Resources and education services
We offer a range of facilitated school programmes and environmental education resources on natural resources and their sustainable management. Environment Canterbury also produce general information and resource material, such as pamphlets, brochures and booklets, many of which are free.

If you would like to receive a ‘Key to Canterbury’ environmental education pack contact: Environment Canterbury education staff on (03) 365-3828 or customer services on 0800 EC INFO (0800 324 636)

Environment Canterbury: what we do
Environment Canterbury is your regional council. We manage 12 activities for the Canterbury region.

- Air quality
- Civil defence and emergency management
- Coastal environment
- Energy
- Land
- Natural hazards
- Navigation safety
- Pests and biosecurity
- Public passenger transport
- Regional land transport
- Waste, hazardous substances & contaminated sites
- Water quality, quantity and ecosystems

We welcome your comments or suggestions for what you would like to see in future issues.

If you are not on the mailing list for Your Environment, Canterbury, or you would like to receive extra copies of this resource, please contact Environment Canterbury education staff at the Christchurch office, 58 Kilmore St, phone (03) 365 3828.

Environment Canterbury offices
58 Kilmore St
Christchurch
Phone: (03) 365 3828

75 Church St
Timaru
Phone: (03) 688 9069

73 Beach Rd
Kaikoura
Phone: (03) 319-5781
On the Move

Canterbury, a spectacular region – the rugged heights of the Southern Alps, the smooth lines of the plains, the unpredictable flow of the braided rivers and varying coastline, and the “hustle and bustle” of our towns and cities.

Wow! Let’s go and explore!

And we do! In ever-increasing numbers, Cantabrians are transporting themselves – by car, by bus, by bike and on foot, for work and for play!

How does this “transporting” affect Canterbury’s environment?

By going, seeing and experiencing are we destroying the very thing we travel for?

In this issue of Your Environment, Canterbury we embark on a journey about transportation – what it involves, the regional trends, the impact it may have on the environment, and possible solutions to our transportation woes.

In this issue...

2  From A to B
4  Walking the walk
5  … and biking the bike
6  The wheels on the bus...
8  Baby you can drive my car
10  The bright side of the road
Transportation is the process of moving people and products from one place to another. Where once human beings could get from point A to point B only by walking, we can now choose from many options.

Moving things from here to there can be thought of as a transportation system. A system includes: a goal, input, process, output and feedback.

**Goals:** A primary goal of any transportation system is to move products and people from point A to point B. Recreation is another goal for some transportation systems. Other goals are:
- Low cost
- Being on time
- Safety and comfort
- As pollution free as possible

**Inputs:** Petrol, cars, trucks, minivans, roads, bridges, and drivers are all examples of inputs.

**Processes:** Converting fuel into motion is the most basic process of any transportation system.

**Outputs:** Moving products and/or people from one place to another are central outputs of any transportation system. Unwanted outputs include pollution, time spent stuck in traffic, accidents, and fuel are a few examples.

**Feedback:** How well is the transportation system working?

“Alternative energy is a future idea whose time has past. Renewable energy is a future idea whose time has come”

Bill Penden (1977)
A good, safe and sustainable transport system is fundamental to the well-being of every New Zealander. It is essential for our economic growth and international trading success. It is central to our lives.

Thinking Local
You only need to look around you to realise things are getting bigger and faster, with a ‘buy me now’ kind of flavour!

Between 1991 and 2001, the population of Canterbury increased by around 50,000 to a total population of approximately 500,000 people (NZ Census 2001). That puts an increased strain on natural resources, including energy. The domestic use of vehicles alone is responsible for about 38% of all energy consumption in Canterbury. We each spend approximately $6000 per year on transport!

Hi ho, hi ho! It’s off to work we go!
In 2001, the NZ Census revealed the following statistics on how Cantabrians travel to and from work:
• 122,000 (84%) people drive
• 10,000 (6.9%) walk/jog
• 9000 (6.2%) bike
• 4000 (2.9%) use public transport

6.2% bike
2.9% use public transport
6.9% walk/jog
84% drive

In the classroom

Transport your self
This activity will highlight the transportation choices and patterns within your classroom by keeping a Personal Transportation Log.

Discuss with the class:
• What are some of the ways you use to move yourself from place to place? (Cars, bikes, in-line skates, walking, school bus, etc)
• Which mode of transport do you use most often?

For homework, ask students to collect data regarding their own transportation habits. Pass out and review the Personal Transportation Log so students are clear about what is expected. The log may take a weekend or a school week. Try to include at least one school day (Students may use a local map with a scale, and string, to help them make an estimate).

Transportation Log Review Questions and Analysis
Once students have completed their Personal Transportation Log, discuss with them:

• What did you notice, realise, have trouble with?
• What modes of travel did you need or use most? The least?
• Do you think the data reflects a typical weekend/week of travel?
• How accurate were your predictions?
• Are there other modes used but not mentioned? Think of other times of the year.
• Do you think the class percentages represent the percentages of an average New Zealander? Why/why not?

Personal Transportation Log Analysis

Name:

1. Mode of travel
2. Total # km per mode
3. % of total km travelled

Class Statistics

1. Mode of travel
2. # of class km per mode
3. % of total km travelled

Environment Canterbury
Your regional council
Walking the walk

“Restore human legs as a means of travel. Pedestrian relies on food for fuel and need no special parking facilities.”

Lewis Mumford

Transport is much more than simply getting from A to B. It is about connecting people to their communities. Walking allows people to mix and mingle while getting their ‘30 minutes a day’ exercise as well! Good news when you consider some health conditions, such as diabetes and obesity are on the increase and are affecting much younger people than ever before. However, walking accounts for only 20 percent of all household travel trips.

Walking can be fun and has several benefits:

- Healthier, more active children
- Less traffic around school, making a safer environment
- Environmentally friendly, energy efficient transport (fuelled by food)
- Meet up with your friends on the way and catch up on all the news before school

Walking can take a bit more time, but if you remember to plan for it, it is no hassle at all.

The only thing that can be a bit of a pain with walking is bad winter weather or when carrying heavy loads. When a cold, rainy southerly is blowing your raincoat against the back of your legs, your trousers are sopping wet and your fingers and face are freezing, you can be forgiven for wishing you were in a warm, cosy motor vehicle. Maybe these are the days for the bus or a carpool.

What, walking school buses? Have you ever seen a bus with legs?

As we know, roads are very busy places. People driving can be so focused on where they are going that they can forget to keep an eye out for cyclists and pedestrians. To make walking to school safer and more fun, parents and teachers thought walking in groups guided by a parent would do the trick. If you are in a group you can be more easily seen, so, sometimes bigger is actually better! And you can catch up and chat with friends before school. These groups have been called walking school buses, because just like a bus, lots of people are travelling somewhere together.
... and biking the bike!

On a warm, clear Canterbury weekend mountain tracks and roads are often riddled with spokes, wheels and handlebars; people enjoying the outdoors, fresh air and getting fit. But come Monday morning, for some reason, a lot of those cycles are put safely away in the garage not to be seen until the next ‘warm and clear’ weekend.

So why aren’t more people using cycles as a way of getting to work as well as for recreation?

The issues facing cycling are similar to those of walking. The weather can play a big role when choosing to cycle. Other reasons include safety, distance, convenience, and the attractiveness of the route itself. Cycling as a mode of transport accounts for around six percent of travel trips. Because it requires special equipment it has a smaller user base than walking. However, it is quicker and has greater potential for use in mid distance trips.

A case in point!

Sit outside any school in Canterbury and nine out of 10 times the scene will be the same – cars, cars, cars with the occasional walker and cyclist thrown into the mix.

The reasons behind child travel to school by motor vehicle are varied. The main reason is road safety. But one must consider why the roads are not as safe. Is it because there is so much traffic on the road? Who would be contributing most to the congestion before and after school? You got it, the very people who fear for the safety of their children biking to school. When travelling to and from work during the school holidays, there is a marked difference in the amount of traffic on the roads.

“Every time I see an adult on a bicycle, I no longer despair for the future of mankind”

H G Wells

Activity

Get the students to refer back to their travel logs. Compare the results from the Christchurch survey with their own. Are the trends the same? Why? Why not? Can they think of any changes they could make with their travel choice so that they are more active and sustainable?

And how do the students want to get to school? Most would much prefer an active mode of transport like biking.
“The wheels on the bus”

Nowadays, it seems like ‘rush hour’ is more like ‘rush hours’. No matter what time of the day you choose to get from one place to another it seems to be the wrong time. Queues, road works, breakdowns – you name it. And then you finally get to your destination only to find there are no parks, you are late or you have no change for the parking meter. Apart from getting up at same harsh hour in the early morning, or leaving late, getting around by private motor vehicle can be a real drag.

Think – public transport

For some of us the only time we think of using public transport may be when the car breaks down, it’s raining or we are travelling longer distances and choose to travel by coach, train or ferry. Public transport is often seen as a last resort. However, with increased demands on natural resources such as energy, land and air, greater use of public transport is essential if we are going to live within Earth’s natural limits – that is, sustainably!

Just sit back and relax!

Average bus = 45 seats. Average car = 5 seats.

There are many advantages to taking the bus or ferry:
- lower costs than driving (particularly if you count parking fees and the fixed costs of operating a vehicle)
- a lower risk of being involved in a traffic crash
- being able to relax (such as by reading a book, texting friends) or the chance to meet people
- less pollution and energy use, especially when they are full
- less need to occupy and pave land for road and parking spaces.

(Ministry for the Environment)

It all seems pretty simple really, but like anything there are pros and cons to using public transport. Public transport use in New Zealand has been low. However, over the past few years bus usage has increased. Success stories such as the Orbiter and Metro Star in Christchurch are great examples of how people are choosing public transport as their preferred way to get around.

So what are the perceptions of public transport?

How can we continue to increase the number of people using it and move forward into a more sustainable future?

Let’s go Metro!

Travelling by bus can be connected to waiting, waiting, and more waiting, being late, and crowds. And maybe that was true in the past. However, local authorities have taken such perceptions on board and improved the bus system in a number of ways:
- improved and more direct services
- technologies such as real-time information, security cameras, priority for buses and Metro cards
- higher frequency offering more trips and shorter times.

In Christchurch, the bus service is called Metro. All services are connected to Metro, i.e. same fares using the metro card and the ability to contact Metro info for more information.
and train, and tram and ferry (!?)
go round and round”

Orbiter case study

The Orbiter is a great national and international example of how it is possible to change attitudes and increase the use of public transport. More people travelling by bus means fewer cars and other forms of private motor vehicles on the road.

Extracts from: Launching new services: how to get it right and attract users
-Alex Hohen-Campbell & Grant Mangin

The Orbiter has transformed the perception of bus travel in Christchurch. The Orbiter has avoided being labelled with any of the popular negative perceptions of buses as a travel mode of last resort. Indeed, one third of passengers on the go have chosen to give up the use of their cars to travel by bus.

Reasons:
It was decided that the service needed to be:
• branded separately from the rest of the bus system, to indicate ring route
• modern, original, easy to recall with a clear point of difference.

The colour and imagery were recommended because:
• lime green colour is fresh, distinctive, easily seen and memorable
• the green is environmentally empathetic
• the warm red line subtly reinforces the path of the orbit.

The Orbiter concept was chosen for a number of reasons including:
• the name Orbiter makes no reference to a “bus”, thereby allowing the service to be positioned as a new and exciting way to travel to destinations, to overcome negative perceptions of buses and public transport
• Orbiter is derived from the word orbit, meaning to go around
• the word has positive associations with the new way to travel (exploration, wonder, discovery, adventure, imagination).

How do we know it is working?
The full Orbiter route is now the biggest single bus route in Christchurch with 11% of all Christchurch bus trips being taken on the Orbiter. For public transport to attract passengers it must be focused on meeting people’s needs and wants – the customer must come first, ahead of any operational requirements.

A new brand and image was developed for the Orbiter, to position it away from the worthy but dull image of public transport. The Orbiter is not a bus - it’s a modern, convenient and fun way to travel.
Baby you can drive my car

New Zealanders love motor vehicles! Per population, New Zealand has the second highest car-ownership level in the world, after the USA. The New Zealand vehicle fleet (excluding motorcycles) is predicted to increase from 2.5 million vehicles in 2000 to 3.1 million vehicles in 2015. In Canterbury alone, there are about 282,000 cars, trucks and vans on our roads. 90% of Canterbury households have access to at least one car and annually spend about 20% of their income on transport, mostly on car ownership and use.

So why this fixation with motor vehicles and how does it effect the sustainability of our natural resources?

There are many attractions to having access to personal transport, such as a car, including:

- fast travel time (except at peak congestion time) and no waiting time (except in traffic queues)
- convenience and independence of not being tied to other people’s timetables
- travel at your own choice of speed and stop when you wish
- protection from the weather
- space and strength to carry loads
- source of social status; and
- perceived as safer for lone travellers.

For those with a regular income, car use is mostly affordable and very popular. However, mass car use brings with it real costs, both for the natural environment and people. These ‘costs’ are beginning to outweigh some of the advantages.

Think carefully, choose wisely, tread lightly.

By now you will have a good idea of the pros and cons of each mode of transport. For this activity, you need to gather all those ideas and create an interactive game to reinforce them.

Examples:

**Maze** – find the shortest path by mode of transport
- Cycle – 15km/hr but short cuts through parks.
- Buses – 30km/hr but have bus priority lanes.
- Car – 50km/hr but congestion and road works.

**Board game** – Monopoly style
- Red squares means pick up a stop card.
- Green squares means pick up a go card.
- Each player chooses his or her mode of transport.

**Board game** – Snakes and Ladders style

**Drama**
- Charades – catchy phrases that classmates can act out.
- Role-playing different scenarios.
- Creating advertisements for television or radio promoting energy efficient, environmentally friendly transport.
## The real "cost" of running a car!

<table>
<thead>
<tr>
<th>Car use dominates urban travel and causes city congestion.</th>
<th>A road lane, typically 3 to 4 metres wide, can accommodate 2300 people passing per hour in cars, or over 7000 in buses and coaches, or 13,000 on cycles.</th>
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<tbody>
<tr>
<td>Cash costs of car ownership are high.</td>
<td>In 2001, the New Zealand Automobile Association calculated the real cost of owning a low-km family-size, three to four-year-old car at over $140 a week, before you put in fuel, or cover parking costs, garaging, cleaning and any extra gadgets or tools.</td>
</tr>
<tr>
<td>NZ imports older, less efficient, cars.</td>
<td>About 60% of private cars are ‘second-hand’. Fuel is relatively cheap here, compared to Europe. We do not have carbon taxes as a financial disincentive to burn fossil fuels, although they are planned for introduction in 2007.</td>
</tr>
<tr>
<td>Constructing roads and parking space costs the public dearly in rates and taxes.</td>
<td>There is huge ‘public investment’ in creating or repairing road space and parking facilities. By 2000, 18% of urban Christchurch was vehicle-related roads or parking.</td>
</tr>
<tr>
<td>Suburban car dependency: is it a state of mind?</td>
<td>These days if a destination is more than five minutes away New Zealanders appear to be ready to use the car. One third of car trips in New Zealand are under 2km in distance.</td>
</tr>
<tr>
<td>Driving everywhere can be really unhealthy for us.</td>
<td>In addition to the exposure to toxic vehicle-exhaust fumes when in traffic queues, the driver AND passengers are missing out on exercise. Walking 3km in 40 minutes, or a cross-town cycle ride is good daily exercise.</td>
</tr>
<tr>
<td>Cars are resource-hungry to build, and are often wasteful once ‘scrapped’.</td>
<td>By the 1980s, 48 million cars were being manufactured annually. Fuel demand is growing approximately four percent a year and a car requires more energy to process the materials in making it than in fuel for 10 years!</td>
</tr>
<tr>
<td>Running a car is resource-inefficient.</td>
<td>We are ‘hooked on oil’. Pressure to keep up the supply of cheap oil leads to exploration and production by multi-national corporations in many parts of the world.</td>
</tr>
<tr>
<td>Cars are physically dangerous when moving, when stopping and when stationary.</td>
<td>Vehicles bring safety hazards for drivers and other road users, and pedestrians.</td>
</tr>
<tr>
<td>Cars can pollute the atmosphere and waterways.</td>
<td>Worldwide, motor vehicles contribute 15% of the carbon dioxide emissions from human activity and 65% of the toxic carbon monoxide (CO) emissions.</td>
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</tbody>
</table>
The bright side of the road

The great thing about having so many options to get from A to B is that it creates choices. Being able to choose allows a feeling of freedom, a luxury in this ever-changing world. But, what we sometimes forget is that our choices have an impact not only on each other but also on the natural environment in which we live – an environment that we co-habit and rely on for our very existence.

If we make positive choices now about how we get around, it will ensure that the future is full of choices for generations to come. If not, slowly but surely, our options of transportation will be depleted due to resources, such as oil running out. Time to start is now!

Prevention rather than cure

So what can you do?

- Whenever possible choose an ‘active’ mode of transport, such as walking or biking. It has low impact on the natural environment and gets you fit and healthy as well.

- Use public transport! The more people who use public transport the more energy efficient it is and the less private motor vehicles there are on the road!

- Remember – approximately 40 people in one bus compared to a maximum of five people in one car.

- If you or someone you know needs or wants to use a private motor vehicle think about planning ahead of time.

Can you think of any others?

- Telecommuting and video conferencing options to reduce the need to travel.

- Proximity Choose a place to live where you can drive less.

- Reduce speed If you drive 90km/hr you would save 20% of the fuel you’d require at 110km/hr, adding only 12 minutes per 100km to travel time.

- Multi-task tripping Get the groceries, post those letters, visit a friend, drop the film off and pick up a DVD all during the one trip!

- Car-pooling Talk to friends, neighbours and colleagues and see if you can share the cost and space of one car instead of five!

- Keep the motor vehicle well serviced.

- Motor to suit the job Some families do require more than one car. When buying consider a smaller powered car for those round-the-town jobs and a bigger car for out-of-town trips.
What’s the scenario?

What once started as a small town, has grown, and is now a city. As it grew the landscape
changed. Land once covered in bush, wetlands and farms has given way to concrete and tar-
seal; full of houses, factories, businesses and roads. People recognise that their lives have
changed, as the town became a city. Some believe the changes have been too great. It is a lot
harder to get around; people are travelling greater distances in cars to get to work and school.
Transportation is becoming a big problem. Roads are crowded and traffic, both domestic
(individual and family vehicles) and commercial (trucks and business vehicles), is nose to tail,
bumper to bumper. They also notice that the once lush bush, wetlands and farms have all but
disappeared. Questions are being asked and debates have started about what is the best way
to ensure people and goods are effectively and efficiently moved around, without destroying
any more of the environment. Before the city increases too much more in size, local government
authorities such as district and regional councils want to know what the community thinks are
the best ways to solve the city’s transport woes.

This is your chance to have YOUR say ... that’s right, you!

In groups, discuss, plan, write or draw a new transport system for the city.

Think about ...

What do you think a sustainable city may look like?

Is it possible to develop a transport system for the city that recognises the current needs of
people and businesses, while reducing congestion, pollution and the need for more land to be
swallowed up for roads?

Do current structures need to stay or go?

Are people going to be able to easily get from A to B?

What are the needs now and for the future?

Curriculum Links

These suggested links are only a small selection.

Technology

Technology and Society
Level 3: Identify and consider different views and feelings of people in relation to specific
technological developments or effects.
Level 4: Identify and compare a range of factors and attitudes that promote or
contain a current technological development in the wider community.

Social Studies

Resources and Economic Activities
Level 3: How and why people manage resources,
Level 4: How and why people view and use resources differently and the
consequences of this.

Time, Continuity and Change
Level 4: Causes and effects of events that have shaped the lives of a group of people.

English

Oral Language
Interpersonal listening
Level 3: listen and interact with others to clarify understanding in a group or
class discussion.
Level 4: listen to and interact with others to clarify understanding of narrative
information, ideas, and opinions, and to contribute to discussion, in one-to-one,
small group, and class discussion.

Interpersonal speaking
Level 3: talk clearly in small and large
groups about experiences, events, and
ideas, organising.
Level 4: talk coherently in small and large
groups about experiences, events,
information, ideas, and opinions, organising
material effectively, and questioning and
supporting others.

The Arts

Drama
Level 3: Devise a series of scenes to
convey ideas, feelings and attitudes about
a local issue and its possible outcomes.
Present scenes in the context of an
interview format suitable for a young
people’s programme. Record and review
the presentation, UC PK DI CL