

## Lesson Plan for Pacific Invasive Ant Toolkit Lesson 3 – Where did the ants come from? (1hr 30mins)

### Prior Skills and Knowledge:

- Identify an ant as a living thing.
- Understand that not all ants are invasive.
- List the positive and negative impacts of ants on our environment.
- Understand the top five invasive ant pests, the problems they cause people, agriculture and the natural environment.

### Instructional Objectives:

At the end of the lesson, students will able to:

- Understand where the top five invasive ant pests come from and how they arrive in the country.
- How does biosecurity find ants and what we can do as a community to help?
- What attracts an ant?
- Use math tables and graphs to collect and analysis data.
- Use the skills of self-management, responsible decision-making and problem-solving, exhibit the values of care, respect and social-awareness and show curiosity by asking questions.

Resource Preparation Guide		
Item no.	Description	Remarks
1.	Computer, Projector, Powepoint slides.	For showing of powerpoint slides / Slides to be printed out – 1 copy per 3 students if computer/projector not available
2.	Board or Paper and markers	To use for recording student – teacher interactions during brain storming.
3.	1) A range of different foods: sweet (honey, jam or toilet paper soaked in sugar water) and savoury (fish, peanut butter, corned beef). 2) Cardboard or plastic pieces for base of lures	For experiment on ant attraction.
5.	Annex 1a - Matching Exercise Annex 1b - Matching Exercise solution	Annex 1b for teacher's use only

Est Time	Learning and Development	Resources
5 mins	<p><b><u>Tuning in</u></b></p> <p>Slide 1 - 2: Teacher to introduce the lesson and the lesson outcomes for the day.</p> <hr/> <p>Slide 3: Teacher to recall with the class:</p> <ul style="list-style-type: none"> <li>- The top five invasive ant pests and the problems they cause people, agriculture and the natural environment.</li> <li>- The life cycle of an ant, 4 stages and similar to the butterfly. The structure of the colony which consist of a queen, soldiers and workers.</li> </ul> <p>Teacher to ask the question(s):</p> <ol style="list-style-type: none"> <li>1) What are some ways invasive ants harm our agriculture?</li> <li>2) What are some ways they harm our wildlife and environment?</li> <li>3) What are some ways they harm humans?</li> </ol> <p><i>Note: Teacher may make use of the Board or paper and markers to record the responses of the students.</i></p>	Computer, Project, Slides
5 mins	<p><b><u>Introduction</u></b></p> <p>Slide 4: Teacher to ask the question(s):</p> <ol style="list-style-type: none"> <li>1) Where do you think the invasive ants came from?</li> </ol> <p>Teacher to introduce the countries and the different species of invasive ants that originated from them:</p> <ul style="list-style-type: none"> <li>- Africa, Asia, Central American and South America.</li> <li>- The African big-headed ants came from Africa.</li> <li>- The yellow crazy ants came from Asia.</li> <li>- Little fire ants came from Central America.</li> <li>- Red imported fire ants and Argentine ants came from South America.</li> </ul>	Computer, Project, Slides, Board/Paper and markers

20 mins	<p><b><u>Development 1</u></b></p> <p>Slide 5: Teacher to share the following facts:</p> <ol style="list-style-type: none"> <li>1) It only takes one queen ant to start an invasion. They may be hiding almost anywhere.</li> <li>2) Some of them travelled a very long distance. Too long for a queen to fly!</li> <li>3) Whole nests can be hidden in soil around potted plants or in a single coconut or macadamia nut!</li> </ol> <hr/> <p>Slide 6: Teacher to ask the question(s):</p> <ol style="list-style-type: none"> <li>1) How do you think the ants got from one country to another?</li> </ol> <hr/> <p>Slide 7: Teacher to get the students to do a Think-Pair-Share.</p> <p><b>Step 1:</b> Get the students to think and write their responses individually.</p> <p><b>Step 2:</b> Tell the students to pair up and share their responses, adding on new ideas to theirs.</p> <p><b>Step 3:</b> Come back together as a class and randomly select pairs to share their conversations.</p> <p><i>More information about Think-Pair-Share strategy can be found here:</i>  <a href="http://www.theteachertoolkit.com/index.php/tool/think-pair-share">http://www.theteachertoolkit.com/index.php/tool/think-pair-share</a></p> <p><i>Note: Teacher may make use of the Board or paper and markers to record the responses of the students.</i></p> <p>Slide 8: Teacher to share how ants enter the country:</p> <ul style="list-style-type: none"> <li>- Ports</li> <li>- On ships</li> <li>- Airports</li> <li>- Unloading areas</li> <li>- Storage areas</li> </ul> <p>Teacher provides further information on why they are found in these places and why they are there.</p> <ul style="list-style-type: none"> <li>- When cargo, especially sea containers, vehicles and appliances are brought in to the country invasive ants that have been hitching a ride on them will go in search of food or a new place to nest.</li> </ul>	
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50 mins	<b><u>Development 2</u></b>	Computer, Project,

	<p>Slide 12: Teacher informs the class that they are going to next perform an experiment on attracting ants.</p> <p>Teacher to ask the question(s): 1) How can we detect ants that have been overlooked?</p> <p>Slide 13: Teacher gives the class instructions on the experiment. “You can use lures to attract ants! Here is how you can make some lures, here is how” – Follow steps in powerpoint and allow for at least 30 mins of activity time.</p> <p>Slide 14: Teacher to remind students on simple rules before setting off.</p> <p>Slide 15: Teacher to discuss with the students the type of food that the ants liked best. These will be lures that attracted the most number of ants. Teacher next shows the students how the data they have collected can be presented in a bar graph.</p> <p>Teacher to ask the question(s): 1) From the bar graph, which type of food attracts the least ants? 2) Which type of food attracts the most ants? 3) How can you tell?</p> <p>Slide 16: Teacher to show examples of other ways of representing data.</p> <p>Slide 17: Teacher to ask the question(s) and record the responses on the slide or on a board or paper.</p> <p>1) Now that we know what attracts the ants and make them come, what can we do as a community to stop them?</p> <p><i>Note: General facilitation will be good but attempt to guide the thinking to leaving food uncovered, littering, food wastage at home etc.</i></p>	<p>Slides, Board/Paper and markers</p> <p>For the experiment please prepare 1) a range of different foods: sweet (honey, jam or toilet paper soaked in sugar water) and savoury (fish, peanut butter, corned beef). 2) Cardboard or plastic pieces for base of lures</p>
10 mins	<p><b><u>Conclusion</u></b></p> <p>Slide 18: Teacher to recap the lesson key points:</p> <ul style="list-style-type: none"> <li>• Understand where the top five invasive ant pests come from.</li> <li>• How these ant pests arrive in the country.</li> </ul>	<p>Computer, Project, Slides and Annex 1a</p>

	<ul style="list-style-type: none"><li>• How we can use the information from our experiments to help us make decisions.</li></ul> <p>Extension: Students will receive a Matching Exercise to complete at home.</p>	
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Adapted from:

[http://piat.org.nz/uploads/PIAT\\_content/pdfs/learning\\_teaching/Invasive%20Ants%20Lesson%20plan%20new%202.pdf](http://piat.org.nz/uploads/PIAT_content/pdfs/learning_teaching/Invasive%20Ants%20Lesson%20plan%20new%202.pdf)