

Trace the river from start to finish and discover some new river words along the way.

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resource

# Using picture books in Science learning

Picture books tell a good story with evocative images, and they can be used as resources in a teacher's kete across the curriculum. Kath Murdoch, a specialist in inquiry-based learning, says "The compelling pull of narrative can often lead us to understanding the world more deeply than any 'data' ever can." NZASE Science Communicator Mike Stone investigates, and collates a large list of picture books.

## Why use picture books?

In a picture book, illustrations and text work together to tell a story. Illustrations on every page give visual cues to the meaning of the text and strengthen a child's observation skills, as there is often more happening in the art than is stated in the text.

Picture books invite a connection with the narrative that engages the reader. This can make them particularly appealing for younger children.

However, they can also be useful for older students, as the popularity of comics indicates. Picture books are being used at university and teacher training institutions.

For secondary students, picture books can provide a way to access prior knowledge and to assess student understanding of science concepts. For example, asking students to create a picture book for younger students can show a distillation of their understanding of a science concept.

## Using picture books in Science

We can use picture books in a variety of ways. With small groups of younger students we

can hold the book up for the children to look at, and some are now read online. Judicious use of PowerPoint can make it easier for students to see the images in detail.

The simplest approach is to find a picture book vaguely related to the science you want to teach, that tells a story to engage students' interest before getting into the unit proper.

However, chosen carefully, the books can be a part of the teaching itself. And while non-fiction books may be obvious for this purpose, students often find fiction stories more engaging.

One of the advantages of using picture books is that the science ideas themselves are pared to their essence. And a simple story is used to provide students with the context needed to understand those ideas. Think about *The very hungry caterpillar* inviting discussion about growth cycles in insects.

The images can powerfully evoke emotions

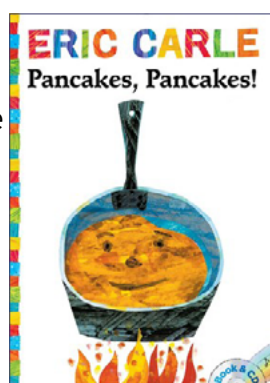
and also help students imagine a world that may be outside their experience. For example, *Lester and Clyde* tells the story of two frogs in a humorous and relatable way, to illustrate the idea of unhealthy waterways.

Some books have very little text. For example, *River story* has detailed images of the different parts of rivers that students may never have seen

themselves. It can be used to generate questions and begin an inquiry into rivers.

Colourful pictures and graphics can also be used to help explain abstract ideas. Chris Wormell's *One smart fish* tells the story of a clever fish who dreams of walking on land. It is useful for getting students thinking about animals

From River story by Meredith Hooper.



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changing over time, linking the idea of fossils with what is alive today.

Picture books can also cross cultural borders, sharing stories from, say, a Māori or Pasifika world. *Koro's medicine* has a koro teaching his mokopuna about the use of traditional Māori medicine. Such stories support Māori and Pasifika students by acknowledging their lives and histories in Aotearoa and the Pacific.

We can encourage students to use observation, not just to describe what they see, but also to make some inferences and predictions. Why is this happening; what might happen next?

We can use picture books to help students distinguish between observation and inference. For instance, in *Whose beak is this* we can ask: what is special about this beak, what do we see? Then, what might the beak be used for?

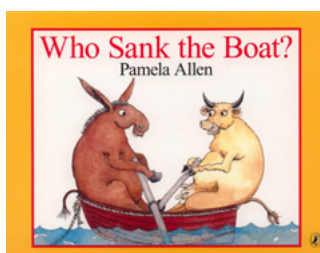
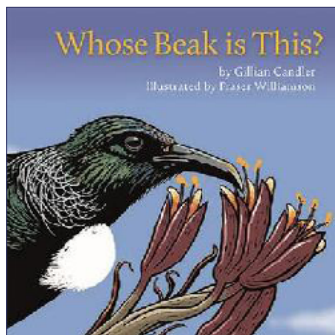
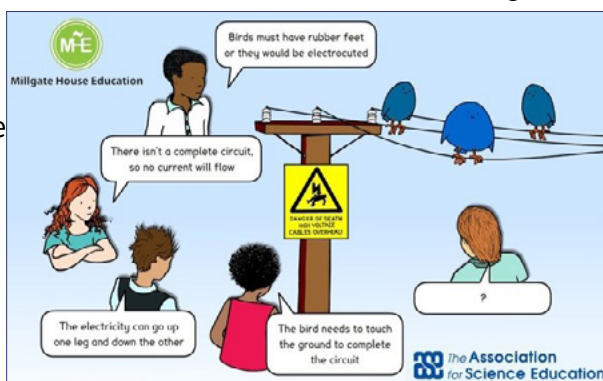
We can extend this to ask: What are all the plants and animals we can see; let's find out some more about them. How are these animals adapted to live in this habitat; ie, how do their behaviors and the design of their body parts help them survive here?

One of the key differences between picture and chapter books is that they more often invite conversations. We want students to do more than just soak in the story like a sponge. It is important to get them thinking about the story. The teacher can ask leading questions to elicit that thinking, but we also want students to be asking questions without prompting.

For example, teachers could ask: "What does that make you think about? What does that make you wonder? What do you want to find out?"

So picture books can provoke inquiry. In science teaching, inquiry is not only about research to find out information, but also includes practical

An example of a concept cartoon, Millgate House Education.



investigations. For example, [in this article](#) Mary Loveless uses the story, *The man who walked between the towers*, to lead students to investigate forces, balance, and centre of gravity.

Some stories provide imaginative explanations that come from misconceptions. For example *Stella, star of the sea* gives us very creative ideas about the origin of sea horses and starfish. And some students will have the same misunderstandings. This article, then, can become a springboard for discussion and research to find more accurate explanations. In this way, books can act like [concept cartoons](#), addressing misconceptions in a non-threatening way.

Given all this, picture books deserve another look for the Science teachers not already using them in the classroom.

## Ngā Kupu

**Aroro** – Concept

**Kōrero paki** – Fiction, storytelling

**Kōrero pono** – Non-fiction, factual text

**Pānui** – To read aloud

**Pikitia whakaari** – Illustration

**Pōhēhētanga** – Misconception

**Pukapuka pikitia** – Picture book

**Tūhura** – Investigate; investigation.

Te Aka Māori Dictionary & Paekupu

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