

# SECTION FOUR:

## Measuring Where, How and Effects of our Travel Choices

### Tātaihia ētahi Haerenga

Students measure how their community is travelling to school.  
The students look at factors such as safety, walkability, carbon emissions  
and whānau influence.



## The purpose of this section is to help students to:

- Understand how the school community travels to school
- Investigate and assess the environment through which they are travelling.
- Collect data about carbon emissions.
- Compare their own ideas about active travel with those of their whānau.

### Key Understandings for Section Four

- Creating a safe, happy and healthy environment will influence our choices to use active travel to school.
- Knowing about a range of aspects, that influence our school community, will help us to make sustainable decisions for encouraging using active travel to school.

**Learning Experience Resources (LER 34 - 36)** are at the end of this section and are linked from each Learning Experience.



## Section 4 : Measuring Where, How and the Effects of our Travel Choices - Tātaihia ētahi Haerenga

Learning Experience	Content	Learning Intentions	Curriculum Links
<b>4:1 How Are We All Travelling To School?</b>	Statistical survey of how people travel to school.	Know how people are travelling to school. Create baseline data.	<b>Social Sciences : Level 4</b> Understand how people participate individually and collectively in response to community challenges. <b>Mathematics and Statistics: Level 3 and 4 Statistical Investigation</b> Plan and conduct investigations using the statistical enquiry cycle.
<b>4:2 Counting Up Our Carbon Emissions</b>	Using Journey planner to calculate carbon emissions of trips during the school week personally and as a whole class.	Know that collecting baseline data is important when looking at an action that encourages change.	<b>Mathematics and Statistics Level 3 and 4 Number Strategies</b> Use and understand a range of additive and simple multiplicative strategies with whole numbers, fractions, decimals and percentages.
<b>4:3 Walkability Checklist</b>	Going on a walk to assess its walkability using an assessment tool.	Know how to use a measurement tool to assess the suitability of an area and find things that could be changed.	<b>Social Sciences Level 4</b> Students will gain knowledge and experience to understand how formal and informal groups make decisions that impact on communities.
<b>4:4 Map My Journey</b>	Mapping individual journeys. Creating a Tūmataunga challenges map.	Know what makes a community a safe place to walk or cycle. Know how to read and locate landmarks on a map.	<b>Mathematics - Level 3 and 4 Geometry and measurement</b> Use a coordinate system or the language of direction and distance to specify locations and describe paths. Communicate and interpret locations and directions, using compass directions, distances and grid references. <b>Social Sciences - Level 4</b> Students will gain knowledge and experience to understand how formal and informal groups make decisions that impact on communities.
<b>4:5 Comparing Opinions - My Whānau and Me</b>  <b>Home Link</b> 	Complete the Whānau -'Why not' active travel survey.  Compare the data between whānau and students.  Debate.  Write persuasively.	To be able to compare two sets of data and come up with an opinion on the topic.	<b>Social Sciences - Level 4</b> Understand how people participate individually and collectively in response to community challenges. <b>Mathematics and Statistical Investigation Level 3 and 4</b> Plan and conduct investigations using the statistical enquiry cycle. <b>English - Level 3 and 4 Speaking, Writing and Presenting: Ideas</b> Select, form and communicate ideas on a range of topics.

### Learning Intentions:

Students will...

- Know what forms of travel a group of people will use or are using in the school community.

### Success Criteria:

- Create a statistical survey to investigate how staff and students are travelling to school.
- Analyse and present findings to an audience.

### Resources:

[Let's Get Statistical](#)

## 4:1 How are we all Travelling to School?

### Teacher Notes

The purpose of this activity is to investigate how we all travel to school.

It will create a baseline of knowledge that can be compared after an action is put in place. The data collected may be used to highlight and create awareness of the amount of active travel being used or the lack of it.

### Background Knowledge

Modes of transport - how people move

Walking, scootering, skateboarding, horse riding, driving, catching a train, bussing, biking, balloon riding, combinations. Active travel modes are where people are actively moving.

Low carbon modes include bus, train, and car pooling.

### Learning Experience:

#### Statistical Survey of Travel Choices

- Predict and display on a pie chart what percentage of each travel mode do staff and students use to get to school. Eg. 10% bus, 50% car, 18 % bike, 12 % walk, 10 % scooter .
- Use [Let's Get Statistical](#) to research travelling to school behaviour. Look back at predictions.
- Develop more specific questions to investigate that would add to the bigger picture of what is happening in your school. For example:
  - How many students live too far away to walk or cycle to school?
  - How many students would rather walk or cycle than be driven to school?
  - How many students walk with others to school?
  - What difference is there between the numbers of younger and older children being driven to school?
  - How many students use a combination of modes to get to school?
- Survey class, syndicate or school. Create a suitable graph to show the results of their investigation. Present their findings and analysis to the class.
- As a class synthesize the key findings and trends and display.
- Share with whole school. Be positiv, explain that it is baseline data and the class is wanting to help the school make a change.

#### Kia Mau! Extract the Essence

What I thought was interesting about the survey results was:



## 4:2 Counting up My Carbon Emissions

### Teacher Notes

The purpose of this activity is to measure individual carbon dioxide output for the school week to give baseline data to be able to compare before and after affects of any actions. It will bring awareness to how much carbon we do emit and highlight where we could change our behaviour.

#### Homelink

Filling out the [My Trips: Weekly Carbon Counter Record Sheet \(LER 36\)](#) could be sent home to do with whānau as a homework activity or could be done in class time. Students could also use spreadsheets to calculate individual and class totals.

### Background Knowledge

**Trip Go Instructions** - <https://tripgo.com>

- Type your home address and school address in the search boxes.
- Click on the green 'Route' button.
- Find out how long each mode takes and the amount of carbon used.

### Learning Experience: Carbon Counting

- Reflect on the knowledge previously learned about carbon being a major contributor to greenhouse gases and also it being the one we contribute most to.
- Look at [Carbon as a Greenhouse Gas Graphic \(LER 34\)](#).
- Using the website Trip Go look at carbon emissions of one fictitious person's, or your own, journeys to school. [My Trips: Weekly Carbon Counter Example \(LER 35\)](#).
- Model how to keep a record of a school week of journeys using [My Trips: Weekly Carbon Counter Record Sheet \(LER 36\)](#).
- Calculate your personal carbon daily or do it all at once at the end of the week.
- Add up and display the total amount the class uses.
- Share what influenced their decisions to travel by car.
- What other questions could be developed to answer using this data eg.
  - How much carbon would I use over a full school year?
  - If I walked twice a week how much carbon could I reduce over a year?
  - What are the costs on the car for a year?
  - How much carbon am I saving by walking every day?

### Kia Mau! Extract the Essence

Record 3 facts that you have learned. I wonder .....

### Learning Intentions:

Students will...

- Know that collecting baseline data is important when looking at an action that encourages change.

### Success Criteria:

- Collect data on the amount of carbon dioxide produced as a comparison tool.

### Resources:

- [LER 34: Carbon as a Greenhouse Gas Graphic](#)
- <https://tripgo.com>
- [LER 35: My Trips: Weekly Carbon Counter example](#)
- [LER 36: My Trips: Weekly Carbon Counter Record Sheet](#)

## Learning Intentions:

Students will...

- Know how to use a measurement tool to assess the suitability of an area and find things that could be changed.

## Success Criteria:

- Assess a common walking route to see how suitable it is for walking to school.

## Resources:

- [Walkability Checklist](#)
- [Park and Stride Walking Pou and Park and Stride Mapping](#)

## 4:3 Walkability Checklist

### Teacher Notes

The purpose of this activity is to use a simple measurement tool to assess the mauri of the local area for walking.

Plan a simple walk around your school community or use a common travel route for students. On the walk the students will fill in the Walkability Checklist to identify any issues.

In Map my Journey 4:4 the students can then independently assess their own or potential active travel routes to school.

### Background Knowledge

Park and Stride Walking Pou - These are pou / poles designed by students as drop off points for students to walk from. Instructions in the link.

**Mauri - the essential quality and vitality of a physical object, individual, ecosystem or social group.** It is felt, seen and heard in the health, beauty and strength of a person or place. For example if a place has many thriving trees and is filled with birdsong and the local stream runs clean- the mauri is strong. If the waterways are fed through pipes, the few trees are surrounded by concrete and roads filled with commuting traffic - the mauri is weak.

### Learning Experience:

#### Assessing Walkability

- Use the [Walkability Checklist](#) to assess the suitability for walking or cycling to school.
- Model the use of it on a class walk outside the school grounds.
- As a class write a list of issues that were discovered. Highlight those that the students think could be addressed. Display this list on the wall for later reference.
- Note good drop off points for students who live too far from school to walk or cycle eg unused car parks near the school. This information will be useful if wanting to implement an action like the [Park and Stride Walking Pou](#).

#### Kia Mau! Extract the Essence

Summarise what the main issues were for discouraging students to use active travel to school.



## 4:4 Map My Journey

### Teacher Notes

The purpose of this activity is to map the safest journeys for students using Active Travel to school.

This could be completed at the same time as the Walkability Checklist.

Using information from the Walkability Checklist and Map My Journey maps the students will construct a Tūmatauenga Challenge Map. This will help to identify actions students could take in the community to improve the safety of active travel journeys to school.

See link Teacher's notes - Map my Journey

### Background Knowledge

#### Tūmatauenga - atua of challenge

In Māori pūkakau, Tū or Tūmatauenga (Māori: 'Tū of the angry face') is the son of Ranginui and Papatūānuku. He represents the qualities associated with 'war' such as decision making, strategy, challenge, conflict resolution, leadership, strength and courage. In some Pūrākau he is the creator of humans.

### Learning Experience:

#### Mapping Active Travel Journeys

- Use these notes to complete this activity - [Teacher's Notes - Map My Journey](#) along with the [Map My Journey - Student Instructions](#).
- At the same time use the Walkability Checklist for your active travel route to add in other information which could be useful.
- After completing the individual maps create a class "Tūmatauenga Challenges Map" of the area - using the information that has been gathered from the Map my Journey and Walkability checklist activities.
- Develop a legend - hazards, animals, cars, trees, etc. Images of Tūmatauenga could be used to show where the hazards are.
- This map will be useful in the action stage to prompt ideas for actions to make changes.
- Display the map for future reference.

#### Kia Mau! Extract the Essence

List any challenges there are for me or my whānau for active travelling to school. Summarise what are the challenges and the benefits for me to travel to school actively.

### Learning Intentions:

Students will...

- Know what makes a community a safe place to walk or cycle.
- Know how to read and locate landmarks on a map.

### Success Criteria:

- Plan a safe route to walk or cycle in my community.

### Resources:

- [Teacher's Notes - Map My Journey](#)
- [Map My Journey - Student Instructions](#)

### Learning Intentions:

Students will...

- To be able to compare two sets of data and come up with an opinion on the topic.

### Success Criteria:

- Analyse and compare the results of two different sets of people surveyed.
- State with reasons your opinion on active travel to school.

### Resources:

- Graphs and Survey used in 3:1 Why not Active Travel?

## 4:5 Comparing Opinions - My Whānau and me.

### Teacher Notes

The purpose of this activity is for the students to compare their own ideas around active travel with those of their whānau.

It uses the **Whānau Survey** that was completed in **Activity 3:1** on the issues they have with students using active travel. The students will fill in the same survey.

This introduces the idea that different groups in a community may have different ideas and opinions. It also encourages debate - using reasoning to persuade others to change their opinion.

### Learning Experience:

#### Comparing Survey Results

- Share the newspaper story:  
[Study reveals 9 in 10 Auckland children want to walk to school](#)
- Display the graphs from the parent survey done earlier in the **3:1 Why not Active Travel Activity**.
- Discuss
  - Which issues were most important for your whānau?
  - Do the things that influence your whānau, also influence your decisions on how you get to school?
  - Do you agree or disagree with your whānau views?
- Students fill in the Whānau Survey from 3:1 and graph the results.
- Display data from both surveys.
- Create a graph to compare adults' and students' concerns. Use Google spreadsheets, [www.infographiccreator.com](http://www.infographiccreator.com) or similar.
- Record the analysis under the graph using the following questions.
  - What issue showed the most difference of opinion between the two groups? Think of two reasons why that might be.
  - What issue showed the most similarity of opinion between the two groups? Think of two reasons why that might be.
- **Debate it.**  
*Eg. All children should be driven to school every day.*  
Debate this statement from the different points of view: environmental vs convenience vs safety. Invite whānau to come along.
- **Writing**  
*Transactional writing:*  
Argument. Write a letter to your whānau outlining the reasons why you believe travelling to school actively is the best or worst way to travel.

#### Kia Mau! Extract the Essence

Summarise the differences and similarities of opinions that I have with my whānau.

# **SECTION FOUR**

## Learning Experience

### Resources 34-36

LER 34

## Carbon as a Greenhouse Gas Graphic

### Greenhouse Effect

Carbon dioxide is one of the main gases

### Carbon Dioxide

Is one of the main waste products  
from vehicles

Carbon  
Dioxide

CO<sub>2</sub>



# LER 35

## My Trips: Weekly Carbon Counter example

**My Trips:** Carbon Calculator

**Name:** Ash

**Date:** Week 6 - 17-21 February

Keep a record for a school week of all the trips you make. This includes things like going to-school, sports practices, visiting friends etc. If you used active travel or a bus, train or an electrical vehicle put in zero carbon.

Record the start and finish place of each journey. Work out how much carbon you have used with Trip Go - <https://tripgo.com>. NB: Trip Go trips are calculated on the shortest route, rather than your actual route. Use this information as an approximate amount of carbon for this exercise.

The information we collect here will be used as a baseline for when we investigate how to reduce our carbon emissions.

Trips						Daily Total kg CO <sub>2</sub> e
<b>Monday</b> Dad drops off and picks up Ash and then later takes Ash to tennis	<b>From:</b>	Home	School	Home	Tennis	
	<b>To:</b>	School	Home via shops	Tennis	Home	
	<b>kg CO<sub>2</sub>e:</b>	0.7	0.8	0.8	0.8	3.1
<b>Tuesday</b> Ash is dropped off and picked up from school	<b>From:</b>	Home	School			
	<b>To:</b>	School	Home			
	<b>kg CO<sub>2</sub>e:</b>	0.7	0.7			1.4
<b>Wednesday</b> Ash walks to school on Walking Wednesdays	<b>From:</b>	Home	School	Hip Hop		
	<b>To:</b>	School	Hip Hop	Home		
	<b>kg CO<sub>2</sub>e:</b>	0	0.9	0.8		1.7
<b>Thursday</b> Ash walks to a friend's place after school	<b>From:</b>	Home	School	Jo's house		
	<b>To:</b>	School	Jo's house	Home		
	<b>kg CO<sub>2</sub>e:</b>	0.7	0	0.6		1.3
<b>Friday</b> Koro picks up Ash. Then drops Ash home	<b>From:</b>	Home	School	Koro's place		
	<b>To:</b>	School	Koro's place	Home		
	<b>kg CO<sub>2</sub>e:</b>	0.7	0.4	0.5		1.6
<b>Total Carbon Dioxide emissions produced for the week: kg CO<sub>2</sub>e</b>						<b>9.1</b>



# My Trips: Weekly Carbon Counter Record Sheet

**My Trips:** Carbon Calculator **Name:** \_\_\_\_\_

**Date:** \_\_\_\_\_

Keep a record for a school week of all the trips you make. This includes things like going to-school, sports practices, visiting friends etc. If you used active travel or a bus, train or an electrical vehicle put in zero carbon.

Record the start and finish place of each journey. Work out how much carbon you have used with Trip Go - <https://tripgo.com>. NB: Trip Go trips are calculated on the shortest route, rather than your actual route. Use this information as an approximate amount of carbon for this exercise.

The information we collect here will be used as a baseline for when we investigate how to reduce our carbon emissions.

<b>Trips</b>						<b>Daily Total kg CO<sub>2</sub>e</b>
<b>Monday</b> Dad drops off and picks up Ash and then later takes Ash to tennis	<b>From:</b>					
	<b>To:</b>					
	<b>kg CO<sub>2</sub>e:</b>					
<b>Tuesday</b> Ash is dropped off and picked up from school	<b>From:</b>					
	<b>To:</b>					
	<b>kg CO<sub>2</sub>e:</b>					
<b>Wednesday</b> Ash walks to school on Walking Wednesdays	<b>From:</b>					
	<b>To:</b>					
	<b>kg CO<sub>2</sub>e:</b>					
<b>Thursday</b> Ash walks to a friend's place after school	<b>From:</b>					
	<b>To:</b>					
	<b>kg CO<sub>2</sub>e:</b>					
<b>Friday</b> Koro picks up Ash. Then drops Ash home	<b>From:</b>					
	<b>To:</b>					
	<b>kg CO<sub>2</sub>e:</b>					
<b>Total Carbon Dioxide emissions produced for the week: kg CO<sub>2</sub>e</b>						