

Enabling students to become citizen scientists

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The citizen science movement is gaining momentum and both citizens and scientists can benefit. Citizen science projects allow students to participate in and contribute to real-world science while developing a stronger understanding of the nature of science.

Citizen science is described as public participation in scientific research and is a way to involve ordinary people in real-life research with scientists. Scientists are increasingly realising the value of citizen scientists, as they can contribute data and many more hours of observations and analysis than scientists can achieve on their own. Citizen science also increases participants' awareness and understanding of science and related issues. Citizen science is nothing new, but technology is now making it easier for school students to participate and access the results.

How do citizen science projects work?

Like any scientific work, citizen science projects have to be carefully planned to ensure the collection of meaningful and accurate data. People need to be adequately instructed or trained before taking part in such projects so they are aware of the scientific method that they are to use, and how to record their observations. This means that involving students in citizen science projects provides an authentic framework for teaching the nature of science and fostering your students' [science capabilities](#).

The New Zealand Garden Bird Survey

Recently, I organised a LEARNZ virtual field trip based on the [New Zealand Garden Bird Survey](#). This field trip was an opportunity to explore a national citizen science project, encourage student participation in the project, and connect students with scientists. The garden bird survey asks people to record the highest number of each bird species seen in a particular area of their garden during a one-hour period. This information is useful, as birds are an indicator of the health of the environment. The survey is completed annually over one week and has now been running for ten years. Measuring the population trends of garden birds is an enormous task, hence the need for citizen scientists.

For students to effectively participate in citizen science projects they need to have adequate prior learning and support, so the LEARNZ Garden Bird Survey field trip was an ideal way to prepare students to take part in the survey. Along with the field trip, Landcare Research has provided a wealth of [resources](#). All this online material provided students with the background needed to effectively participate and contribute as citizen scientists. The task could be altered to suit younger students. Rather than having to sit for an entire hour

recording bird observations, students were encouraged to work collaboratively in 10-minute blocks and combine results.



Springston School students share their bird identification skills during the LEARNZ Garden Bird Survey field trip.

Initially, I was a little sceptical about how accurate some of the data recorded in the garden bird survey would be. During the field trip, I asked Jon Sullivan from Lincoln University about how accurate the results from the survey are. He assured me that inaccuracies in the data are taken into account through meticulous identification and analysis of variables. The sheer volume of data produced also means that averages and reliable trends can be determined.

The field trip led to twice as many schools taking part in this year's garden bird survey compared to last year. Students were able to connect with the scientists who helped create the survey during field trip audioconferences, and to compare their findings with those made by other students living in different parts of the country. A highlight of the field trip was seeing students actively engaged in meaningful science and sharing some of the inspiring work that schools such as Akaroa Area School are doing to restore local parks and gardens to attract more native birds to their local area.

This citizen science project not only gave students the opportunity to learn more about birds and the nature of science, but it also allowed students to actively contribute to this science. Over the coming months, robust statistical analysis of the data will be completed, but already, students have been able to see a summary of the initial results online. The field trip allowed me to witness just how much awareness and satisfaction students can gain from taking part in a citizen science project.



Students take part collaboratively in the New Zealand Garden Bird Survey.

How to take part in a citizen science project

Not all citizen science projects are suitable for students. Encourage participation in relevant projects that:

- engage your students within a relevant context
- provide enough information about how to participate and thereby model an easy to follow scientific methodology
- support students to develop adequate domain knowledge to allow meaningful participation
- require simple yet interesting data collection rather than repetitive, ongoing or monotonous recording
- give adequate feedback to students by effectively sharing the analysis of results.

Citizen science can expose students to real-world science and allow them to contribute to the body of scientific knowledge. These projects offer great opportunities to meaningfully develop your students' science capabilities. Citizen science projects help students to understand the very nature of science. They foster curiosity, model sound scientific processes, and engage students not just in science but as scientists.

Check out these New Zealand citizen science projects:

- [Enrol in the Kererū Count LEARNZ virtual field trip](#) and take part in the [Great Kererū Count](#)
- Contribute to [iNaturalistNZ NZ](#) using the iNaturalist mobile App. This online community enables citizens to upload their own plant and animal observations, meet other nature watchers and learn about the natural world.
- Students can take part in the [Nina Valley Ecoblitz](#)

- Survey the marine plants and animals living on your local sea shore through the [Marine Metre Squared](#) citizen science project
- Find out more about the [New Zealand Garden Bird Survey](#)
- Enrol in the [LEARNZ Garden Bird Survey field trip](#)



Shelley Hersey

[Shelley Hersey](#) Shelley has 10 years teaching experience. During her time as a classroom teacher she taught students in years 7-8 and was in charge of science and outdoor education. Shelley has lead many successful primary and secondary LEARNZ field trips and develops interactive online activities.