

# Survey your environment

NEW July 2024

Year level: 3

Statistical focus: summary investigations

Approximate number of lessons: 2

## Learning goals

- pose summary investigative questions about everyday situations
- anticipate what the data might show
- identify who and what the data measures
- discuss how the data-gathering process might affect other people
- collect, record, and sort data
- create and describe data visualisations
- choose statements that best answer the investigative question, reflect on findings, and compare them with anticipated outcomes

## Resources

- [Data detective poster](#)
- [Marine Metre<sup>2</sup> website](#) Collecting valuable data about biodiversity, distribution and abundance of seashore species over time and space.
- [Science Learning Hub Marine Metre Squared](#)
- Bamboo or pipe 1m<sup>2</sup> frames
- Spray paint
- [What is this bug?](#) Identification information
- [I used to think, now I think...](#) thinking routine
- [Y3 Survey your environment Google Slides](#)

## Activity

This lesson is inspired by the Otago University Citizen Science project [Marine Metre<sup>2</sup>](#) where ākonga go to their local coastal environment to measure the types of living creatures found within this specific piece of shore line. Some of the concepts can be used to undertake a statistical investigation using your at school context regardless of school size or location.

## ? PROBLEM:

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We have a lot of different climates and settings for schools in Aotearoa. I wonder what the most common insect is that is found in grass areas at our schools. How could we find that out? Do we even know the answer for our own school?

Pose the investigative question **'What sort of insects are common in the grass areas of our school?'**

Now have ākongā discuss what they think the results will be. What do they predict?

## 📋 PLAN:

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We cannot possibly count all the bugs or insects found in the grass areas in our school. One way that scientists collect data is to take a sample and then to make generalisations from there.

- We are going to use 1 m<sup>2</sup> as our sample size.
- Create a recording sheet for ākongā to tally the insects/bugs they find in their 1m<sup>2</sup>.
  - Suggested insects and bugs could include spiders, grasshoppers, beetles, cockroaches, ladybugs, bees, flies, unknown.
- Remind students that some things found are not insects (eg worms) and decide whether it fits your purposes to record these or not.
- Before going outside to use your frames and recording sheets use them indoors to practise moving around the frame without moving it.
- Ensure your recording sheet has a place to note the following
  - Location
  - Time of day
  - Date
  - Day of the week
  - Weather conditions

## ### DATA:

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Take your frames and self made recording sheets outside. Select a piece of grass within your school grounds to conduct your data collection. In small groups count and record all insects within the frame. Decide on how much time you have available for the data count and spread your groups out so that an insect is not crawling from one frame area to another and being recounted multiple times.

Take your data back to class and have ākongā add their data to a class tally. This could be a large piece of paper on the wall or a digital document depending on your space and preferred way to collaborate. Look at the type of data and decide the best way to organise this. Discuss several options and explore the limitations of the different options.

## 📊 ANALYSIS:

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Once the data is displayed in the agreed way kaiako guide ākongā to analyse what they are seeing through prompts such as

- What is the data telling us?
- Is there anything you were expecting to see that is not included? Why do you think this is?
- What was surprising?
- What confirmed your predictions or first thoughts?

## CONCLUSION:

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Answer the class investigative question **‘What sort of insects are common in the grass areas of our school?’** . Share your statements from the analysis to display with your data so that others can view and see if they agree with your findings.

Repeat the data collection at a different time of day but in the same locations so that you have some interesting datasets to talk about and interact with. Ask ākonga **Does counting insects at a different time, day or in different weather conditions make a significant difference?**

## Notes for teachers

If you think it will be difficult to place the frames in exactly the same places then mark the grass where the corners of the frame sit with a dab of spray paint.

You could make a reduced data collection exercise by specifying the insects to count (eg only ants, spiders and beetles). It is worth considering working in pairs (if equipment allows) so that ākonga are more actively engaged. This could be achieved with very little equipment by spray painting 1m<sup>2</sup> frame outlines directly onto the grass.

This statistical investigation could be a stand alone focus or a practical addition to an environmental study. It could be revisited in different seasons to make observations about the habits of insects in response to climate. You could use the thinking routine **‘I used to think, now I think’** to support discussion of the noticeable changes based on the data sets you collect.

You could use the ideas in this lesson to collect information about any living thing that you are interested in at school. You could get in touch with schools in other parts of Aotearoa or even in other countries and ask them to collect a set of data about their insects to compare to your own set.

You could use the ideas in [The garden](#) maths lesson as an introduction or to simplify the task for inclusion if needed.

## Ways to extend the activity

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You could take this idea further by using the thinking routine **‘Ways things can be complex’** and looking at viewpoints and why different insects are common might be important for your community.

You could use the [Marine Metre<sup>2</sup> website](#) and look at the data collection that is done through an app called Photogrammetry so that different questions can be asked of the data at a later time.

Quadrant use or the idea of a quadrant could be explored further in pairs by playing **‘Blasting Bugs’**.

Create your own ‘bugs’ and [explore multiplication](#) in a way connected to your statistics thinking.



Data Detectives use PPDAC

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