do or show?*

Have the students identify parts of their writing that could be clarified with a diagram. Ask them to create one and then give it to a partner for feedback on how effective and clear it is. Ask students to write a review of each other’s diagrams. *What could your partner add to make it better?*

We see only one side of the moon. That’s because it takes exactly the same time to rotate (turn around) on its axis as it does to travel once around Earth.

As the moon orbits Earth, its gravity pulls the surface of the oceans towards it. This helps to cause our tides.

### STRUCTURE OF EXPLANATION

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

Pull sentences out and explore them as a group.

- *What does “that” refer to?*
- *How could you add extra information into a simple sentence?*

Have the students identify the causal connectives (conjunctions) the author uses (because, so, for example, as, so that, in order to, that, such as, if, since). Write a class list that students can refer to when writing independently.

### GIVE FEEDBACK

- *You used the phrase “That’s because ...”, which helped me see straight away that the information about an increased pulse rate links back to the earlier sentence about running.*
- *I was a bit confused at this point in your first draft, but now you’ve added a diagram, it has made the information really clear.*

### METACOGNITION

- How did you decide which labels to include in your diagram?
- How did the mind map help you to organise your ideas? Did it make it easier? Why/why not?

Writing standard: by the end of year 4

The Literacy Learning Progressions