

# To Spray or Not to Spray?

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## Overview

This text presents the debate about aerial spraying of the painted apple moth in Auckland. It provides a useful insight into different perspectives on a controversial issue. The arguments presented provide opportunities for students to practise their critical thinking, so allow for at least two sessions for discussion and debate.

## Suggested Teaching Purpose

*Based on the information I have about my students' learning needs, what would be an appropriate teaching purpose for this session?*

Examples of an appropriate teaching purpose are listed below.

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| <ul style="list-style-type: none"><li>To support the students in developing the comprehension strategies of summarising, asking questions, and <b>evaluating</b>.</li></ul> |
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## Features of the Text to Consider in Context

*What features of this text would support the teaching purpose?*

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| <ul style="list-style-type: none"><li>The teaser on the contents page and the title, which both indicate the controversial nature of the text</li></ul>  |
| <ul style="list-style-type: none"><li>The writer's use of dramatic, sometimes emotive language to convey the seriousness of the threat and the depth of feeling about it ("invaders", "sparked a huge debate", "PAM is a huge threat", "Aerial spraying is the only way", "never, ever been experienced anywhere else in the world")</li></ul> |
| <ul style="list-style-type: none"><li>The conflicting points of view and the contrasting ways the points of view are presented, for example, the use of bullet points or of students' personal statements</li></ul>  |
| <ul style="list-style-type: none"><li>The non-fiction layout features (headings and subheadings, boxed information, bullet points, and supportive photographs)</li></ul>   |
| <ul style="list-style-type: none"><li>The background information on page 28</li></ul>  |
| <ul style="list-style-type: none"><li>The topic-specific language and scientific concepts</li></ul>  |
| <ul style="list-style-type: none"><li>The use of questions to engage the reader ("but how do they know?")</li></ul>  |
| <ul style="list-style-type: none"><li>The use of passive sentence structures, for example, "New Zealand has been invaded by different animals" (rather than "Different animals have invaded New Zealand"), "It was first found" (rather than "People first found it")</li></ul>  |
| <ul style="list-style-type: none"><li>The language (on pages 28–29) indicating approximations or a lack of full knowledge, for example, "approximately", "It is thought that", "might have", "up to", "it has never been shown to", "may be affected"</li></ul>  |
| <ul style="list-style-type: none"><li>The varied quality of the students' arguments</li></ul>  |
| <ul style="list-style-type: none"><li>The acronyms PAM and MAF</li></ul>   |
| <ul style="list-style-type: none"><li>The measurements, for example, "ten thousand hectares", "seven hundred eggs", "200 metres".</li></ul>  |

## Readability

Noun frequency level: 12–14 years for guided reading

*What features of this text might constitute challenges for my students? (For example, features that may require a prompt or a brief explanation.)*

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| <ul style="list-style-type: none"><li>The concept of introduced and uninvited pests and the need for their eradication</li></ul> |
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•	The technical language and concepts, for example, “Gondwanaland”, “varroa bee mite”, “saltmarsh mosquito”, “eradicate”, “painted apple moth (PAM)”, “hectares”, “anti-PAM chemicals”, “horticulture”, “forestry”, “aerial spraying”, “canopy”, “satisfactory alternatives”, “toxic”, “infections”, “minor skin, nose, throat, or eye irritation”, “water-soluble”, “community action group”, “asthma”, “respiratory problems”, “diarrhoea”, “nausea”, “frequency”, “benzoic acid (a preservative)”, “evacuate”, “potential threat”, “pheromone traps”, “tree clearance”, “bounty system”, “biosecurity”
•	The acronyms MAF and PAM, especially when used without the full spellings, and the associated fact that “painted apple moth” isn’t capitalised whereas its acronym is.

*What prior knowledge would support my students in reading this text?*

•	Their familiarity with the debate about the painted apple moth or other local environmental issues
•	Their awareness of how public issues can become so complex and controversial
•	Their familiarity with debating topics and reading and writing persuasive texts.

## Sharing the learning outcome and success criteria with your students

### *Learning outcome*

I am learning to evaluate the effectiveness of the arguments in this article.

### *Success criteria*

I will be successful when I have:

•	summarised the arguments for and against spraying;
•	used “prompt” questions to help me notice and think about ideas and pieces of information that don’t seem clear or convincing;
•	asked further questions about the ideas and information that don’t seem clear or convincing;
•	thought about the reasons behind the differing points of view in this text and discussed my ideas with others.

## A Framework for the Lesson

*How will I help my students to achieve the learning outcome?*

### Before reading

•	Tell the students you have a text for them to read that presents a range of opinions on the controversial issue of eradicating pests. Spend some time discussing what pests are and what the students know about how to get rid of them. Clarify that there’s a difference between introduced and uninvited pests (as on page 28 of the text). In the <u>group reading book</u> or on the board, record selected vocabulary from the discussion that is relevant to the text, clarifying meanings as you go. (Making connections; building vocabulary)
•	Introduce and discuss the title and the teaser on the contents page. “What do these suggest to you about this text?” Make connections to the previous discussion. “Why might people choose not to spray a pest?” (Forming hypotheses; making connections)
•	Clarify that the reason for reading this text is not so much to learn about the specific issue of spraying the painted apple moth as to learn about ways of approaching a controversial issue. Briefly review what your students know about debating a topic and writing arguments. “While you’re reading this text, I want you to be thinking of questions about the issue and the article itself.” Refer to any relevant experiences the students have had of thinking critically about and evaluating an issue. Review the sorts of questions that they could ask, for example, What are they not saying? What is fact? What is opinion? How do I know if that’s true? How would this be different if someone else was describing it? What doesn’t seem quite right here? Write the questions on cards and display them as prompts while the students are reading. (Making connections; asking questions; evaluating)

- Preview the structure of the text, for example, the headings and subheadings that introduce the different points of view, the bullet points, the inclusion of student opinions, and the photographs. (Analysing and synthesising; summarising)
- Clarify the learning outcome and success criteria with the students.

### During reading

- Allow plenty of time for discussion and to provide support. If you plan to read the text over two sessions, you could aim to reach midway through page 30 in the first session. Use these early pages to provide background information on the issue and activate your students' critical thinking. Their primary focus will be on asking questions and summarising the arguments section by section while you provide support with the vocabulary as necessary. The strategy of evaluating will feature more strongly when you reach the student opinions on page 31. (Asking questions; summarising; building vocabulary)
- Because of the complex vocabulary and concepts on page 28, you could read the first paragraph to your students and then have them orally summarise that information. (Note that they don't have to understand every concept — just enough to appreciate that there are different sides to the argument.) (Summarising)
- Review the concepts of “introduced” and “uninvited” animals. Make connections to any knowledge the students have of the pests mentioned in the text. Encourage them to use context to infer the meaning of “eradicate” and have a dictionary handy for checking. “Why would a country decide to spend millions on eradicating a pest?” (Summarising; making connections; inferring; building vocabulary)
- Read the second paragraph of page 28. Ensure that your students understand that “PAM” is an acronym for the painted apple moth; explain that an acronym is often capitalised even when the full name isn't. (Making connections; building vocabulary)
- Review what the specific topic of the article is. “Who might have an opinion about the spraying?” (Summarising; forming hypotheses)
- “Have the students read the text box on page 28. “What do you think are the most significant facts here? How did you decide that? What helped your thinking?” If necessary, direct their attention to the final two bullet points and model your thinking about them. “That's a lot of eggs — and a long way the caterpillars can travel.” Draw out the idea that the moths breed and spread easily. “What questions does this information raise for you?” (Note that the text box doesn't say exactly what it is about the moth that makes it a pest.) (Evaluating; asking questions)
- Have your students read page 29 one section at a time and summarise the key points (including the information about why the moth is a problem). Clarify the roles of MAF and the Auckland Regional Public Health Service. “What are their attitudes to the spraying?” (Summarising; identifying the main idea)
- Have the students work in pairs to study the bullet points and think critically about the information, referring to the question cards on display to support their thinking. Discuss the students' questions together. For example, they may question such things as: why MAF advises people to close their windows and stay inside if the spraying is safe; what might happen if the spray were applied incorrectly; if the fact that the spray uses chemicals that are already in peoples' homes is reassuring or not; or if “not toxic” means the same thing as “safe”. (Summarising; asking questions; evaluating)
- You could also discuss some of the qualifiers used in the second section — “it has never been shown to cause infections”, “may be affected”, “may have minor ... irritation”. Discuss the possible reasons for such statements, for example, a lack of evidence or a way of avoiding responsibility. To balance the argument, you should also clarify that with matters related to health, it is often very difficult to make definite statements because there are so many variables. Remind the students of the roles of the two organisations and how these roles would affect the nature of the information they are providing. Make connections to the students' experiences of writing arguments and the need to phrase things in a way that doesn't undermine their position. (Analysing and synthesising; evaluating)

<ul style="list-style-type: none"> <li>Have the students read the first half of page 30 and summarise the main points, providing support with the vocabulary as necessary. Check their understanding of the concept of a “community action group” and then, as for the previous page, prompt your students to think critically about the statements. “Do you think all the symptoms listed would be because of spray?” (Summarising; evaluating)</li> </ul>
<ul style="list-style-type: none"> <li>You may decide to break the reading at this point.</li> </ul>
<ul style="list-style-type: none"> <li>Have the students read the rest of page 30 and encourage them to predict what the students might have to say about the spraying. (Forming hypotheses)</li> </ul>
<ul style="list-style-type: none"> <li>Ask the students to read the four students’ arguments and review their predictions. Give them some time to share their personal responses to the students’ arguments. (Testing hypotheses; making connections)</li> </ul>
<ul style="list-style-type: none"> <li>Ask the students to reread the students’ arguments and remind them of the learning outcome (to evaluate the quality of the arguments). Encourage them to consider which argument they think is the most effective and why. This should generate lively discussion. Let the students take the lead, with your main role being to remind them to evaluate the <i>quality</i> of the arguments and to back up their responses with information from the earlier sections of the text. (Evaluating)</li> </ul>
<ul style="list-style-type: none"> <li>Have the students read to the end of page 32. To help clarify the concept of “bounty system”, help your students make the connection to Jacob’s solution of getting kids to collect the caterpillars. The students may also be aware of bounty systems used to encourage the hunting of possums and rabbits. You could plan a more detailed discussion of these alternatives (and why they weren’t used) for a separate session. (Building vocabulary; making connections)</li> </ul>
<ul style="list-style-type: none"> <li>“What key message about approaching a controversial issue can you take away from this text?” Draw out the idea that personal beliefs and values affect the ways people think about things. Briefly discuss the final message: “Whatever the issue, keep yourself informed.” Lead on from this discussion by asking if the students have formed their own opinions about the issue or whether they feel they need more information. “What have you done as a reader to really understand both sides of the argument?” (Identifying the main idea; evaluating)</li> </ul>

### After reading

<ul style="list-style-type: none"> <li>Revisit your students’ ideas about which of the children’s arguments is most convincing. “What might make this argument even stronger?” (Evaluating)</li> </ul>
<ul style="list-style-type: none"> <li>Formulate criteria for an effective argument, for example, presenting accurate information, using persuasive language, and having an expert back the argument up. Draw out the idea that although an effective argument can use persuasive language, the information should be accurate. The goal is to draw the reader in — but not to the extent of misleading them. Briefly discuss how different experts often back up different points of view and ask why your students think this is. Draw out the idea that knowledge is constantly evolving and that there are often many variables to consider. (Evaluating)</li> </ul>
<ul style="list-style-type: none"> <li>Explore some language in the text that the students could use in their own arguments, for example, words beginning with “anti”, emotive terms like “huge threat” and “invaders”, and all-encompassing statements like “Aerial spraying is the only way ...” (Analysing and synthesising)</li> </ul>
<ul style="list-style-type: none"> <li>Review the learning outcome and success criteria and reflect with the students on how well the learning outcome has been achieved. “How has using the “prompt” questions and thinking about the situation from differing points of view helped you come to a conclusion about the effectiveness of the arguments in this text?” Note any teaching points for future sessions.</li> </ul>

### Links to Further Learning

*What follow-up tasks will help my students to consolidate and/or extend their new learning?*

<ul style="list-style-type: none"> <li>Have your students write an argument for or against aerial spraying, using their summaries of sections of the text as a reference. They could then debate the topic. (Evaluating)</li> </ul>
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| • | You could further explore differing points of view within a problem-solving drama scenario by having the students take on various roles, including roles not mentioned in the article, for example, a parent complaining to the principal, or a teacher organising the school safety procedures. (Making connections; evaluating) |
| • | Your students could explore another issue that interests them, for example, smacking children, immunisation, or the building of wind farms. They could then write a persuasive text on that issue. (Making connections; evaluating)   |

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