

Feet First term 4: walking and helping our planet

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 4.5 Social Sciences: the way we travel

Achievement objectives – see New Zealand Curriculum levels 1-4 social studies.

Example learning intentions

Describe how and why people belong in groups.

Describe how and why people make choices.

Define 'needs and wants'.

Describe how and why the past is important to people.

Explain how time and change affect people's lives.

Describe how and why people make decisions about access to and use of resources.

Describe how people participate as individuals in response to community challenges.

Describe how people participate collectively in response to community challenges.

Explain why people participate in response to community challenges.

Describe how people travel in your local area in the present and did in the past.

Classify the ways people travel.

Compare and contrast the way people travelled in the past with the way they travel in the present.

Explain the causes and consequences of the way people travel in your local area today or in the past.

Analyse travel in your local area in the present and past.

Describe the impact on planet Earth of travel in the present and past.

Compare and contrast the impact on planet Earth of travel in the past with travel in the present.

Evaluate the impact of travel on planet Earth.

Evaluate our individual response to the impact of the way we travel on planet Earth.

Evaluate our collective response to the impact of the way we travel on planet Earth.

Learning experiences

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

Understanding how people choose to travel and helping Planet Earth

Describe a travel group in your local community, for example a local walking group, walking school bus, a walking for fitness group.

Describe how people belong in groups. Explain why.

Describe your local neighbourhood community. For example, locate on a map the streets in your local neighbourhood and where students live.

Describe how people make choices. List the travel choices available when you travel to school each day. Describe the process your family goes through in making the travel choice.

Explain why people make choices. For example, what influences your choices of how to travel to school?

Define 'needs and wants'.

Describe your needs and wants for travelling to school.

Describe the past. For example, describe travel choices in the past.

Describe how the past is important to people. Explain why.

Explain how time and change affect people's lives.

Describe how people make decisions about access to and use of resources. For example, describe how and why your family makes decisions about access to and use of resources for travelling to school or work each day.

Travel in the past

Read stories describing the travel of people in New Zealand in the past.

Describe the ways people travelled in your local area the past, e.g. walking, horseback, waka.

Use See, Think, Wonder to look at photographs and drawings of people travelling in the past.

- See: search for evidence. Describe the detail of what you can see in the photograph.
- Think: form a theory about what you see. Compare and contrast with other photos from the same or different locality or time.
- Wonder: make generalisations or draw conclusion from what you have seen and thought about in the travel photographs and drawings.

Interview local people to find out their memories of how and where people travelled in your local area in the past.

Interview an older person about how they travelled each week when they were your age.

Describe how people made decisions about access and use of resources in the past.

Classify the ways people travelled in your local area in the past. For example, sort images of people travelling in the past into categories. Explain why you have chosen the categories.

Explain the causes and consequences of the way people travelled in your local area in the past.

Explain why people make decisions about access to and use of resources. For example, describe why people made the decisions about access to and use of resources for travelling in your local area in the past.

Explain why people chose to travel on horseback, cart, tram, train etc.

Analyse travel in your local area in the past. For example, identify the significant requirements for travel in the past. Explain what would happen if one of these requirements was missing. Generalise the function of that requirement to travel in the past.

Travel today

Describe the ways people travel in your local area in the present, e.g. car, bus, train, plane, ferry, helicopter, walking, skateboarding, biking, motorbike etc.

Read stories and accounts describing the travel of people in New Zealand today.

Use See, Think, Wonder to look at photographs and drawings of people travelling today.

- See: search for evidence in the photograph. Describe the detail of what you can see in the photograph.
- Think: form a theory about what you see in the photograph. Compare and contrast what you can see in the photograph with other photographs from the same or different locality or time.
- Wonder: make generalisations or draw conclusion from what you have seen and thought about in the travel photographs and drawings.

View travel methods used on New Zealand roads.

[Traffic Cameras \(Waka Kotahi Journey Planner\)](#)

Interview your local community about how they travel from place to place each week.

Keep a travel diary that details all the ways and distances you travel from place to place in a week.

Compare and contrast your travel diary with others in the class.

Compare and contrast local travel patterns with national travel patterns.

Explain why people choose to travel by car or walk or bike.

Compare and contrast the way people travel in your local area today with the way people travelled in the past.

Explain the causes and consequences of any similarities and differences you identify.

Analyse travel in your local area in the present. For example, identify the significant requirements for travel today. Explain what would happen if one of these requirements was missing. Generalise the function of that requirement to travel today.

Community challenge: the impact of travel

Describe the impact on planet Earth of travel in the present, e.g. the effects of burning fossil fuels when travelling by car on air quality and climate, the impact of road and motorway construction on places and environments, the effects of off-road recreational vehicles and mountain biking on fragile environments and endangered species.

People can walk 2 kilometres in half an hour. Explain why people choose to use their car for trips of under 2 kilometres.

Identify the response of individuals to the impact of the way we travel to school on Planet Earth. For example, design and implement a survey of your local community to find out how much they know and care about the impact.

Identify our collective response (locally or nationally) to the impact of the way we travel on Planet Earth, for example: cycleways, speed cameras, public transport ticket prices, bus lanes, park and ride places, inner city carparks, taxis, pedestrian crossings, speed humps, roundabouts, traffic lights, double yellow lines, motorways, underground railway lines, bypass, pedestrian overpasses, wheel clamps, tow trucks, walking school buses, vehicle rating sites, fuel efficiency publicity, electric vehicles.

Identify the immediate, medium-term and long-term advantages and disadvantages to the individual in making travel decisions without regard to their impact on planet Earth.

Analyse our individual response to the impact of the way we travel to school on Planet Earth in terms of individual advantage and collective responsibility.

Evaluate our individual and collective response to the impact of the way we travel to school on planet Earth.

How do you think individuals will choose to travel to school in the future?

Predict how we will respond collectively to travel in the future. For example, how will your local community choose to travel to and from work and school?

Assessment

Learning area: Social sciences

	I can identify several relevant similarities and differences between travel today and travel in the past, explain why, and make a generalisation about travel.
	I can identify several relevant similarities and differences between travel today and travel in the past and explain why.
	I can identify several relevant similarities and differences between travel today and travel in the past.
	I can identify one relevant similarity or difference between travel today and travel in the past.
	I need help to compare travel today with travel in the past.

Key competency: thinking

	I can give several relevant reasons for a choice I have made, and use valid and reliable information to explain why these reasons are relevant.
	I can give several relevant reasons for a choice I have made, and use reliable information to explain why these reasons are relevant.
	I can give several relevant reasons for a choice I have made.
	I can give one relevant reason for a choice I have made.
	I need help to explain a choice I have made.

Internet resources

[DigitalNZ](#)

[Walking tracks - Māori highways \(Te Ara\)](#)

[Transport trends \(Te Ara\)](#)

[Active transport to and from school \(statistics by Massey University\)](#)

[Public transport \(Te Ara\)](#)

[Traffic Cameras \(Waka Kotahi Journey Planner\)](#)

[Fixing Auckland's Transport \(Newsroom NZ\)](#)

[Liveable cities \(Waka Kotahi – YouTube\)](#)

Thinking resources

Complete a PMI on providing car parking space for private cars outside of schools.

Compare and contrast traffic flow in Auckland with traffic flow in Tauranga.

Make an analogy between a motorway and email.

Predict the consequences of making people keep their car lights on when they park in public places.

Invent a way to make it easier for parents to walk their children to school before going to work each day.

What if questions

Use these for class and group discussion or writing.

What if an important qualification for appointment to the highest paying jobs in the country was a history of walking to work?

What if the use of private cars was banned on school days?

What if there was a free minibus service that travelled the school zone before and after school.

What if you could pass exams with the stuff you learned when walking to school?

What if the sounds you heard when walking to school were found to build intelligence at a more significant level than the sounds heard when travelling by car?

Activity 4.6 Technology: walking with young children

Achievement objectives – see New Zealand Curriculum 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 and resources available.

Level Two

Identify the attributes the planned outcome should have, the need or opportunity, the resources available.

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

Describe attributes that allow the outcome to be evaluated.

Level Three

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 development of the outcome and its evaluation.

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.

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

Evaluate the conceptual statement and key attributes based on understandings of the context or issue and feedback from stakeholders.

Undertake refinement or modification of the conceptual statement and key attributes based on the 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 and appropriate resources.

Level Two

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

Identify the attributes of an identified technological outcome, stakeholder feedback, resources required and key stages.

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

Develop a plan that sequences the key stages and resources.

Level Three

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.

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. Include key attributes to meet a need or opportunity.

Use functional modelling to revise and elaborate the plan.

Test materials to be used for their ability to meet the key attributes.

Create technological models to evaluate the outcome.

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

Evaluate the proposed final outcome against the key attributes, 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.

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.

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.

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.

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, e.g. 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

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, the issue in "walk with young children" is designing a method of transporting young children that made it easier for people to go walking with young children.

The following tasks will help.

- Identify and describe the people who walk with young children in your local area.
- Describe their purposes for doing so.
- Map where they walk.
- Describe constraints, needs, opportunities, social and environmental impacts.
- Identify the clients for a technological outcome to help people walk with young children.

Investigate different technological outcomes from around the world designed to help people walk with young children, such as backpacks, baby front-packs, strollers, toddler reins, pushchairs, supermarket trolley seats, slings etc.

See examples in internet resources below.

Create a timeline for the introduction of different technological outcomes from around the world.

Describe five different outcomes in more detail. Include sketches and annotated drawings.

Identify key attributes of these outcomes. For example, portability, ergonomics, durability, adaptability, reliability, aesthetics and practicality.

Compare and contrast the attributes, for example, of a baby sling and a baby stroller.

Review effectiveness of these outcomes with stakeholders. Interview people using these technologies and ask them to complete a PMI on the baby sling, stroller etc they use to walk with young children.

Write all the views and responses onto small pieces of paper. Sort the pieces according to similarities. Give titles to each group of similar views or responses.

Observe people walking with young children on surfaces in your local area and identify the needs and opportunities they encounter and how these are resolved with existing technologies.

With adult-supervision, take a young child for a walk yourself with one of these technologies. Identify and record needs and opportunities in different contexts.

Use all feedback to identify the key attributes for the various technological outcomes.

Use a priorities grid to make decisions on which key attributes to include in your technological outcome. For example, a grid with vertical line for high return and low return. Label the horizontal line with 'easy to achieve' and 'hard to achieve'. For example, creating a new kind of baby sling might give only a mid-level return in terms of helping people walk with young children, but be easy to achieve.

Draft a brief to describe possible technological contexts and technological outcomes to help people walk with children 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 outcomes.

Use a matrix diagram to compare and contrast your proposed outcomes. For example, create a table. List the proposed technological outcomes down the vertical axis, for instance, a new baby sling, a caterpillar track rough terrain stroller, a baby hovercraft. 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 people walking with young children? Rank the technological outcomes against the key attributes to determine the preferred outcome.

Revisit your draft brief and re-develop a more detailed brief. Describe the proposed technological outcome using the 5W and H questioning framework. Describe the key attributes identified in stakeholder feedback (descriptions of the physical or functional nature), and the specifications (measurements in terms of length width or depth), which will inform the development of your technological outcome and its evaluation. Justify your proposed outcome using who what why where when and how questions and an analysis of its fitness for purpose.

For example, justify your outcome in terms of things like the sustainability of resources used, the lifecycle and reusability options, the affordability for all people, the conditions of its manufacture, as well as how well the outcome will meet stakeholders needs and expectations.

Create a critical path analysis and timeline to identify the critical order of tasks in developing a model for your technological outcome. List all the tasks to be completed to reach your outcome. Estimate how long each task will take. Sequence the tasks in order. Identify the tasks that are most important (critical) for the completion of the outcome. Sequence these tasks to create a critical path for your project outcome.

Use your critical path analysis to create a GANTT chart for planning and monitoring your progress in developing the technological outcome.

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

Develop your concept sketches, drawings and ideas to show changes and choices. Use SCAMPER to develop variations on your concept sketches. 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.

Undertake functional modelling that takes account of stakeholder feedback in order to select and develop the outcome that best addresses the key attributes and specifications in the technological outcome proposed to help people walk with young children in your local area.

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.

Describe walking with young children 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 with young children.

Explain how different disciplines have contributed to a technological outcome that helps people walk with young children.

Explain a technological outcome that helps people walk with young children in terms of how it might be used and by whom.

Describe the proper (intended) function of a technological outcome intended to help people walking with young children.

Describe possible alternative functions of a technological outcome intended to help people walk with young children, e.g. alternative uses for strollers and buggies.

Assessment

Learning area: technology

	I can identify some of the key stages needed when planning for a technological outcome and put them in order, and explain why this is the order of the key stages. I can evaluate the sequence and modify the sequence to improve it.
	I can identify some of the key stages needed when planning for a technological outcome and put them in order, and explain why this is the order of the key stages.
	I can identify some of the key stages needed when planning for a technological outcome and put them in order.
	I can identify some of the key stages needed when planning for a technological outcome.
	I need help to sequence the key stages needed when planning for a technological outcome.

Key competency: managing self

	I can identify and plan estimated time frames for key stages, record the actual time taken, explain any differences, evaluate my progress, and modify my GANTT chart in response.
	I can identify and plan estimated time frames for key stages, record the actual time taken on my GANTT Chart, and explain any differences.

	I can identify and plan estimated time frames for key stages, and record the actual time taken on my GANTT Chart.
	I can identify and plan estimated time frames for key stages on my GANTT Chart
	I need help to identify key stages, manage my time and complete my work on time.

Internet resources

[Phil and Teds](#)

[Mountain Buggy](#)

[Vintage baby carriages of bygone times](#)

[Baby carriers buying guide \(Consumer\)](#)

[Baby carriers, slings and backpacks: safety guide](#)

[State of the art baby strollers: Design review and the innovations of an ergonomic baby stroller](#)

[High-tech motorized Ella could be the Tesla of strollers](#)

[Innovative Lives: Protecting Precious Cargo: Ann Moore](#)

[Ann Moore \(inventor of modern baby carrier\)](#)

Thinking resources

Complete a PMI on the use of buggies and strollers to help people walk with young children.

Analyse the parts of a baby carrier in a supermarket trolley.

Compare and contrast the backpacks designed to carry young children in New Zealand with the baby slings used to carry young children in Africa.

Use SCAMPER to identify alternative uses for a baby buggy.

Create a timeline for the technological outcomes used to help people walk with young children.

What if questions

Use these for class and group discussion or writing.

What if young children only went outside if they were carried by people?

What if the technological outcome designed to help people walk with children disadvantaged children?

What if the technological outcome designed to help people walk with children meant children were exposed to pollutants in the atmosphere?

What if the technologies designed to help adults walk with young children limited the time children got to play?