

Feet First term 1: walking and road safety

Updated 2023



Key understanding: Walking benefits people, places and our planet.

Driving question: Walking – what difference can I make?

- Define walking.
- Explain the benefits of walking.
- Predict how using sustainable transport such as walking might improve people, places and the planet.

Activity 1.5 Health and PE: Road safety and communities

Achievement objectives – see New Zealand Curriculum Health and PE levels 1-4 A3 safety management, D2 community resources.

Example learning intentions

A3 Safety management

Describe different ways of getting to school.

List the risks involved for a pedestrian, cyclist, scooter rider or vehicle passenger.

Compare and contrast risk factors.

Identify people and organisations that help with road safety.

Explain the causes and effects of these risk factors.

Create an individual safety plan for how you travel to school.

Reflect on own risks and safety strategies.

D2 Community resources

Define 'hazard'.

Describe road safety hazards encountered when coming to school.

Practise relevant road safety practices.

Identify the people or organisations within your community that can help you with road safety.

Explain what they can do to help our community.

Explain the causes and effects of the identified hazard.

Create a community or school resource about organisations that can assist.

Evaluate the contribution that these road safety people and organisations make to the community.

Learning experiences

Select the learning experiences that best match the abilities of your student and that support your learning intentions.

Define 'road safety' and record the responses of the students. Older students can record their response on sticky notes and add to a chart or you could record using an mind mapping app.

List all of the ways that students come to school.

Using Google Earth and a data projector, locate your school and any of the streets that students live in.

Select some students' houses. Use Google street view to 'travel' to school from their home.

Define a 'walking bus'. If you have a walking school bus, identify the route that it takes.

List the reasons why students might use a walking bus.

List all of the people who help keep children safe.

Share resources (books, posters, videos) with the students of people who help us in the community with road safety.

Invite in people who help reduce the risks of road safety to speak to the children (police, walking school bus parents, council road safety coordinators etc).

List road safety rules that these people talk about.

Get students to ask questions about how the speakers' jobs help children keep safe on the way to and from school.

List all of the responsibilities that they have on a wall chart or mind mapping app.

Identify the safety procedures to follow if you walk to school, bicycle, ride, skateboard, scooter. Have a separate brainstorm for each.

Define 'shared responsibility' in regard to road safety issues.

Bring in a bicycle. Can we make our bicycle safer? Look at ways in which we could maintain our bike so that it is as safe as we can make it.

List safety equipment that could be used on a bicycle.

Repeat this exercise with a skateboard.

Does height have anything to do with safety? (e.g. height of children, students in a wheelchair etc).

Make a class category map with the different ways students travel to school and put students' names under each category (or students can draw themselves).

In pairs, get students to use this information to decide the greatest risk factors for their class.

Get students to identify all the risk factors that they personally encounter regarding road safety.

Get students to explain causes and consequences of the risk factors.

Get students to sequence the possible risks that could happen on their journey to school on a sequence map.

Make another class category list and list the road safety rules they know that minimise risks.

Explain why it is important that every student understands the need to have their own safety management plan.

Create an individual safety management plan depending on how they get to school.

Create a resource that will help others. Include information from the people and organisations that help with road safety.

Create success criteria for what this resource should include. You might like to use one of the following ideas to present your ideas. Done individually, in pairs or in groups.

website	documentary	laminated wall chart
wallet card	infographic	VoiceThread

Get students to share their resource with two other people for review.

Get students to evaluate the resource against the criteria.

Assessment

Learning area: Health and PE

	I can make generalisations about organisations and people that support the wellbeing of the community and can predict what would happen if they were not there.
	I can identify several organisations/people that support the wellbeing of the community and can explain the similarities and differences between the organisations and role of the people who support the wellbeing of community.
	I can identify several relevant organisations and people that support the wellbeing of community.
	I can identify one relevant organisation or person that supports the wellbeing of the community.
	I need help to identify organisations and people that support the wellbeing of community and can evaluate their contribution.

Key competencies: Managing self, Participating and Contributing

	Can identify and explain the cause and effect of road safety risk factors and can reflect my own risk rating and road safety plan.
	Can explain the cause and effects of the individual risk factors and explain the reason for the safe strategies selected.
	Can identify several individual risk factors and practise safe strategies.
	Can identify one individual risk factor and practise safety strategy.
	I need help guidance to identify individual risk factors and practise safety strategies.

Internet resources

[Travelwise school programme \(Auckland Transport\)](#)

[NZ Police school portal](#)

[BikeReady cycle skills training for schools](#)

[Waka Kotahi Education Portal – school community partnerships](#)

[Getting to school \(Greater Wellington Regional Council\)](#)

[TrackSafe](#)

[Road Safety Week](#)

[School travel \(Christchurch City Council\)](#)

Thinking resources

Draw a picture without words to explain a walking bus.

Design an identification chart of the people who assist with road safety in your school.

Create a safety plan for the teachers at your school.

Brainstorm all of the ways you could come to school rather than by car.

Design a school safety robot that could identify and solve all safety issues coming to and from school.

Do a PMI (plus /minus/ interesting) on walking buses for adults going to work.

Create a safety travel plan for air travel to your school when all students are issued with flying packs.

What if questions

Use these questions for class and group discussions or for writing.

What if no one cared about other people in our community?

What if there was no funding to pay the people who help us in our community?

What if there were no safety rules at school?

What if there were so many safety rules that it stopped us trying new things?

What if safety meant very different things for different people?

What if we did not have pedestrian or kea crossings?

What if there were no speed limits around a school area?

What if cars did not have to have a current warrant of fitness?

What if walking buses did not have an adult accompanying them?

Activity 1.6 Technology: making child pedestrians more visible

Achievement objectives – see New Zealand Curriculum Technology levels 1-4 technological practice, nature of technology.

Example learning intentions

Technological Practice

Develop a brief to describe an intended outcome.

Level One

Describe the intended outcome.

Identify the attributes the outcome should have to reflect the need or opportunity to be addressed.

Explain how the plan meets the identified need or opportunity.

Explain how the plan meets the resources available.

Level Two

Identify the attributes the planned outcome should have.

Identify the need or opportunity.

Identify the resources available.

Describe attributes for the outcome that reflect the identified need or opportunity.

Describe attributes that allow the outcome to be evaluated.

Explain the intended outcome in terms of the need or opportunity.

Explain the intended outcome in terms of the resources available.

Level Three

Define a conceptual statement that describes an intended outcome.

Explain why the conceptual statement meets an intended outcome.

Describe the key attributes of the intended outcome.

Explain how the intended outcome addresses need or opportunity.

Explain how the key attributes identified in stakeholder feedback will inform the evaluation of the outcome.

Redefine and modify the conceptual statement and key attributes.

Describe key attributes that allow the identified outcome to be evaluated.

Level Four

Identify a need or opportunity appropriate to the established context or outcome.

Develop a conceptual statement to justify the technological outcome being developed and the reasons for its development.

Justify the nature of an intended outcome in relation to the need or opportunity.

Identify the key attributes from initial research information and stakeholder feedback.

Describe the key attributes identified in initial research information and stakeholder feedback.

Explain how these key attributes will inform the development of an outcome and its evaluation.

Identify and describe key attributes that will allow stakeholders (including teachers) to assess the fitness for purpose of the technological outcome.

Planning for practice

Level One

Describe what has been done already and the resources used so far.

Outline a general plan to support the development of an outcome.

Describe appropriate steps in developing the identified technological outcome.

Identify appropriate resources they could use in developing the identified technological outcome.

Level Two

Identify past and present technological outcomes developed to meet an identified need.

Identify the attributes of an identified technological outcome.

Identify the resources required for an identified outcome.

Identify stakeholder feedback on an identified technological outcome.

Identify the key stages and the resources required to complete an identified outcome.

Explain the role of the key stages in completing the outcome.

Develop a plan that sequences the key stages and the resources required to complete an outcome.

Level Three

Identify the key stages required to develop an outcome.

Identify the key resources required to develop an outcome.

Explain the importance of key stages and why key resources were used.

Revisit planning to include reviews of progress.

Explain the links between past and current activities to develop the identified outcome.

Revisit planning to identify possible future decision making needed to develop the identified outcome.

Explain how the predicted activities will support the completion of an identified outcome.

Level Four

Use research to develop a plan for an identified technological outcome.

Use functional modelling to revise and elaborate the plan for a technological outcome.

Develop a plan for a technological outcome that includes key attributes that meet a need or opportunity.

Test the materials to be used for their ability to meet the key attributes of an identified technological outcome.

Create technological models to evaluate the outcome in terms of how well it meets the need or opportunity.

Review and reflect upon the effectiveness of the key stages and resourcing of previous technological models.

Review and reflect upon stakeholder feedback on previous technological models to inform future development work.

Use the review of past models to identify implications for future actions and accessing of resources to meet the brief requirements.

Develop a revised plan for a technological outcome based upon the effectiveness of past actions and resourcing, the implications of future actions, and accessing of resources and stakeholder feedback.

Use a GANTT chart to identify the stages and expected time frame for the development of the final outcome.

Use the revised plan and GANTT chart to develop an outcome that addresses the identified need or opportunity.

Select and access key resources required to complete the technological outcome.

Evaluate the proposed final outcome against the key attributes.

Evaluate the proposed final outcome against the need or opportunity.

Outcome development and evaluation

Level One

Investigate a context to develop potential outcomes.

Develop conceptual ideas for potential outcomes.

Communicate conceptual ideas through drawing, models, or verbally.

Evaluate potential outcomes against attributes.

Select an outcome in keeping with the identified attributes.

Evaluate possible outcomes in keeping with identified attributes and select an outcome to develop.

Develop an outcome in keeping with identified attributes.

Level Two

Investigate a context to develop conceptual ideas for potential outcomes.

Develop conceptual ideas for potential outcomes.

Evaluate potential outcomes against the identified attributes.

Select an outcome to develop.

Develop an outcome in keeping with the identified need or opportunity.

Evaluate the selected outcome in terms of how it addresses the need or opportunity.

Level Three

Investigate a context to develop ideas for potential outcomes.

Develop ideas for potential outcomes.

Trial and evaluate these outcomes against key attributes.

Select an outcome to address the need or opportunity.

Develop an outcome to address the need or opportunity.

Evaluate this outcome against the key attributes.

Evaluate this outcome against how it addresses the need or opportunity.

Level Four

Investigate a context to develop ideas for feasible outcomes.

Develop ideas for potential technological outcomes.

Assess the suitability of the resources identified to meet the development of the technological outcome. Use research (including stakeholder feedback) to develop conceptual ideas for technological outcomes that include key attributes, meet needs or opportunity, and address the availability and suitability of materials.

Use functional modelling to develop conceptual ideas for technological outcomes that include key attributes, meet needs or opportunity, and address the availability and suitability of materials.

Use functional modelling to develop and select an outcome to best meet the expectations of stakeholder feedback.

Evaluate the fitness for purpose of the technological outcome in terms of how well it meets the need or opportunity.

Review and revise the functional modelling to test, evaluate and refine potential outcomes.

Develop a final outcome that incorporates all key attributes and meets the identified need or opportunity using prototyping as appropriate.

Evaluate the fitness for purpose of the final outcome and how well it meets the need or opportunity using stakeholder feedback as evidence.

Nature of Technology

Characteristics of technology

Level One

Describe technology, e.g. purposeful intervention through design.

Level Two

Explain the causes and consequences of technology. For example, technology both reflects and changes society and the environment and increases people's capability.

Level Three

Explain how society and environments impact on and are influenced by technology in historical and contemporary contexts.

Evaluate the validity of technological knowledge through successful function.

Level Four

Define 'human possibility'.

Explain how technological development expands human possibilities.

List the different disciplines that contribute to technology and technological outcomes.

Explain how different disciplines have contributed to a technological outcome.

Characteristics of technological outcomes

Level One

Describe technological outcomes, e.g. products or systems developed by people with a physical nature and a functional nature.

Level Two

Describe the physical and functional nature of a technological outcome. Explain the development process for technological outcomes.

Level Three

Define 'fit for purpose' in relation to a technological outcome.

Describe the physical and functional natures of a technological outcome.

Compare and contrast the physical and functional natures of a technological outcome.

Analyse the relationship between the physical and functional natures of the outcome.

Justify the fit for purpose nature of a technological outcome.

Level Four

Explain a technological outcome in terms of how it might be used and by whom.

Describe the proper (intended) function of a technological outcome.

Describe possible alternative functions of a technological outcome.

Learning experiences

Select the learning experiences that best match the abilities of your student and that support your learning intentions.

Investigate a context to develop ideas for feasible outcomes. For example, making it safer for people walking.

Narrow down the focus. For example, designing ways to make a child pedestrian more visible when walking near roads.

Elements to consider in this focus on children walking could include:

- how children use technologies to help them walk safely
- hazards
- why the children are walking – their purpose
- where and when they walk in your local area
- any further needs, opportunities, constraints and social or environmental impacts related to children walking.

Compare and contrast these categories with categories from a different area, for example, inner city, rural, beachside community, suburbs.

Identify the clients for a technological outcome that helps make children more visible to motorists so they can walk safely near roads.

Investigate different technological outcomes from around the world designed to help children be more visible when walking near roads. For example: flags, reflective clothing, LED clothing, reflective glass beading, kerb build outs, pedestrian refuges, pedestrian barriers, traffic slowing devices, road signage, raised walkways, walking in a group like a walking school bus.

Research the origin of these different technological outcomes and create a timeline for their introduction.

Use your research findings to describe 5 different technological outcomes from around the world designed to help children be more visible and walk safely near roads.

Identify the key attributes of the technological outcomes. For example, assess attributes for portability, ergonomics, durability, adaptability, reliability, aesthetics and practicality.

Identify the stakeholders of the technological outcomes designed to help children be more visible and walk safely near roads, e.g. parents, children, motorists.

Review effectiveness. Interview stakeholders using these technologies and ask them to complete a PMI on the technologies they use to be more visible and walk safely near roads.

Observe children walking safely near roads in your local area and identify the needs and opportunities they encounter. Take notes, voice record your observations, and make rough sketches of the situations (needs and opportunities) they encounter and how these are resolved with existing technologies.

Arrange to take part in an adult-supervised safe walk near roads using one of the existing technological outcomes designed to make walking near roads safer. Identify and record needs and opportunities.

Use a priorities grid to make decisions on which key attributes to include in your technological outcome. For example, draw two lines intersecting at right angles. Label the top and bottom of the vertical line with high return and low return. Label the far left and far right of the horizontal line with 'easy to achieve' and 'hard to achieve'.

Draft a brief to describe technological outcomes to help children be more visible and walk safely near roads in your local area by referring to the key attributes identified above.

Complete a SWOT analysis (strengths, weaknesses, opportunities and threats analysis) on your proposed technological outcomes.

Compare and contrast your proposed technological outcomes. For example, create a grid/ table. List the proposed technological outcomes down the vertical axis. Place the key attributes along the horizontal axis. For example, which outcome is the most sustainable? Which outcome makes the least impact on environment? Which outcome is easiest to use by children walking safely near roads? Rank the technological outcomes against the key attributes to determine the preferred outcome.

Justify your proposed outcome using who what why where when and how questions and an analysis of its fitness for purpose.

Create a critical path analysis and timeline to identify the critical order of tasks in developing a model for your technological outcome.

Use your critical path analysis to create a GANTT chart for planning. For example, brainstorm all the tasks needed for completion of your outcome. Sequence these tasks in order, showing which tasks must be completed before others can begin.

Make a series of concept sketches with a range of options in response to the key attributes like size, openings, and construction shape.

Develop your concept sketches, drawings and ideas to show changes and choices. Use SCAMPER to develop variations on your concept sketches. For example, Substitute some aspect of it, Combine elements with something else, Adapt or Alter an aspect of it, Minimize, Magnify or Multiply an aspect of it, Put some part of it to other uses, Eliminate an aspect of it, Reverse an aspect of it.

Synthesise all the ideas and options in a summary or final drawing. Justify the choice of detail, proportion, materials, shape, construction method etc.

Develop different prototype models and variations upon prototype models for feedback from stakeholders.

Incorporating stakeholder feedback, evaluate the prototype outcome's fitness for purpose in terms of how well it addresses the need or opportunity.

Refine the prototype model that exemplifies the best fitness for purpose in terms of the above.

Share your prototype and the construction process with your local community.

Nature of technology

Describe walking safely near roads in terms of human possibility, e.g. walking without technological assistance and walking with technological assistance.

Explain how technological development expands human possibilities when walking safely near roads.

List the different disciplines that contribute to technology and technological outcomes that help children be more visible and walk safely near roads.

Explain how different disciplines have contributed to a technological outcome that helps children be more visible and walk safely near roads.

Explain a technological outcome that helps children be more visible and walk safely near roads in terms of how it might be used and by whom.

Describe the proper (intended) function of a technological outcome intended to help children be more visible and walk safely near roads.

Describe possible alternative functions of a technological outcome intended to help children walk safely near roads, e.g. alternative uses for reflective clothing and personalised pedestrian flags.

Assessment

Describing a technological outcome that makes child pedestrians more visible

	I can identify several features of a technological outcome that makes child pedestrians more visible, and explain why they make child pedestrians more visible. I can generalise about the strengths and weaknesses of the attributes of my technological outcome to make child pedestrians more visible.
	I can identify several features of a technological outcome that makes child pedestrians more visible, and explain why they make child pedestrians more visible.
	I can identify several features of a technological outcome that makes child pedestrians more visible.
	I can identify one attribute of a technological outcome that makes child pedestrians more visible.
	I need help to describe a technological outcome that makes child pedestrians more visible.

Key competency: managing self

	I can identify and plan estimated time frames for key stages, explain why I have estimated these times, and predict where my time frames might have to be adjusted.
	I can identify key stages and match these with estimated time frames on my GANTT Chart and explain why I have estimated these times.
	I can identify key stages and match these with estimated time frames on my GANTT Chart.
	I can identify key stages on my GANTT Chart.
	I need help to identify key stages.

Internet resources

[Walking \(Waka Kotahi\)](#)

[Fashion students transform high vis clothing in aid of road safety](#)

[Be Seen After Dark—What Clothes Keep You Safe? \(Science Buddies\)](#)

[Motion-powered kids' road safety light \(Million Mile Light\)](#)

[Pedestrian crossing flags trial \(Seattle\)](#)

[Should we all wear sensors to avoid being run over by driverless cars? \(New Scientist\)](#)

[Technology \(Revised 2017 NZC learning area\)](#)

[Technology online \(TKI\)](#)

[Science Learning Hub](#)

Thinking resources

Complete a PMI on the use of pedestrian flags to help children be more visible near roads.

Analyse the parts of a walking school bus.

Compare and contrast the reflective vests designed to help children walk safely near roads in New Zealand with walking school buses.

Use SCAMPER to identify alternative kerb build outs.

Create a timeline for the technological outcomes used to help children be more visible near roads.

What if questions

Use these for class and group discussion or writing.

What if pedestrians become so visible that they distract drivers?

What if pedestrians were not allowed to walk near roads without high visibility clothing?

What if all pedestrians had to wear air bags?

What if cars carried pedestrian proximity detectors and the more pedestrians around, the slower they would drive?