

Everyone is a road user

NOTE:

Be aware that these resources may involve the discussion of incidents on the road network that cause serious injury or death. It is likely there will be students in your programme with first-hand experience of such issues, and discretion is advised. It is recommended that students' individual circumstances are taken into account wherever possible.

Overview

Wicked problems for pedestrians, cyclists and passengers and the roads they use

Everyone is a road user. Think of the road as a “commons” – a shared place where its users understand and follow the rules and expectations and respond appropriately to ensure all citizens who use the roads have safer journeys and richer lives.

This NZ Transport Agency resource encourages primary and intermediate school students to act as citizens, to find the “wicked problems” around safer journeys for road users in their local community and to actively listen to the different perspectives on how these problems might be fixed. It prompts students and schools to work with others, to see the “wicked problems” for safer journeys as community challenges (problems and opportunities), and to seek community-based “clumsy solutions” that will increase the likelihood that road users will experience safer journeys.

Finally the resource encourages schools to become knowledge producers for their local communities – collecting, creating and curating stories about how they and others ensure safer journeys on their local road networks for pedestrians, cyclists and passengers.

The resources take a strength-based approach to road safety. They assume that every student has resources that can be used to manage safe outcomes for themselves and others in and around the road network.

Structure of the resources

The main resources are arranged by learning area: English, mathematics and statistics, and science. Within each of these resources, activities are arranged in three sections:

- bringing in new ideas (section 1)
- relating these ideas (section 2); and
- extending these ideas in ways that make a difference for others (section 3).

They are designed to be integrated into the existing school curriculum programs and provide additional materials that:

- identify prior knowledge; and
- provide feedback on learning through self-assessment rubrics.

All activities are numbered for teacher reference. The numbering reflects the three sections described above, and carries across the English, maths and science resources.

The resource design is based on the most recent research and understanding on how students learn and the effective pedagogies in teaching and learning (Chamberlin and Hook 2013).

The differentiated learning experiences are developed against New Zealand curriculum key competencies and learning areas in English, maths and statistics and science, across Levels 1 to 5. It is intended that teachers use them as a “pick and mix” selection from which they can identify learning experiences to embed into the existing school curriculum, and used to meet learning outcomes aligned to content descriptions within the curriculum learning areas.

Teacher Notes

To be successful, school-based safety education needs to scaffold deep understanding.

The NZ Transport Agency resource contains a **“Wicked problem” investigation** and 18 differentiated learning activities/experiences to meet curriculum expectations in **English, Maths and Statistics** and **Science** in Year 1 to Year 8. Explicit opportunities to integrate e learning and student reflection are integrated into each activity/experience. The NZ Transport Agency materials are editable and teachers are able to adapt them to better suit the learning needs of different students in different communities and different contexts.

Teachers are encouraged to select learning experiences to create learning pathways based on their students’ prior knowledge and experiences. This selection of learning experiences should develop pathways that challenge and extend student thinking and where possible provide opportunities for active citizenship through student action. This is because one-off lessons, providing information alone or using scare tactics are for the most part ineffective in that they do not affect young people’s long-term attitudes and behaviours (Raftery and Wundersitz, 2011; McKenna, 2010).

For more information, on the effectiveness of different approaches to safety education, refer to: Chamberlain, M., and Hook, P. (2013) Changing mental models: How recent developments in teaching and learning can be applied to road safety education in schools.

<http://education.nzta.govt.nz/guidelines/changing-mental-models>

Introductory activity

If you are a citizen, you belong, you matter and you make a difference. If you are a citizen, you have the right to safe journeys on the road network.

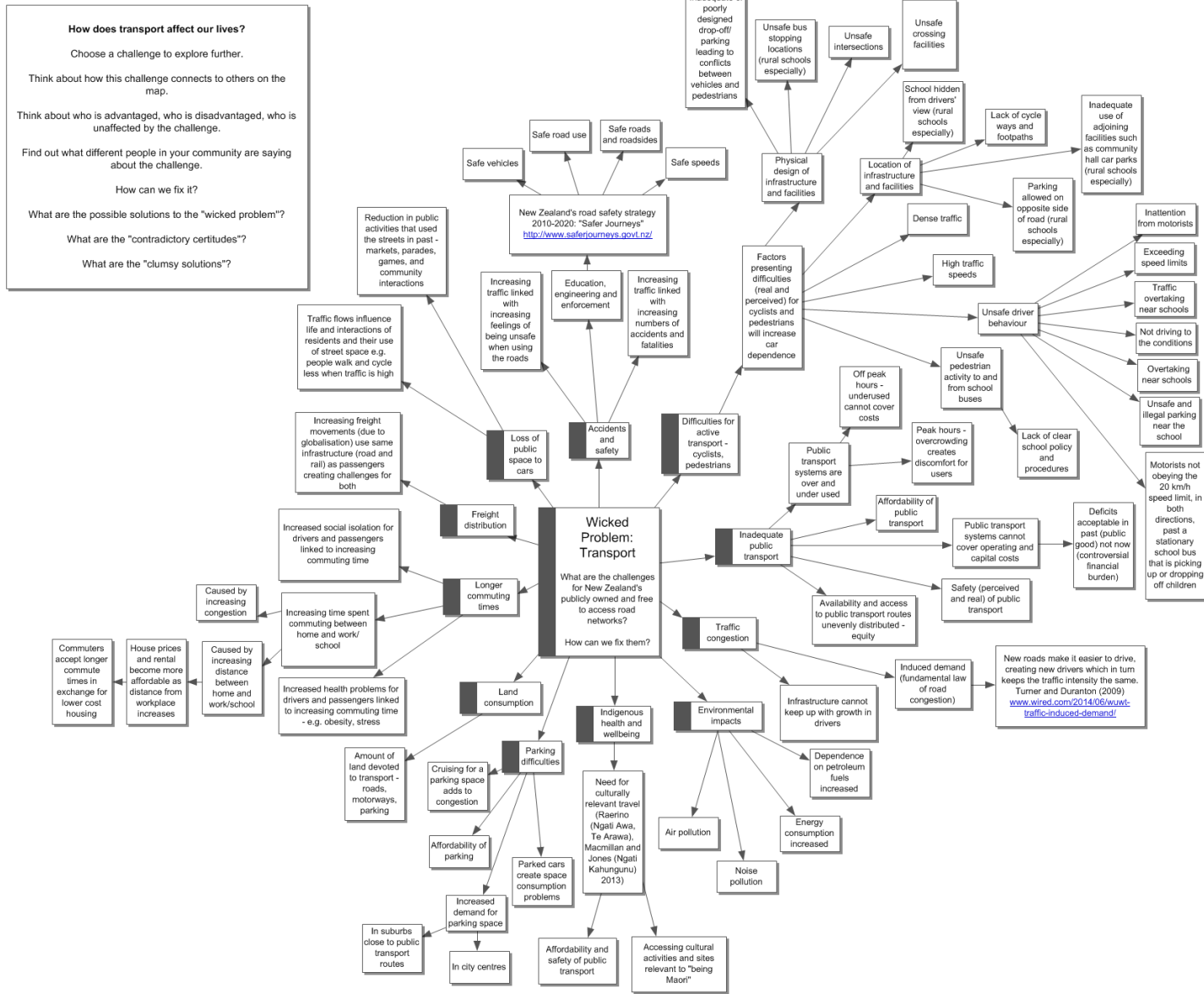
The mode of transport we use and how we use it affect people, places and the planet. Our physical and mental health and wellbeing, our ability to make friends and our ability to imagine can be influenced by how we use the road network.

Young people belong, they matter and they make a difference. They have a right to safe journeys. However, too many young people are killed or suffer serious injury when using our roads as cyclists, passengers and pedestrians.

Ask students to consider:

- To what extent do transport issues affect your ability and the ability of your family and friends to participate in life?
- To what extent do your local roads enable you to get on with what you want to do?
- To what extent do your local roads let you and your family and friends experience safer journeys?

Study the transport overview concept map below (you can download a PDF version). The map is also available as a transport hexagons activity. Refer appendix 3.



“Wicked problem” investigation

Refer to the transport overview concept map above, or use the transport hexagons activity in appendix 3, to help you identify possible influences on the experience of young people using the roads in your local community.

Use some of the maths, science and English activities in the resource to build a better understanding of the wicked problems for road users on local roads. Choose the activities that best meet the interests and needs of your students and local community.

Ask students to:

Conduct your own research into the factors that influence young people’s experience of safer journeys on local roads in your community.

The Official New Zealand Road Code has a list of facts that are worth thinking about before starting your research into safer journeys on local roads. Choose a fact that interests you and make a visual image to communicate the same message. Look for connections between your images and other’s images.

What children would like drivers to know (*The Official New Zealand Road Code*, pp. 248–249)

www.nzta.govt.nz/resources/roadcode/about-other-road-users/sharing-road-with-pedestrians.html

- Children are not little adults, so don't expect them to act as adults do.
- Children, especially those under the age of nine, may not have the skills and abilities needed to be safe in traffic. Be very careful when driving near them.
- Young children have narrow vision. This means they may not see vehicles as easily as adults do.
- Children have trouble judging the speed of moving vehicles. They may let a slow vehicle pass and try to cross in front of a fast one.
- Children often don't understand that it takes time for a vehicle to stop.
- Children may have difficulty working out where sounds are coming from.
- Because children are small, they often can't see over bushes and parked vehicles. This also means they can't be seen easily by drivers.
- Children tend to think about one thing at a time and ignore other things happening around them.
- Because children are always on the move, they may have trouble stopping at a kerb and could dart out into traffic.
- Children can freeze when they find themselves in danger, instead of taking quick action as an adult might.

Keep a lookout for children at all times. Take special care when driving during 8–9am and 3–4pm, when children are travelling to and from school.

Find an issue that is important to safer journeys for young people in your local community.

- **Explain** how this issue is related to (interrelated with) other issues on the concept map.

- **List** all the ways this issue affects people in your local community.
- **Ask:** Who is advantaged, who is disadvantaged and who is unaffected by this issue in your local community?
- **Find out** what different people in your community have to say about the issue.

Use these different perspectives to frame the issue as a “wicked problem” for your community to solve.

- **Identify** one important way in which this issue can affect young people’s safe journey on the roads as passengers, pedestrians or cyclists.
- **List** several reasons why this factor may put young road users at risk.
- **Generate** some ideas about how we could change this factor.
- **Find** out how different people in your community think the factor should or could be solved.
- **Make a list** of all the suggested solutions (“contradictory certitudes”).
- **Review** all the solutions with the wider community and select the “best idea/s” to meet the needs of your local community using a decision-making grid like the one described in Activity 1.3.

Elaborate this idea into a “clumsy solution” to the “wicked problem”.

Find the story to tell people about the “wicked transport problem” in your local community and its “clumsy solution”.

- **Plan** a multimedia campaign to tell a story about your local road and the “clumsy solution” that will help keep road users safe.
- **Tell your stories** (written, oral and visual text) to persuade people in your local community to take action to make local roads safer for pedestrians, passengers and cyclists. Your stories should include:
 - powerful visual images and infographics,
 - compelling statistics and data,
 - poetic language to persuade the pessimists, and
 - scientific terms and technical language.
- **Generate** ideas about the organisations and businesses that might be able to help you implement your “clumsy solution”.
- **Write** an information report on your findings to share with other individuals and organisations. Your report should have an opening statement, paragraphs outlining different aspects of the issue and a conclusion summarising the information presented. It should be written in the present tense, use technical vocabulary and avoid giving personal information.
- **Use** your report to lobby and raise awareness in your local community and with other agencies that might be able to help you fix some of the issues you identify.

Young people can and do make a difference to “wicked problems” in their local community.

Curriculum plan: Everyone is a road user

NZC Principles: High Expectations, Treaty of Waitangi, Cultural Diversity, Inclusion, Learning to Learn, Community Engagement, Coherence, Future Focus

Concept	Key Understanding	Driving Questions	Subsidiary Tasks	NZC Key Competencies	NZC Values	Context Junior Middle Senior
<p><i>What is the big idea?</i></p> <p>Citizenship</p> <p>Safer Journeys</p>	<p><i>What must the student take away from the learning experiences?</i></p> <p>Citizens are road users Everyone uses the roads.</p> <p>We should use the roads in ways that help keep ourselves and others safe.</p> <p>Education, engineering and enforcement work together to make safer journeys.</p> <p>Pedestrians and cyclists are much more vulnerable in a crash than other road users.</p> <p>Improving safety for pedestrians and cyclists can also encourage others to walk and cycle on local roads.</p>	<p>What are the “wicked problems” (challenges – problems and opportunities) for safer journeys on local roads?</p> <p>What problems do cyclists, pedestrians and passengers face when keeping safe on and around local roads?</p> <p>How could we fix these problems so every local road user experiences safer journeys? (clumsy solutions)</p> <p>How could we take advantage of these opportunities so every local road user experiences safer journeys? (clumsy solutions)</p>	<p>1. Describe a problem that road users experience when using local roads in your community.</p> <p>2. Explain why this is a problem that road users experience when using local roads in your community.</p> <p>3. Create a fix/clumsy solution for a problem that road users experience when using local roads in your community.</p> <p>Example: An education, engineering or enforcement action or resources to help [a given group of road users] have safer journeys on roads in your local community.</p>	<p><i>Create self-assessment SOLO functioning knowledge rubrics for KC where appropriate. Refer to Appendix 1.</i></p> <p>Thinking – critically analyse the factors influencing safer journeys for [a given group of road users] Managing self – act responsibly when using a local road. (Demonstrate situational awareness when using the local road.) Participating and contributing – contribute to the responsible actions and/or situational awareness of other road users. Relating to others – interact with other road users to fix local issues around safer journeys on local roads. Making meaning from language, symbols and text – interpret and use language, symbols and text to communicate with other road users for safer journeys on local roads.</p>	<p><i>Create self-assessment SOLO functioning knowledge rubrics for values where appropriate.</i></p> <p>Excellence Innovation, inquiry, and curiosity Diversity Equity Community and participation Ecological sustainability Integrity Respect</p>	<p>Local community road users: pedestrians, passengers and cyclists</p> <hr/> <p>People: How can [a given group of road users] keep safe around roads?</p> <p>Places: How can we improve roads to reduce the risk to [a given group of road users]?</p> <p>Planet: How can [a given group of road users] affect the planet?</p> <p>Beyond: How can current [given group of road users] help future road users have safer journeys?</p>

Key competency self-assessment rubrics

Thinking	Managing self	Participating and contributing	Relating to others	Using language, symbols and text
<p>Critically analyse the factors influencing safer journeys for [a given group of road users] on local roads.</p> <p><i>Example – describe, explain and justify ways to stay safe when using the road as a pedestrian, cyclist or passenger.</i></p>	<p>Act responsibly when using the road.</p> <p>(Demonstrate situational awareness when using the road.)</p> <p><i>Example – adopt a “sort it and report it” approach to unsafe road user behaviour or conditions.</i></p>	<p>Contribute to the responsible actions and/or situational awareness of other road users.</p> <p><i>Example – listen, respond and act together to make the road network a system free of death and serious injury.</i></p>	<p>Interact with other road users to fix local issues around safer journeys on the road network.</p> <p><i>Example – demonstrate a commitment to safer journeys for yourself and other road users.</i></p>	<p>Interpret and use language, symbols and text to communicate with other road users for safer journeys.</p> <p><i>Example – share safe rules and behaviours for places on and around the road network.</i></p>

Learning intentions (LI) – <http://pamhook.com/solo-apps/learning-intention-generator>

<p>Bringing in ideas</p> <p>LI: Define a safer/unsafe journey for [road users]. (<i>What is it?</i>)</p> <p>LI: Describe a safer/unsafe journey for a [road user]. (<i>What is it like?</i>)</p> <p>LI: List the challenges (problems and opportunities) for road users during a safer journey. (<i>What are the parts of this thing?</i>)</p> <p>Relating ideas</p> <p>LI: Sequence the steps to achieving a safer journey for a [road user]. (<i>What steps or set process helps me use or experience this thing?</i>)</p> <p>LI: Classify the challenges (problems and opportunities) to safer journeys. (<i>How can I relate this to other things I know? Can I group these together?</i>)</p> <p>LI: Compare and contrast safer journeys for [road users]. (<i>How are they the same? How are they different?</i>)</p> <p>LI: Explain causes for a safer journey. (<i>What led to this? Why did this happen?</i>)</p> <p>LI: Explain the consequences of a safer journey. (<i>What was the result? Why was that an outcome of the event?</i>)</p> <p>LI: Make an analogy for “safer journeys”. (<i>What metaphor can I use to understand how this thing works?</i>)</p> <p>LI: Analyse a safer journey. (<i>What are the parts and how do they work together?</i>)</p> <p>Extending ideas</p> <p>LI: Make a generalisation about safer journeys. (<i>If something is true of this thing, is it true of other similar things? Why might this be so?</i>)</p> <p>LI: Make a prediction about safer journeys. (<i>If something is true of this thing in one circumstance, how likely is it to be true in other circumstances?</i>)</p> <p>LI: Evaluate safer journeys. (<i>What is the overall impact of this thing? Does it succeed? Why? Could it be improved? How?</i>)</p> <p>LI: Create an action that leads to safer journeys. (<i>Can I create an action that leads to a similar thing but differs in original and significant ways from what has been created previously?</i>)</p>

Table of learning activities

SECTION 1 Bringing in ideas about “wicked problems” for road users	SECTION 2 Relating ideas about “wicked problems” for road users	SECTION 3 Extending ideas about “wicked problems” for road users
<p>Activity 1.1. Wonder about a local road in the real world and in poetry. eLearning: Digital photography, Google Earth, Google Maps, video, VoiceThread, podcasting <i>[NZC: English – Making and Creating Meaning]</i></p>	<p>Activity 2.1. Compare road users: using local roads and as represented in poetry. eLearning: InstaGrok, Google Earth, digital photography <i>[NZC: English- Making and Creating Meaning]</i></p>	<p>Activity 3.1. Write to an author/poet about safer journeys for road users. eLearning: Blogs <i>[NZC: English – Making and Creating Meaning]</i></p>
<p>Activity 1.2. Describe the use of visual text to tell stories about the roads and road users. eLearning: Graphics programs, e.g. Tux Paint; Glogster <i>[NZC: English – Making and Creating Meaning – Visual Texts]</i></p>	<p>Activity 2.2. Compare road users: using visual text. eLearning: Image editing software <i>[NZC: English – Making and Creating Meaning]</i></p>	<p>Activity 3.2. Create a visual text for road engineers, architects and builders. eLearning: Google SketchUp Make/Minecraft <i>[NZC: English Maths and Statistics – Measurement and Shape]</i></p>
<p>Activity 1.3. Calculate the area that parked cars cover. eLearning: Google Maps <i>[NZC: Maths and Statistics – Measurement and Shape]</i></p>	<p>Activity 2.3. Compare the area covered by a parked vehicle with the total area needed to park. <i>[NZC: Maths and Statistics – Measurement and Shape]</i></p>	<p>Activity 3.3. Is parking an issue? eLearning: Google Maps, Google SketchUp Make/Minecraft <i>[NZC: Maths and Statistics – Measurement and Shape]</i></p>
<p>Activity 1.4. What do road users ask about a local road? eLearning: Online survey makers, e.g. Google Forms, SurveyMonkey; collaborative online software <i>[NZC: Maths and Statistics – Statistics – Statistical Investigation]</i></p>	<p>Activity 2.4. Connect the questions that road users ask about a local road. eLearning: Wordle or another word cloud generator <i>[NZC: Maths and Statistics – Statistics]</i></p>	<p>Activity 3.4. What are the challenges (problems and opportunities) for road users on a local road? eLearning: Google Maps; slideshow programs; graphics programs or alternative e.g. Glogster/VoiceThread <i>[NZC: Maths and Statistics – Statistics English]</i></p>
<p>Activity 1.5. How do road users move? eLearning: Comic Life or other comic strip creators <i>[NZC: Science – Physical World Nature of Science]</i></p>	<p>Activity 2.5: What types of forces do road users experience? <i>[NZC: Science – Physical World]</i></p>	<p>Activity 3.5: Consider road users and local roads as wildlife and waterholes. eLearning: Video making/editing software <i>[NZC: Science – Physical World]</i></p>
<p>Activity 1.6. What do road users see? eLearning: Light meters/data loggers, GarageBand/Audacity <i>[NZC: Science – Living World]</i></p>	<p>Activity 2.6: Explain how road users see other road users. eLearning: Virtual dissection <i>[NZC: Science – Living World]</i></p>	<p>Activity 3.6: Does “I can see you” mean “you can see me”? eLearning: Animation software, Minecraft <i>[NZC: Science – Living World]</i></p>

Determining prior knowledge

Finding out what students know about the challenges (problems and opportunities) for road users on local roads before we start.

Ask students to:

- Pause – clear your mind and then think deeply about challenges (problems and opportunities) and keeping safe on local roads. What is dangerous and what is wonderful about local roads?
- Discuss the following question prompts in turn.
 - **What are the dangerous things** you know to watch out for on local roads?
 - **What are the wonderful things** provided by local roads?
 - **What have you done** that was potentially dangerous on a local road?
 - **Why do you think** you did this?
 - **What have you done** that was wonderful when using a local road?
 - **Why do you think** you did this?
 - **What have you seen** other people do that was dangerous on a local road?
 - **Why do you think** people do things that are dangerous on local roads?
 - **How do you feel** when you see people doing things that are dangerous on local roads?
 - **What do you do** when you see people doing things that are dangerous on local roads?
 - **What have you seen** other people do that was wonderful when using a local road?
 - **Why do you think** people use local roads to do things that are wonderful?
 - **How do you feel** when you see people using local roads to do things that are wonderful?
 - **What do you do** when you see people using local roads to do things that are wonderful?
 - **What do kids need to know** about keeping safe on local roads?
 - **What do grown-ups need to know** about keeping safe on local roads?
 - **How should we help kids** to keep safe on local roads?
 - **How should we help grown-ups** to keep safe on local roads?
- Record your answers to each question on a collaborative online document (e.g. Google Forms www.google.com/google-d-s/createforms.html) or using Post-it notes and large sheets of newsprint.
- Discuss each question in a small group and then with the class.
- At the end of the discussion on each question, collate your individual and group responses for future reference.