

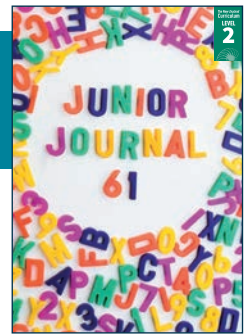
Amazing Magnets

by Johanna Knox

Junior Journal 61

Level 2

Purple 2



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. This teacher support material describes the opportunities in “Amazing Magnets” for students to develop the behaviours expected of students reading at Purple.

Overview

“Amazing Magnets” describes some ways that magnets are used at home, at school, and in industries. It follows on from the earlier article “The Invisible Force”, which describes some of the characteristics of magnets. There are several further pieces on the topic of magnetism in this journal: a series of science experiments and activities and a humorous story.

“Amazing Magnets” requires students to “confidently use a range of processing and comprehension strategies to make meaning from and think critically about” text (*The Literacy Learning Progressions*, page 14).

There is a PDF of this text and an audio version as an MP3 file at www.juniorjournal.tki.org.nz

Related texts

Non-fiction texts about the physical world and technology: “Power from the Sun”, “Solar Power in Tokelau” (JJ 57); “The Invisible Force” (in this journal)

Experiments or science-based activities: *Will They Float?* (RTR shared); “Fingerprints” (JJ 54); “Investigating Magnets”; “Let’s Race” (in this journal)

Text characteristics

“Amazing Magnets” includes the following features that help students develop the reading behaviours expected at Purple and build their knowledge of the features of non-fiction.

A mix of explicit and implicit content, including information that may be new, requiring students to make connections to their prior knowledge to make inferences, track information, and identify main points

The structure of the text as a report with an introduction, a series of main points, and a conclusion

Visual language features, including headings, photographs, captions, a text box, and the use of bold, coloured print on page 9

Information organised in paragraphs and the use of a variety of sentence structures, requiring students to attend to punctuation, pronouns, and other linking words to clarify connections between ideas

Some words and phrases that may be unfamiliar, including topic vocabulary (for example, “reasons”, “magnetic strips”, “metal knives”, “construction”, “factories”, “businesses”, “powerful”, “accidentally”, “attracted”, “removed”, “recycling centres”, “separate”, “scrap-metal yards”, “giant”, “on the move”, “objects”, “attract”, “repel”, “example”, “maglev”, “carriages”, “travels”, “poles”, “levitation”) requiring students to use their processing systems

AMAZING MAGNETS
by Johanna Knox

Magnets are used in many different places for many different reasons. Magnets can do some amazing things!

Magnets at home and school

At home, you might use a magnet to pick up pins or paper clips or to stick pictures and shopping lists on the fridge.

Fridges and freezers have magnetic strips in their doors to keep them closed so their cold air stays inside.

These metal knives are held in place by a magnetic strip.

At school, you might use magnetic letters to make words on a whiteboard. Some whiteboard dusters have a magnet inside so that the duster will stick to the board. Some games use magnets to join pieces together or keep pieces in place.

A magnetic construction set

A magnetic chess set

Language features typical of non-fiction:

- precise descriptive language including noun phrases
- the use of the second person, “you”, to encourage the reader to make connections to their own experiences
- cause-and-effect sentences



The Literacy Learning Progressions

Cross-curriculum links

English (Reading)

Level 2 – Processes and strategies: Selects and reads texts for enjoyment and personal fulfilment.

Level 2 – Structure: Understands that the order and organisation of words, sentences, paragraphs, and images contribute to text meaning.

Science (Physical World)

Levels 1 and 2 – Physical inquiry and physics concepts: Explore everyday examples of physical phenomena.

Technology (Nature of Technology)

Level 2 – Characteristics of technology: Understand that technology both reflects and changes society and the environment and increases people's capability.



The New Zealand Curriculum

Suggested reading purposes

What can the students expect to find out or think about as a result of reading this text?

- To find out how magnets can be used
- To think about whether magnets are amazing

Possible learning goals

What opportunities does this text provide for students to learn more about how to “read, respond to, and think critically” about texts?

The goals listed below link to the descriptions of reading behaviours in *The Literacy Learning Progressions* and the *Learning Progression Frameworks*. **Select from and adapt** them according to your students' strengths, needs, and experiences – their culture, language, and identity (*The Literacy Learning Progressions*, page 7).

This text provides opportunities for students, over several readings, to:

- use text and visual language features to identify and track information (**summarise**)
- **ask questions** and look for or think about possible answers
- **make connections** between information in the article and their prior knowledge to **make inferences** and **visualise**
- form and justify an opinion about whether magnets are amazing (**evaluate**)
- **monitor** their reading and, when something is unclear, take action to solve the problem, for example, by checking further sources of information, rereading, and/or reading on.



Sounds and Words



The Literacy Learning Progressions

Introducing the article

Use your knowledge of your students to ensure that your introduction builds or activates their prior knowledge and provides appropriate support for a successful first reading. A short video on the importance of introducing the text is available at <https://vimeo.com/142446572>

Several options are provided below for you to **select from and adapt**. These suggestions assume that the students will have some background knowledge from reading “The Invisible Force”.

For English language learners, you could recap the main points of “The Invisible Force” and then introduce new vocabulary in this article (in English and in their first language if possible). Provide support with text features that may be unfamiliar. You can find further information about features of texts that may need support at [ELLP](#).

- The day before reading, you could have the students work together to complete an anticipatory reading guide like the one on the right. Use the completed guides to generate discussion and questions when introducing the text. (After reading, the students can change their responses, but they should justify their decisions with evidence from the text.) This activity is especially supportive for English language learners.

| Anticipatory Reading Guide | Agree | Disagree |
|--|-------|----------|
| All magnets look the same. | | |
| Magnets are used to make sure fridges stay cold. | | |
| Most toys are magnetic. | | |
| Magnets can be used to separate plastic and paper. | | |
| Some magnets are so strong they can lift whole cars. | | |
| Some trains use magnets. | | |
| Magnets are amazing. | | |

- Alternatively, read the title. *Do you agree that magnets are amazing?* Prompt the students to draw on their experience and knowledge of magnets as they think about the question.
- Browse through the article together, encouraging the students to predict from the headings and photos what they might find out and to share any questions they have. Use the heading and photographs on page 8 to provide support for new topic words. Discuss what “factories”, “scrap-metal yards”, and “recycling centres” are and how they might find magnets useful. If necessary, on page 9, clarify the meaning of “on the move”.
- Set a reading purpose together and share the learning goal(s). Give the students sticky notes to mark questions or ideas that arise as they read and to note anything they want to come back to.

Reading the article

For the first reading, encourage the students to read the article by themselves, intervening only if it's clear a student needs help. Much of the processing that they do at this level is "inside their heads" and may not be obvious until the discussion afterwards. There will be many opportunities to provide support with word solving and comprehension on subsequent readings.

Student behaviours

Examples of the sorts of behaviours (often overlapping and developed over several readings) that will help students achieve their learning goal(s).

The students use text and visual language features to identify and track information.

- They use the headings to clarify what each section is about.
- They use the photographs to build their understanding, for example, of what a magnetic strip or a scrap-metal yard is.
- They notice and use connecting words such as "to", "so", and "by" to track the link between the magnets and how they are used.
- They attend to pronouns to help clarify links between ideas, for example: "Factories that make food use powerful magnets to keep the food safe. They [the factories] place magnets close to the food. If any metal gets into the food accidentally, it [the metal] will be attracted to the magnet. Then it [the metal] can be removed."
- On page 9, they use the coloured bold print and the explanation in the text box to clarify the meaning of "maglev".

They ask questions and look for or think about possible answers.

- For example, they might wonder about:
 - why businesses need to separate metal from other materials
 - what the businesses would do instead if magnets had not been discovered
 - other uses of magnets not mentioned in the article.

They make connections between information in the article and their prior knowledge to make inferences and visualise.

- They infer from the use of the word "amazing" in the title and the body text that the author thinks magnets are amazing.
- They respond to the personal pronoun "you" to help make connections to their own use of magnets.
- They may make a connection between the photo of the giant magnet here and the one in the previous article.
- On page 9, they infer from the word "but" that this section is going to be about something different or surprising. As they read on, they make connections to the information about magnets in "The Invisible Force" to visualise how the train levitates.

They demonstrate self-monitoring and problem solving.


- They use a range of word-solving strategies. For example:
 - they break words into chunks or syllables
 - they use their awareness that letters or letter clusters can have more than one sound to solve words such as "businesses", "knives", "centres", "whole", "carriages".
- They mark words or phrases they are not sure of or aspects they want to come back to.

Deliberate acts of teaching

How you can support individual students (if needed).

- Remind the students of strategies they can use for solving unfamiliar words (for example, looking for the biggest known word chunk and applying their knowledge of letters, sounds, and word structure) and for clarifying meaning (rereading or reading on and thinking about the overall meaning of the sentence or paragraph, and checking the photographs). Provide specific support as necessary.
- Reassure the students that when reading non-fiction, they may sometimes need to read more slowly, reread parts, and check aspects such as headings and photographs to build their understanding.

Discussing and rereading the article

You can revisit this article several times, providing opportunities for the students to build comprehension, vocabulary, and fluency. **Select from and adapt** the following suggestions according to your students' needs and responses to the reading. Some of the suggestions overlap, and several can be explored further as after-reading activities.  For some suggestions, you may find it helpful to project the PDF of the story so that you can zoom in on relevant sections.

- Remind the students of the reading purpose. Refer back to the anticipatory reading guide, if you used one, to clarify any queries. *What helped you find that out?* Encourage the students to share any new questions they have, for example, about what happens at recycling centres or scrap-metal yards or how a maglev train works. Discuss ways of finding answers to questions that are not answered in the article.
- Have the students think, pair, and share one example from the article that was familiar and one that was new. Use their responses to lead into a discussion of the idea of magnets being amazing (or not), giving their reasons.
- Clarify understanding of topic words by reading the sentences where they occur and discussing the supports for their meanings, including information in the photographs and captions.
- Have the students reread the article, stopping to discuss points of interest, including aspects they have marked with sticky notes. For example:
 - the structure of the report. Support the students to identify the introduction (which includes the author's opinion that magnets are amazing), the headings that show the focus of each section, the series of examples, and the conclusion that introduces an especially amazing example.
 - how the author has grouped the examples. Create a chart using the headings "At home", "At school", "At work", and "On the move" and have the students identify examples from the text of how magnets are used in these settings. Support them to add their own examples, including ideas from "The Invisible Force".

- the structure of the portmanteau word “maglev”. You could explore other examples of words that are formed from parts of two other words. Many examples use a mix of letters and syllables (“smog”, “brunch”, “spork”, “motel”) and some combine syllables (“banoffee”, “broccoflower”, “labradoodle”). You might also choose to discuss the derivation of the word COVID (coronavirus disease).
 - the use of the linking words “to” and “so” to clarify cause and effect. Read through a few examples together to draw out the idea that the first part of the sentence says what is happening and the second part says why.
 - “At home you might use a magnet to pick up pins or paper clips ...”
 - “Fridges and freezers have magnetic strips in their doors to keep them closed so their cold air stays inside.”
 - “Magnets are used at recycling centres to separate metal from other rubbish.”
 - “Scrap-metal yards use giant magnets to lift large pieces of metal.”
 - the use of noun phrases (such as, “amazing magnets”, “magnetic strips”, “cold air”, “Factories that make food”, “recycling centres”, “scrap-metal yards”, “large pieces of metal”, “whole cars”, “maglev train”) to provide detail. Demonstrate reading some of the sentences where the examples occur, with and without the adjectives or other descriptions, to show what a difference they make to helping the reader understand the information. Look for opportunities to reinforce the use of noun phrases during shared writing.
 - how the students worked out (or tried to work out) unfamiliar words or phrases. Provide support as necessary, for example, by:
 - » prompting students to apply their knowledge of prefixes and suffixes (“recycling”, “magnetic”, “powerful”, “construction”, “levitation”). You could generate further examples together.
 - » reminding them to draw on their knowledge of the “magic e” to clarify “strip” rather than “stripe” (page 7).
- Note any aspects you might want to follow up on later, perhaps as a mini-lesson or as an after-reading activity.



After reading: Practice and reinforcement

After-reading tasks should arise from your monitoring of the students’ needs during the lesson and provide purposeful practice and reinforcement. Where possible, make links to other texts, including texts generated by the students, and to the wider literacy programme (for example, oral language, writing, handwriting, and word games and activities) and other curriculum areas. **Select from and adapt** these suggestions, according to the needs of your students.

For English language learners, SELLIPS and ELIP also have ideas for purposeful and relevant tasks.

- Provide opportunities for students to reread this article and the linked texts in this journal. Support them to find library books about magnets, including activity books.
- The students can build their comprehension and fluency by rereading the text as they listen to the audio version.

Audio versions are particularly supportive for English language learners because, as well as clarifying pronunciation, they provide good models of the prosodic features of English, such as intonation and phrasing.

- Provide magnets for the students to do the experiments in “Investigating Magnets” or try out the ideas in “Let’s Race”. Note that for some of the activities, plain metal paper clips work better than plastic-coated clips. The students could take photographs and add captions, write their own instructions, or create and explain their own magnet game.  They could use Google Slides for this task.
- The students could take photographs and add explanations about how they use magnets at home or school.
- Support the students to find out more about other ways magnets can be used. They could add examples to the chart they started when discussing the text.
- Support the students to find answers to questions they have or to find out more about aspects of interest, such as maglev trains.  You could use sites such as <https://wonderopolis.org/>

- Provide practice in locating information. Write questions that are clearly answered in the cause-and-effect sentences discussed when rereading the article and have the students find the answers.

For example:

- Why might you use a magnet at home?
- Why do fridge and freezer doors have magnetic strips?
- How are magnets used in recycling centres?
- How are magnets used in scrap-metal yards?

Alternatively, you could write the first half of each sentence on separate cards and have the students locate the missing information in the article. The students could also make up a quiz using their own questions (and answers).

- Ask the students to write three reasons why they think magnets are amazing. Alternatively, you could have each student select four or five examples from the article (or the chart) and work together to arrange them on a continuum from least to most amazing. (There are no “right answers” for this activity, but the discussion involved in negotiating ideas provides rich opportunities to build oral language and comprehension.)
- The students could work in pairs to create a glossary (or add to one already created for “The Invisible Force”) for some of the subject-specific vocabulary (for example, “magnetic strips”, “recycling centres”, “scrap-metal yards”, “maglev train”, “levitation”).