

LEARNING AREA: NUMERACY (STATISTICS)

Lesson Aim: To research school transport behaviour
New Zealand Curriculum Level 3

Lesson Overview

Students discover how active and sustainable their classmates travel behaviours are via carrying out a statistical enquiry project. This project can be as condensed or extensive as needed to meet your timetable and student needs.

1. Students first identify a problem and turn this into a research question (for example, are students in Room 6 getting to school in an active way?)
2. Then, students make a plan to answer their question. What will they measure and how? Who will they collect the data from? How will they collect their data (e.g. interviews), and how will they record it (e.g. tally chart)? At this point students can also form a hypothesis (prediction) about what they think they will find.
3. After the collection and organisation of their data, students present it on a graph which meets their learning needs (e.g. strip graph, bar graph, pictogram, dot plot, pie graph). At this point, students can also practice identifying patterns in their data.
4. Finally students conclude their project by making interpretation statements about what information their data shows, and doesn't show.

More information about the statistical enquiry cycle can be found on the [NZMaths](#) and [Census at School](#) websites.



Specific Achievement Objective Indicators (Statistics)

Statistical Investigation

Conduct investigations using the statistical enquiry cycle:

- Gathering, sorting, and displaying multivariate category and whole-number data and simple time-series data to answer questions
- Identifying patterns and trends in context, within and between data sets
- Communicating findings using data displays

Contextual Te Reo

- Haere = Journey, trip, travel
- Wake or Hīkoi = to walk (verb)
- Pahikara = bicycle
- Ete Pahikara = to bike (verb)
- Oma = run
- Pāngarau = mathematics
- Taturanga = Statistics
- Hurahura = to research / Kairangahau = researcher
- Kauwhata = graph

[Te Reo Māori Statistics resources](#)

[Māori Dictionary](#)

Key Competencies

- **Thinking:** Students need to think ahead to plan and follow a process. Students will also be interpreting results and phrasing their results in a way which communicates meaning.
- **Using language, symbols and text:** Communicating research findings with graphs and sentences.
- **Managing Self:** Being self-motivated, and establishing personal goals so the task can independently be completed in a meaningful way.
- **Participating and contributing:** Selecting and researching transport related questions which are relevant to students lives and communicating these in a meaningful and purposeful way.

Opportunities for cross-curricular links

- **Science:** Incorporate the environmental effects of sustainable transport choices into the problem and conclusion phases of the enquiry.
- **Health and Physical Activity:** Incorporate the health benefits of making active trips to school into the problem and conclusion steps.
- **English and Visual Arts:** Communication of research findings.
- **Social Studies:** Explore perspective and decision making by using results to pitch or propose a change of some sort (e.g. implementation of scooter racks to school principal, or pitching to councillors to put in a pedestrian crossing near school gate).

Adaptations for different year levels

- **Level 1-2:** Whole class guided research project using collage or drawn pictograms. Emphasise purpose of data and research.
- **Level 2-3:** Experiment with different graphs for presenting data on, and essential features of a graph (e.g. scale, labels, title, key etc).
- **Level 3-4:** Organise data so that different groups can be compared. E.g. compare classes, year groups, boys vs. girls, people who live close vs. far from school.
- **Level 4:** More student-driven than lower levels. Students need to be making statistical ascertations at this level and linking these back to their original problem and research question. Students can also work on posing next research steps to build on their research findings.

Other ideas for this lesson

- Different groups could research different questions.
- Communicate findings for a specific purpose (see social studies link).
- Use Google-sheets to record and present data.
- Different degrees of student vs. teacher driven project, depending on norms and needs in the class.
- Use a time-series graph to track class trends in class transport behaviour over Movin' March month.
- Present data on creative and thematic infographics without misrepresenting the data. Here is a New Zealand example ([Te Ao Mārama](#)).

Questions could also investigate:

- Reasons for using particular mode of transport
- Barriers for using other modes of transport
- Ideas about how to get more kids in their school to use active and sustainable modes