Catalogue of digital curriculum resources
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Note: Map of Australia on front page reproduced courtesy National Library of Australia
Introduction
This catalogue contains details about the digital curriculum content to support the teaching and learning of Geography available from The Learning Federation (TLF) to all schools in Australia and New Zealand.

Learning objects
Interactive multimedia learning objects included in this catalogue have been drawn from a range of curriculum areas including Science, Environmental education for sustainability and English and literacy. They have been selected for their relevance to concepts and topics covered in Geography in the primary and secondary years.

They aim to develop knowledge and understanding about the Earth’s surface and the processes that shape it, and the relationships between people and the physical and built environments in which they live.

The learning objects are often published in series and some learning objects within a series are aggregated into single learning objects. Aggregated learning objects are identified with the symbol.

An asterisk (*) on the series title indicates that not all the learning objects in that series have been released. The remaining learning objects will be released progressively.

Some learning objects contain non-TLF content. See the acknowledgements and conditions of use in the learning objects for details.

Content from other sources
TLF also licenses content from other sources to include in the pool of digital materials for Geography. These items are described in this catalogue as well.

Digital resources
A remarkable range of digitised items licensed from leading cultural and scientific institutions is available to teachers and students of Geography.

These items include:
- clips from documentaries, newsreels, television programs and feature films
- photographs, line drawings, maps and documents
- audio files of interviews, broadcasts and speeches.

With each item, TLF supplies an educational value statement comprising a description and contextual information that enriches the value of the asset. This catalogue contains a representative sample of Geography-related digital resources licensed from TLF’s partner institutions.

Themes
This catalogue also includes examples of how teachers can draw on the extensive range of curriculum content to create thematic collections to challenge and engage students.

Accessing and viewing the content
Government and non-government education authorities in each Australian state and territory and in New Zealand have responsibility for facilitating access to the pool of digital content. Full details about how to access the content, including the necessary technical and software requirements for viewing it, can be found at:

www.ndlrn.edu.au

Warning: Please be aware that this catalogue and TLF digital content may contain references to Aboriginal and Torres Strait Islander people who may have passed away.
Learning objects

Soil series (Years P–2)

Students explore the properties of natural soil environments and the interactions between the living and non-living components that contribute to healthy soil.

Features include:
• the option to look up further information and answer questions.

Students:
• explore how soil is formed from rock particles and organic matter and how plants and animals interact with the soil
• identify what cultivated plants need for survival and growth
• explore how environmental conditions affect plant growth in gardens.

Explore soil [includes spoken instructions]
L2 – Years P–2

Explore soil [no spoken instructions]
L187 – Years P–2

Students explore how soil is formed from rock particles and organic matter and how plants and animals interact with the soil.

Create a soil environment [includes spoken instructions]
L3 – Years P–2

Create a soil environment [no spoken instructions]
L188 – Years P–2

Students grow flowers or vegetables in a garden bed and compare results in different environmental conditions when adding things such as water, organic matter, digging tools and earthworms.

Soil types [includes spoken instructions]
L4 – Years P–2

Soil types [no spoken instructions]
L189 – Years P–2

Students examine the properties of three different soil types – sand, loam and clay – and explore the effects of compaction and water content on the soil.

Soil [includes spoken instructions]
L68 – Years P–2 🌱

Soil
L205 – Years P–2 🌱

Soil is an aggregated learning object combining the three other learning objects.
## Water series (Years P–2)

Students explore the quality of water in different aquatic habitats and associate aquatic animals with their habitats according to water types.

**Features include:**
- the option to look up further information and answer questions.

**Students:**
- explore and compare water properties from a range of locations in or near a river
- associate aquatic animals with their habitats according to water types
- identify origins of water samples by comparing salinity and turbidity.

<table>
<thead>
<tr>
<th>Learning Object</th>
<th>Year Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>River journey [includes spoken instructions]</strong></td>
<td>L5 – Years P–2</td>
<td>Students move Frog down a river in a boat, stopping at four locations: a creek, a waterfall, a river mouth and a bay. Using equipment in the boat, Frog can check the water at each location for temperature, salinity, clarity and current speed. At the end of the journey, students meet four different animals and predict the habitats in which they live.</td>
</tr>
<tr>
<td><strong>River journey [no spoken instructions]</strong></td>
<td>L190 – Years P–2</td>
<td>Students move Frog down a river in a boat, stopping at four locations: a creek, a waterfall, a river mouth and a bay. Using equipment in the boat, Frog can check the water at each location for temperature, salinity, clarity and current speed. At the end of the journey, students meet four different animals and predict the habitats in which they live.</td>
</tr>
<tr>
<td><strong>Water types [includes spoken instructions]</strong></td>
<td>L6 – Years P–2</td>
<td>Students help Gecko test water samples for salinity levels and sediment content from five different aquatic habitats: a river, the sea, a mangrove estuary, a stream and a dam. Students compare the salinity and clarity of the water samples, matching them with their original habitats.</td>
</tr>
<tr>
<td><strong>Water types [no spoken instructions]</strong></td>
<td>L191 – Years P–2</td>
<td>Students help Gecko test water samples for salinity levels and sediment content from five different aquatic habitats: a river, the sea, a mangrove estuary, a stream and a dam. Students compare the salinity and clarity of the water samples, matching them with their original habitats.</td>
</tr>
<tr>
<td><strong>Waterways [includes spoken instructions]</strong></td>
<td>L69 – Years P–2</td>
<td>This is an aggregated learning object combining the two other learning objects.</td>
</tr>
<tr>
<td><strong>Waterways</strong></td>
<td>L206 – Years P–2</td>
<td>This is an aggregated learning object combining the two other learning objects.</td>
</tr>
</tbody>
</table>
Under the Earth series (Years P–2)

Students explore the structures, composition and life forms that exist in subterranean landscapes.

Features include:
- the option to look up further information and answer questions.

Students:
- identify animals that live in caves
- identify rock formations in limestone caves
- explore how water shapes rocks in limestone caves
- explore the origins of minerals and fossils and identify industrial uses of minerals
- identify the main structures within a volcano
- explore the appearance, rock types and temperatures of volcanoes.

Caving [includes spoken instructions]
L12 – Years P–2

Caving [no spoken instructions]
L196 – Years P–2

Students explore a limestone cave. They identify glow worms, bats and rock features such as stalactites. They take photos then match pictures with captions.

Volcanoes [includes spoken instructions]
L13 – Years P–2

Volcanoes [no spoken instructions]
L197 – Years P–2

Students look at photos of active volcanoes. They direct a robot as it is lowered inside a volcano and measure temperature changes and look at rock structures. They collect rock samples from the crater, vent, column and magma chamber and match the samples with their original locations.

Mineshaft [includes spoken instructions]
L14 – Years P–2

Mineshaft [no spoken instructions]
L198 – Years P–2

Students examine the links between the resources mined or found underground, and their uses above the ground.

Under the Earth [includes spoken instructions]
L72 – Years P–2 🌋

Under the Earth
L208 – Years P–2 🌋

This is an aggregated learning object combining the three other learning objects.

This series contains non-TLF content. See Acknowledgements in the learning objects.
**Water use series (Years P–2)**

Students explore features of water in a built human environment.

**Features include:**
- the option to look up further information and answer questions.

**Students:**
- identify components of an urban water supply and wastewater system
- compare water quality at a range of points within an urban water supply and wastewater system
- arrange components of urban and rural water cycles
- explore water quality, treatment and transport within water supply systems
- identify freshwater environments where native frogs live and breed
- explore the life cycle of frogs and toads.

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**Where do frogs lay their eggs? [includes spoken instructions]**

L17 – Years P–2

**Where do frogs lay their eggs? [no spoken instructions]**

L201 – Years P–2

Students examine different bodies of water, both permanent and temporary, that commonly exist in the built environment and consider their suitability as a place for a frog to lay its eggs. Students investigate the sites and record their findings in a printable 'Frog report'.

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**Explore water pipes [includes spoken instructions]**

L18 – Years P–2

**Explore water pipes [no spoken instructions]**

L202 – Years P–2

Students help Frog to trace a city's water supply and disposal. They collect and test water samples from six locations: a dam, a water treatment plant, a pumping station, a house, a sewerage treatment plant and a creek outfall. They then compare the water clarity and purity, matching the samples with their original locations.

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**Where does tap water come from? [includes spoken instructions]**

L19 – Years P–2

**Where does tap water come from? [no spoken instructions]**

L203 – Years P–2

Students complete a click-and-drag jigsaw puzzle, which enables them to understand the water cycle from the perspective of a household user in the country or in a city.

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**Water use [includes spoken instructions]**

L74 – Years P–2

**Water use**
National parks series (Years P–2)

Students explore some unusual artefacts created by Myles Dunphy, an early Australian bush conservationist in the Blue Mountains region of New South Wales. He created these artefacts to help his family enjoy the Australian bush in more comfort.

Features include:
- a mentor character to engage the interest of young children
- a map showing the location of Australia's national parks
- photographs of authentic historical objects and descriptions of their structure and use.

Students:
- explore a case study of an early conservationist family.

National parks: boots in the bush
L669 – Years P–2

Students examine some unusual boots and work out their purpose. As they examine the boots and find out about members of the Dunphy family, students discover the difference between national parks and other areas. Students are prompted to decide who the boots belong to and receive feedback to complete the identification.

Campfire with billy photo courtesy Paul Franklin.

National parks: wheels in the bush
L932 – Years P–2

Students examine a pram customised by Myles Dunphy to take his young son on long bushwalks. The pram unfolds and more information about national parks is uncovered as the students explore the pram.

This series contains non-TLF content. See Acknowledgements in the learning objects.
**Land use series** *(Years P–2)*

Students explore human impact on the environment.

**Features include:**
- the option to look up further information and answer questions.

**Students:**
- relate planting trees and recycling paper to environmental benefits
- explore the production, use and recycling of newspapers
- explore urban development's effects on wildlife populations
- explore interactions between wildlife populations and national parks, creeks, wetlands, bridges, towns and farms.

<table>
<thead>
<tr>
<th>Land use series</th>
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</thead>
<tbody>
<tr>
<td><strong>News story [includes spoken instructions]</strong></td>
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<tr>
<td>L15 – Years P–2</td>
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<td></td>
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<tr>
<td><strong>News story [no spoken instructions]</strong></td>
</tr>
<tr>
<td>L199 – Years P–2</td>
</tr>
<tr>
<td>Students follow the production cycle of a newspaper from a forest plantation to a paper mill, to a printing press, to a newsagent, to its readers and finally to waste paper and recycling. They discover how recycling can reduce demand on natural resources.</td>
</tr>
</tbody>
</table>

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<tr>
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<tbody>
<tr>
<td><strong>New developments [includes spoken instructions]</strong></td>
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<tr>
<td>L16 – Years P–2</td>
</tr>
<tr>
<td><strong>New developments [no spoken instructions]</strong></td>
</tr>
<tr>
<td>L200 – Years P–2</td>
</tr>
<tr>
<td>Students explore the impact of built environments such as houses, roads and shopping centres on the natural environment. They help Gecko survey populations of mammals and birds, and explore the balance between development and wildlife conservation. Simulated environments include national parks, creeks, wetlands, bridges, towns and farms.</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>Land use [includes spoken instructions]</strong></td>
</tr>
<tr>
<td>L73 – Years P–2</td>
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<tr>
<td><strong>Land use</strong></td>
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<tr>
<td>L209 – Years P–2</td>
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<tr>
<td>This is an aggregated learning object combining the two other learning objects.</td>
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</tbody>
</table>
**Make it alive series (Years P–4)**

This series helps students understand the habitat, threats and survival needs of endangered Australian animals and birds in a game-like environment.

**Features include:**
- images and brief texts about various endangered Australian species and their habitats
- simulations of predator behaviour and competitor species and the dangers faced by various endangered Australian species over a single day or night
- an animated game-based activity
- instant feedback at all investigation stages
- randomised activity elements that support repeated use.

**Students:**
- identify factors that threaten the survival of various endangered species in Australia
- identify features of ecosystems that various endangered Australian species depend on for their survival
- take appropriate environmental initiatives on the basis of research findings.

<table>
<thead>
<tr>
<th>Learning Object</th>
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<tbody>
<tr>
<td>The night of the bilby: find food L896 – Years P–2</td>
<td>Students help bilbies gather food including seeds, bulbs and spiders while avoiding feral predators such as cats and foxes and competing with rabbits.</td>
</tr>
<tr>
<td>The night of the bilby: get home alive L907 – Years 3–4</td>
<td>Students help bilbies gather food including seeds, bulbs and spiders while avoiding feral predators such as cats and foxes and competing with rabbits. This learning object is similar to <em>The night of the bilby: find food</em>, however students have less time to complete the activity.</td>
</tr>
<tr>
<td>The night of the bilby: safe habitat L908 – Years 3–4</td>
<td>Students determine how many bilbies a desert habitat can support by trapping and weighing insects, which form a significant part (up to 70 per cent) of the bilby diet. Students identify tracks in the desert sand to determine the presence of predators, then take steps to remove the predators.</td>
</tr>
<tr>
<td>Make it alive: superb parrots L6357 – Years 3–4</td>
<td>Students help a superb parrot to escape from dangerous feral cats, find sufficient food then search for an empty tree hollow to safely nest in. Students discover how feral birds and insects such as Indian Mynahs, starlings and honeybees are affecting the parrots’ survival by occupying tree hollows.</td>
</tr>
</tbody>
</table>
Make it alive: brush-tailed rock wallabies  
L6355 – Years 3–4

Students help the rock wallaby to find enough food, such as flowers, native grasses and their seeds, and to search for safe places in which to hide from dangerous wild dogs. They discover that feral animals such as goats, which eat the same plants, are affecting their chances of survival.

Make it alive: spotted tree frogs  
L6358 – Years 3–4

Students discover what developing frogs eat then help them find enough food so they develop from the tadpole stage through to adulthood. They help the tadpoles escape from predatory fish, such as the introduced rainbow trout, and search for safe places in the bottom of the stream habitat for shelter.

Make it alive: flatback turtles  
L6356 – Years 3–4

Students examine how feral animals such as wild pigs are affecting the flatback turtle's chances of survival. Once the turtles hatch from their nests, students help them to reach the safety of the ocean without being eaten by predators.

This series contains non-TLF content. See Acknowledgements in the learning objects.
Surviving in a habitat series (Years 3–4)
Students explore different habitats to understand why particular plants and animals live there.

Features include:
- the option to look up further information and answer questions.

Students:
- investigate the relationships between living things and their dependence on non-living things
- identify methods for protecting living and non-living things
- observe differences between living things that suit those living things to particular environments
- investigate animals’ requirements for survival, including growth, reproduction, breathing, shelter, intake of water and nutrients.

Who lives here?
L24 – Years 3–4
Students explore a north-eastern Australian rainforest habitat for visual and sound clues about the animals that live there. They write a survey report, including observations and conclusions, and can check if their predictions are correct.

Who’s for dinner?
L25 – Years 3–4
Students examine a food chain and food web from a billabong habitat. Then, in game format, they play the role of a tadpole, a fish or a heron. The aim is to find enough food to eat and avoid predators so their animal can grow and breed.

Platypus life cycle
L28 – Years 3–4
Students choose their own adventure-style exploration of the life cycle of a platypus. They visit a platypus habitat and make choices to help the survival of the platypuses and their babies.

Alien life form
L29 – Years 3–4
Students design a plant, choosing different combinations of leaves, seeds and roots so that it will survive in a specific environment (mangroves, cool rainforest, mountain slopes or arid land). They check results and receive feedback on selecting the plant features to suit the environment.

Surviving in a habitat
Community enterprise: pools, parks and toys (ESL)  
(Years 3–4)

Students research, present and justify a recommendation that benefits the economy, society and the environment.

**Features include:**
- opportunities to investigate the social, economic and environmental consequences of proposed land uses
- tools to compare, sort and analyse a variety of opinions regarding the development of an unused site in a local community
- an interactive notebook to record and analyse information
- modified language for English as a Second Language users
- a cloze sequencing activity revising connectives such as 'also' and 'finally'
- a glossary of terms used in the activity
- a printable report showing the student's recommendations and reasoning.

**Students:**
- investigate the environmental, social and economic consequences of redeveloping an unused factory site
- recommend a course of action that will maximise the environmental, social and economic benefits of redevelopment to a local community.
**Water matters series (Years 3–6)**

Students select options to minimise water use while watering the garden, washing the car or having a water fight.

**Features include:**
- opportunities for exploring options for minimising water used for watering gardens, washing cars and playing outside
- an introduction to the origin of water supplies and a focus on the limited nature of water resources
- opportunities to choose options before watering a garden, washing a car or having a water fight
- a graph and written report to determine the effectiveness of selections in saving water
- a printable report on the efficiency of water use selections.

**Students:**
- explain why it is important to conserve water
- identify effective ways of saving water while watering gardens.

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**Water matters: watering the garden**
L1798 – Years 3–4

This is a version of *Water matters: time to water the garden* for younger learners. Students follow the same process, although they do not have the option of selecting how long they will water the garden for.

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**Water matters: time to water the garden**
L1802 – Years 5–6

Students are reminded to conserve water. They select the equipment they will use, the time they will take and whether they will use mulch. They also select how frequently they will water the garden. After making their selections, students observe the consequences of their choices by comparing their water usage with an average figure, noting the health of the garden. Students are prompted to try again in order to become water savers.

---

**Water matters: car wash**
L1800 – Years 3–4

Students follow the same process, although they do not have the option of selecting how long they will wash the car for. This is a version of *Water matters: washing the car* for younger learners.

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**Water matters: washing the car**
L1803 – Years 5–6

Students select equipment to wash a car, the time they will take, and whether they will complete the task on the driveway or lawn. They also select how frequently they will wash the car. After making their selections, students observe the consequences of their choices by comparing their water usage with an average figure,
noting the health of the lawn.

Water matters: water fight
L1801 – Years 3–4

Students follow the same process, although they do not have the option of selecting how long they play for.

Water matters: time for a water fight
L1804 – Years 5–6

Students select equipment for a water fight, how long they will play for, and whether they will complete the task on the driveway or lawn. They also select how frequently they will have a water fight. After making their selections, students observe the consequences of their choices by comparing their water usage with an average figure, noting the health of the lawn.
**Community enterprise series (Years 3–8)**

Trying to make decisions that benefit the economy, society and the environment can be a challenge. Students research, present and justify a recommendation that meets the requirements of the ‘triple bottom line’.

**Features include:**
- opportunities to investigate the social, economic and environmental consequences of proposed land uses
- tools to help compare, sort and analyse a range of opinions on the development of an unused site in a local community
- an interactive notebook for recording and analysing information
- a series pitched at three different levels, with increasing language and complexity
- a printable report in the form of a letter recommending an action and summarising reasons for it.

**Students:**
- investigate the environmental, social and economic consequences of redeveloping an unused factory site
- recommend a course of action that will maximise the environmental, social and economic benefits of redevelopment to a local community.

<table>
<thead>
<tr>
<th>Community enterprise: pools, parks and toys</th>
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</thead>
<tbody>
<tr>
<td>L1026 – Years 3–4</td>
</tr>
<tr>
<td>Students enter their findings in a notebook, then conduct an analysis to determine which option will provide the best outcomes for the environment and the community, while remaining economically viable. The students then forward their recommendation to the mayor.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community enterprise: making a choice</th>
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</thead>
<tbody>
<tr>
<td>L1025 – Years 5–6</td>
</tr>
<tr>
<td>Students enter their findings in a notebook, then conduct an analysis to determine which option will provide the best outcomes for the environment and the community, while remaining economically viable. The students then forward their recommendation to the mayor.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community enterprise: people, economy and the environment</th>
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</thead>
<tbody>
<tr>
<td>L1002 – Years 7–8</td>
</tr>
<tr>
<td>Students compare the environmental, social and economic consequences of developing new enterprises in a small community. Students seek the opinions of a range of community members and gather information regarding the costs, environmental impacts and employment benefits of the different enterprises.</td>
</tr>
</tbody>
</table>
Frog pond habitat series (Years 3–9)

Students investigate, gather, synthesise and evaluate data in virtual wetland environments.

Features include:
- an interactive notebook for students to record their observations about each habitat
- models of appropriate specimen collection practices which do not damage a study area
- detailed descriptions and photo or video images for each species featured
- a printable report builder which allows students to select relevant data and compile their report.

Students:
- investigate wetland habitats and sub-habitats within a pond environment and identify the features of each which make them suitable for animal life
- evaluate methods of collecting specimens from a study area according to their impact on the animal and the study area
- investigate how different animal species in a pond habitat might meet their needs for food, water, shelter or protection
- model relationships between a frog species and other organisms in a wetland environment
- identify possible causes of the decline of a frog population.

Environmental field project: frog pond habitat
L419 – Years 3–6

In this virtual field trip, students explore four sub-environments of a pond environment (the pond, a grassy bank, a rocky bank, trees and shrubs). They gather data using appropriate sampling tools (magnifying glass, camera, net, fish trap, hand and bucket) and record their observations in an interactive notebook.

Environmental evaluation project: frog pond habitat
L418 – Years 5–9

Based on a real habitat, this learning object aims to immerse the students in a virtual investigation of the likely causes of decline in a frog population. Students test, analyse and synthesise a range of data to investigate their hypothesis as to the most likely cause of the decline of the green and gold bell frog.

This series contains non-TLF content. See Acknowledgements in the learning objects.
**World heritage: Kakadu information display series**  
*(Years 5–7)*

Students prepare an informative display about Kakadu National Park in the Northern Territory.

**Features include:**
- authentic images, geographic, cultural and wildlife information about Kakadu National Park
- text structure, features and language of an information report (including grammatical and cohesive structures)
- an option to print a completed information report, including graphics
- two versions of the object, one of which includes audio support for all mentor instructions and feedback.

**Students:**
- identify the purpose, audience and context for an information report
- know and use cohesion, including subheadings, to organise and link ideas in a text
- use a template text structure to construct an information report
- apply verbal grammar, including a range of specialist words.

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**World heritage: Kakadu information display [no spoken instructions]**  
L4915 – Years 5–7

Using background information and descriptions in a range of texts about Kakadu National Park, students help a park ranger to sort facts and images for an information display on the park. Students read for information within the texts to enable them to group the materials thematically. Finally, students use a model structure and sample text and images to build a description for visitors.

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**World heritage: Kakadu information display**  
L5813 – Years 5–7

Look at descriptions of Kakadu National Park in the Northern Territory. Help a park ranger to sort facts and pictures for an information display. Use a model structure, sample text and images to build a description for visitors. Include sections on the park’s location, wildlife and cultural importance.

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This series contains non-TLF content. See Acknowledgements in the learning object.
Kangaroo series (Years 5–8)

Students consider the social, economic, environmental and animal welfare consequences of harvesting kangaroos, and manipulate popular media to promote their own viewpoint on whether kangaroos should be killed for human consumption.

Features include:
- a range of media sources for synthesising facts and opinions
- data comparing the social influence of media sources
- tools to enable students to compile an exposition supporting a viewpoint.

Students:
- analyse the effectiveness of different media presentations when attempting to influence the opinions of community members
- decide whether the eating of kangaroos is in the best interests of Australian society, economy and environment
- prepare a media presentation to convince citizens that eating kangaroos is, or is not, in the best interests of Australia's society, economy and environment.

Kangaroo: communicating a message
L1343 – Years 5–6

In this version of Kangaroo for younger students, only the television format is presented for students to manipulate, and the number of arguments that inform the students' viewpoints is reduced.

Kangaroo: communicating messages
L1344 – Years 7–8

Students are presented with arguments in a selection of media formats regarding the contentious issue of eating kangaroos. Having considered the issue, students complete a survey in which they identify the medium that influenced them most, and state whether they are for or against eating kangaroos. They then analyse data from a fictitious survey of the Australian population and are prompted to prepare a television or newspaper advertisement promoting their viewpoint. Students are prompted to reconsider their selections if their advertisements appear to contradict their stand on the issue.

This series contains non-TLF content. See Acknowledgements in the learning objects.
Cartown series (Years 5–8)

Students consider the social, economic and environmental consequences of a traffic congestion toll, and manipulate popular media to promote their viewpoint regarding the introduction of a toll during peak times in a large Australian city.

Features include:
- data comparing the social influence of media sources
- a range of media sources for students to use for synthesising facts and opinions
- tools to enable students to construct their own media reports.

Students:
- analyse the effectiveness of different media presentations when attempting to influence the opinions of community members
- evaluate whether a traffic congestion toll is a fair and effective way of reducing pollution and traffic congestion in a large city
- prepare a convincing media presentation supporting a viewpoint.

Cartown: communicating a message
L1345 – Years 5–6

In this version of Cartown for younger students, only the television format is presented for students to manipulate, and the number of arguments that inform the students’ viewpoints is reduced.

Cartown: communicating messages
L1346 – Years 7–8

Students are presented with arguments, in a selection of media formats, regarding the contentious issue of introducing a congestion toll in a selection of media formats. Having considered the issue, students complete a survey in which they identify the medium that influenced them most, and state whether they are for or against the introduction of a toll. Students analyse data from a fictitious survey of the local population and are prompted to prepare a television or newspaper advertisement promoting their viewpoint. In the television ‘Media maker’, students combine animation, audio and music to prepare their advertisement, while in the newspaper ‘Media maker’, they combine text and images in a format of their choosing. Students are prompted to reconsider their selections if their advertisements appear to contradict their stand on the issue.
Koala control (Years 5–9)
Students explore facts and opinions about controlling populations of koalas primarily by interviewing people expressing a range of opinions.

Features include:
- a range of statements about wildlife management with conflicting points of view
- an option to print a summary of all opinions, including the student's personal viewpoint.

Students:
- compare the nature and strength of opinions expressed in expositions
- know and use verbs and processes indicating personal opinion
- complete cloze activities by selecting appropriate verbs and opinion adjectives
- explore the structure of an exposition and linguistic techniques used to express a point of view.

Koala control: points of view
L1285 – Years 5–9
Students explore the ways in which language is used to convince an audience or reinforce a position. For example, one person expresses negative feelings about koalas by using phrases containing emotional verbs such as 'Other animals that depend on trees are suffering too'. Ultimately students rank the strength of the opinions on a simple scale, while also contributing their own opinion to those of the interviewees.

Rainforest series (Years 5–9)
Students are invited to volunteer to help protect a rainforest in south-east Australia during the tourist season. They undertake a range of activities to prepare for the trip, such as reading a brochure and choosing clothing suitable for the climate.

Features include:
- a series of learning objects, each one building on knowledge gained from the previous one
- instructions for students to follow in sequence
- a glossary of difficult terms and their pronunciation.

Students:
- relate a text to their own growing knowledge and experiences
- understand how illustrations, including diagrams, tables, maps and graphs, contribute to the meaning of a text
- understand the literal and inferential meanings found in texts.

Rainforest: read a brochure
L345 – Years 5–9
Students read a six-page brochure about the climate of a temperate rainforest in Victoria which includes maps of Australia showing patterns of temperature and rainfall. They find out what clothing to bring and how to get to the rainforest from the airport. Students can look up the meaning of tricky words.

Rainforest: pack for your trip
L346 – Years 5–9
Students choose the most suitable clothing for their rainforest trip from a sales catalogue. They match items from four categories: tops; bottoms; footwear; and other
stuff.

Rainforest: book a flight
L347 – Years 5–9

Students travel to a national park in Victoria. They select departure and arrival locations on a map of Australia and New Zealand. Students use a timetable to book the most suitable flight and practise using 24-hour time.

Rainforest: explore the rainforest
L348 – Years 5–9

Students watch a simulated rainforest appear and grow then explore the three layers of a rainforest: canopy, understorey and forest floor. They match labels to the rainforest layers and find hidden animals.

Rainforest: use signs and symbols
L349 – Years 5–9

Students look at photos showing how a ranger has repaired damage to the rainforest caused by people. They observe examples of common symbols such as toilets, no smoking and tourist information. Students then match photos of places of interest in the rainforest with map symbols such as ferns, forest floor and wildlife.

Rainforest: use a grid map
L350 – Years 5–9

Students use grid references to find places on a map. They follow instructions to find four given locations.

Rainforest: use compass points
L351 – Years 5–9

Students use compass points and a scale to find places on a map. They are provided with abbreviations such as N, W, S and E and follow instructions to find four locations.
Rainforest: make a walking track
L352 – Years 5–9

Students create the route for a walking track on a map of a rainforest. They progressively choose sections of the track based on instructions about distances, compass directions and grid references until they get to the rest house.

Rainforest: make signs
L353 – Years 5–9

Students make signs about four places of interest in a rainforest: temperate rainforest; forest floor; tree ferns; and tree goannas. They use sample text to build their signs: heading; opening paragraph; two facts; and a conclusion. Once they find the places of interest on a map, they take photos to add to the signs then place their signs on map locations by matching them with symbols.

Rainforest: tracks, maps and signs
L344 – Years 5–9

This is a combination of eight of the 'Rainforest' learning objects.
Shaping the land series (Years 5–10)

Students explore the ongoing and dynamic processes (deposition, folding, faulting, erosion, intrusion) that interact to form and reshape the Earth's crust.

Features include:
• cross-section models of the Earth's crust and images of actual geological landforms

Students:
• model the geological processes that interact to form and reshape the Earth's crust
• understand the geological processes of deposition, folding, faulting, erosion, intrusions and extrusions
• describe the geological history of model landforms by examining geological cross-sections and modelling actions of forces
• describe the geological history of real landforms by examining photographs and modelling actions of forces on geological cross-sections.

Shaping the land: geological forces
L534 – Years 5–10

Students explore cross-section models of the Earth's crust. They understand how landforms are shaped over time by applying geological forces: deposition of sediments, folding, faulting, igneous intrusions and erosion.

Shaping the land: model landforms
L535 – Years 5–10

Students model the geological processes that interact to form and reshape the Earth's crust.

Shaping the land: real landscapes
L536 – Years 5–10

Students work out a sequence of geological events on model landforms to match real landscapes.

Shaping the land
L533 – Years 5–10

Shaping the land is an aggregated learning object combining the three other learning objects in a sequence.
### Points of origin series (Years 7–8)

Students compare the prices and quality of everyday items available on the global market and identify the countries of origin from which the raw materials used in their manufacture are sourced.

**Features include:**
- information about the quality and price of the items.

**Students:**
- are presented with challenges to assemble a mountain bike, outfit of clothing or a food hamper using components sourced from countries around the world
- are provided with a choice of four countries from which they can purchase the components
- assemble the mountain bike, outfit or hamper and complete a product release form on which they summarise the origin and cost of the various elements
- return to the map of the world, where they trace the countries of origin of the raw materials used to make each item.

<table>
<thead>
<tr>
<th>Points of origin: budget mountain bike</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2675 – Years 7–8</td>
</tr>
</tbody>
</table>

Students are challenged to select the cheapest parts to assemble a mountain bike.

<table>
<thead>
<tr>
<th>Points of origin: budget outfit</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2676 – Years 7–8</td>
</tr>
</tbody>
</table>

Students are challenged to select the cheapest parts to assemble an outfit.

<table>
<thead>
<tr>
<th>Points of origin: budget hamper</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2677 – Years 7–8</td>
</tr>
</tbody>
</table>

Students are challenged to select the cheapest food items to assemble a hamper.

<table>
<thead>
<tr>
<th>Points of origin: quality mountain bike</th>
</tr>
</thead>
<tbody>
<tr>
<td>L2678 – Years 7–8</td>
</tr>
</tbody>
</table>

Students are challenged to select the best quality parts to assemble a mountain bike.
Points of origin: my mountain bike  
L2679 – Years 7–8

Students assemble a mountain bike and are free to select the components they prefer.

Points of origin: my outfit  
L2680 – Years 7–8

Students assemble an outfit of clothing and are free to select the components they prefer.

Points of origin: my hamper  
L2681 – Years 7–8

Students assemble a hamper of food and are free to select the items they prefer.

This series contains non-TLF content. See Acknowledgements in the learning objects.
Fish stocks series (Years 7–10)

Students compare conflicting points of view when a ban on commercial fishing is proposed for a seaside community.

Features include:
- the means to compare, sort and analyse a variety of values and opinions regarding the regulation of fisheries in a local community
- an interactive tool allowing students to analyse information and view photos after collection
- a printable report in which students recommend an action and summarise reasons.

Students:
- investigate the environmental, social and economic consequences of regulating commercial fishing
- compare, sort and analyse a variety of values and opinions regarding the regulation of fisheries in a local community
- recommend a course of action that will maximise the environmental, social and economic benefits of managing fish populations.

Fish stocks: two points of view
L1806 – Years 7–8

In this version of Fish stocks for younger learners, students follow the same process as in the version for older learners, although they have only two viewpoints to consider.

Fish stocks: three points of view
L1805 – Years 9–10

Students are presented with two conflicting points of view regarding the issue, and after being prompted to consider the issue further, are offered a third, 'middle ground' position. After investigating each viewpoint, students collect images and text to include on a customised web page on which they present their preferred position. When preparing their web page, students are prompted to reconsider their selections if they choose conflicting pieces of information.
The colour of water series (Years 7–10)

Students explore and experiment with the conditions found in various bodies of water to understand the impact these conditions will have on the colour of the water.

Features include:
- reference information on local areas.

Students:
- use a controlled environment to explore the different factors that can affect the colour of water
- ask a local about environmental conditions and effects on water life
- replicate environmental conditions in an ‘experitank’ to match the water colour with the water sample colour provided
- are challenged to correctly match the water conditions that occur in various bodies of water around Australia and New Zealand.

The colour of water: Experitank
L562 – Years 7–10

The colour of water: Experitank [no spoken instructions]
L563 – Years 7–10

Students vary temperature, salinity or the micro-organisms present plus other variables to discover the impact these have on water colour.

The colour of water: Blue Lake
L564 – Years 7–10

The colour of water: Blue Lake [no spoken instructions]
L565 – Years 7–10

Students look at a lake in New Zealand that appears blue.

The colour of water: Green Lake
L566 – Years 7–10

The colour of water: Green Lake [no spoken instructions]
L567 – Years 7–10

Students look at a lake in New Zealand that appears green.

The colour of water: Pink Lake
L568 – Years 7–10

The colour of water: Pink Lake [no spoken instructions]
L569 – Years 7–10

Students look at a lake in Australia that appears pink.
The colour of water: park pond
L570 – Years 7–10

The colour of water: park pond [no spoken instructions]
L571 – Years 7–10

Students look at a pond in Australia that appears brown.

The colour of water: Jervis Bay
L572 – Years 7–10

The colour of water: Jervis Bay [no spoken instructions]
L573 – Years 7–10

Students look at a bay in Australia that appears white and shiny.

The colour of water: Freycinet Peninsula
L574 – Years 7–10

The colour of water: Freycinet Peninsula [no spoken instructions]
L575 – Years 7–10

Students look at an ocean off Tasmania that appears red.

The colour of water: Great Barrier Reef
L576 – Years 7–10

The colour of water: Great Barrier Reef [no spoken instructions]
L577 – Years 7–10

Students look at ocean water around the Great Barrier Reef that appears blue.

The colour of water
L560 – Years 7–10

The colour of water [no spoken instructions]
L561 – Years 7–10

This is an aggregated learning object combining the other learning objects.

This series contains non-TLF content. See Acknowledgements in the learning objects.
Tectonics investigator series (Years 7–10)

Students investigate some of the scientific evidence which leads to our understanding of the current model of the Earth’s structure. They also look at the scientific observation of magnetic stripes at divergent plate boundaries and how this supports tectonic plate theory.

Features include:
- animation to illustrate and explain the Earth’s internal structure
- a jigsaw activity in which the tectonic plates are fitted together over the Earth’s surface
- a tool to allow students to control plate movement to demonstrate the formation of magnetic stripes and hot spots
- structured feedback to student input
- multiple-choice questions to test understanding and interpretation.

Students:
- investigate the Earth’s internal structure
- analyse scientific data to interpret a model of the Earth’s structure
- identify tectonic plates
- investigate the formation of magnetic stripes at divergent plate boundaries and interpret their role in support of tectonic plate theory
- observe how hot spots can create seamounts and island chains and deduce how this process supports tectonic plate theory
- apply tectonic plate theory to predict island formation.

Tectonics investigator: Earth’s structure
L5827 – Years 7–10

Students investigate, analyse and interpret a model of the Earth’s internal structure through animations and scientific data. In a jigsaw activity, students fit the Earth’s tectonic plates together and then identify characteristics of the plates.

Tectonics investigator: magnetic stripes
L5828 – Years 7–10

Students investigate the formation of magnetic stripes at divergent plate boundaries and interpret the role of magnetic stripes in support of tectonic plate theory.

Tectonics investigator: hot spots
L5829 – Years 7–10

Students control plate movement to model the formation of hot spots. Students observe how hot spots can create seamounts and island chains and deduce how this process supports tectonic plate theory.

Tectonics investigator
L5826 – Years 7–10

This is an aggregated learning object combining the three other learning objects.
Tectonics investigator series (ESL) (Years 7–10)

Students investigate some of the scientific evidence which leads to our understanding of the current model of the Earth’s structure.

Features include:
- structured feedback based on student input
- multiple-choice questions which test student understanding and interpretation
- modified language for English as a Second Language users
- a glossary of terms used in the activity.

Students:
- investigate the Earth’s internal structure through animations and scientific data
- analyse scientific data to interpret a model of the Earth’s structure
- identify tectonic plates.

Tectonics investigator: Earth’s structure [ESL]
L9467 – Years 7–10

Students investigate the internal structure of the Earth using earthquake measurements. They examine the Earth’s outer layer and fit the Earth’s tectonic plates together like a jigsaw puzzle.

Tectonics investigator: magnetic stripes [ESL]
L9468 – Years 7–10

Students investigate the formation of magnetic stripes at divergent plate boundaries. They interpret the role of magnetic stripes in support of tectonic plate theory.

Tectonics investigator: hot spots [ESL]
L9469 – Years 7–10

Students observe how hot spots can create seamounts and island chains, and deduce how this process supports tectonic plate theory. They apply tectonic plate theory to predict island formation.
Tectonics investigator: assessment series  (Years 7–10)

Students interpret animations and data to answer questions about the Earth's internal structure and the movement of tectonic plates.

**Features include:**
- descriptions of scientific advances that challenged understandings and practices in science and everyday life
- targeted assessment of student's understanding of the processes that change the Earth's surface over time at local and global levels
- a printable report of the student's performance
- opportunity for teacher feedback.

**Students:**
- use geological evidence to interpret past events
- use the theory of plate tectonics to explain global patterns of geological activity
- interpret seismic data
- evaluate evidence for the existence of tectonic plates.

**Tectonics investigator: Earth's structure: assessment**
L10326 – Years 7–8

Students are assessed on their understanding of the Earth's internal structure. They use animations and images to help them answer a series of questions dealing with the seismic exploration of the Earth’s internal structure and the structure of tectonic plates.

**Tectonics investigator: plate movement: assessment**
L10327 – Years 8–10

Assesses student understanding of tectonic plate movement. Students interpret data from magnetic surveys of divergent zones as well as patterns derived from hotspot traces.

This series contains non-TLF content. See Acknowledgements in the learning objects.
Responsible fishing in Western Australia: write an article (Years 8–9)

Students investigate a fishing site in Australia that has been affected by human activities.

Features include:
- definitions of difficult words
- a focus on the importance of audience and purpose when making language choices
- a look at the text structure, features and language of an exposition (including use of opinion adjectives and adverbs)
- an option to print the edited magazine article for further discussion, evaluation or development in the classroom.

Students:
- choose opinion adjectives and adverbs to support an evaluative stance
- consider their audience and purpose in making their language choices
- complete a factual exposition to suit the social context, audience and purpose
- interpret technical language
- revise a factual exposition to improve language choice and usage
- interpret technical language.

Responsible fishing in Western Australia: write an article
L4914 – Years 8–9

Students are able to identify the laws and regulations that relate to fishing in this region and help write a magazine article to inform anglers of the laws and regulations they should observe. They consider evaluative and persuasive language, and use a glossary to help with difficult words.
Shaping the land: assessment series (Years 8–9)

Students show their understanding of the geological processes of deposition, folding, faulting, erosion and intrusions.

Features include:
- model answers for students to compare their free text responses against
- photographs of real landforms to match to animated cross sections of the Earth
- a printable report of the student’s performance.

Students:
- model geological processes that interact to form and reshape the Earth’s crust
- describe the geological processes of deposition, folding, faulting, erosion and intrusions
- use the theory of plate tectonics to explain geological activity
- identify geological features and processes that shape landforms, including folds, faults, intrusions, erosion and deposition.

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Shaping the land: model landforms: assessment
L9837 – Years 8–9

Students examine geological forces: deposition of sediments, folding, faulting, igneous intrusions and erosion. They work out a sequence of geological events to match example landforms.

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Shaping the land: real landforms: assessment
L9836 – Years 8–9

Students demonstrate their understanding of geological events that interact to form and reshape the Earth’s crust. They create the correct sequence of events to match an example cross-section of the Earth.

This series contains non-TLF content. See Acknowledgements in the learning objects.
Tectonic boundaries: assessment series (Years 9–10)

Students use the theory of plate tectonics to explain global patterns of geological activity.

Features include:
- a series of multiple-choice questions to assess student understanding
- animations and data sets demonstrating the movement of tectonic plates
- descriptions of scientific advances that challenged understandings and practices in science and everyday life
- a printable report of the student's performance.

Students:
- use geological evidence to interpret past events
- describe processes that change the Earth's surface over time at local and global levels
- identify and explain the tectonic processes and features occurring at divergent boundaries, convergent boundaries and transform boundaries.

Tectonic boundaries: convergent: assessment
L10329 – Years 9–10

Students use animations of tectonic plate movement to answer a series of 11 questions assessing their understanding of phenomena associated with convergent plate boundaries.

Tectonic boundaries: divergent: assessment
L10328 – Years 9–10

Students use animations of tectonic plate movement to answer a series of eight questions assessing their understanding of phenomena associated with divergent plate boundaries.

Tectonic boundaries: transform: assessment
L10330 – Years 9–10

Students use animations of tectonic plate movement to answer a series of nine questions assessing their understanding of phenomena associated with transform plate boundaries.
Tectonic boundaries series (Years 9–10)

Students use models of tectonic processes to understand geologic events on Earth. Students apply their understanding of plate tectonics to world regions and explain how major geological features were created.

Features include:
- illustrations of the processes occurring at divergent, convergent and transform boundaries
- explanations of the origins of catastrophic geological events
- animation to show the effect of tectonic forces on plate boundaries over time
- structured feedback to student input
- multiple-choice questions to test understanding of plate movements and tectonic forces.

Students:
- model the effect of different tectonic forces on plate boundaries over time
- identify and explain the tectonic processes occurring at divergent, convergent and transform boundaries
- relate geological features to different tectonic boundaries
- predict geological processes and features at different locations on plate boundaries.

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**Tectonic boundaries: divergent**
L5831 – Years 9–10

Investigates the Atlantic Ocean (where the South American and African plates meet) and Iceland (where the Eurasian and North American plates meet). Geological features include volcanoes, cracks in the ground (fissure vents), widening of the ocean floor and submerged mountain ranges.

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**Tectonic boundaries: convergent**
L5832 – Years 9–10

Investigates the west coast of South America (where the South American and Nazca plates meet), Northern India (where the Eurasian and Indian plates meet) and South Pacific (where the Pacific and Australian plates meet). Geological features and events include volcanoes, deep sea trenches, earthquakes, tsunamis and mountain ranges.

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**Tectonic boundaries: transform**
L5833 – Years 9–10

Investigates the west coast of USA (where the North American and Pacific plates meet), Pacific Ocean (where the Pacific and Juan de Fuca plates meet) and South Pacific (where the Pacific and Australian plates meet). Geological events include earthquakes.
**Tectonic boundaries: challenge**  
L5834 – Years 9–10  
Students test their understanding of the different boundaries in a variety of new locations.

**Tectonic boundaries**  
L5830 – Years 9–10  
This is an aggregated learning object combining the four other learning objects.

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**Exploring for resources series** (Years 9–10)  
Students find out how different resources (gold, diamonds, nickel, copper and oil) are formed. In the role of an exploration geologist, students evaluate the resource potential of different areas in Australia and New Zealand and select appropriate exploration methods to economically locate the various resource deposits.  

**Features include:**  
- explanations of methods geologists use to find resource deposits  
- illustrations of the processes leading to the formation of resource deposits  
- different geological tests, depending on the resource being sought  
- random generation of resource deposits to support repeated use.

**Students:**  
- apply knowledge of resource formation to evaluate the resource potential of areas  
- use geological methods to evaluate the resource potential of areas  
- choose exploration methods to economically locate resource deposits  
- describe some financial risks involved in mineral exploration.

**Exploring for resources: gold**  
L5923 – Years 9–10  
Students conduct tests including aerial magnetic surveying, regolith mapping, surface soil sampling, laterite sampling, shallow drilling and deep drilling.
Exploring for resources: copper
L5924 – Years 9–10

Students conduct tests including aerial magnetic surveying, electromagnetic surveying, regolith mapping, ironstone surveying and deep drilling.

Exploring for resources: nickel
L5925 – Years 9–10

Students conduct tests including aerial magnetic surveying, electromagnetic surveying, laterite sampling and deep drilling.

Exploring for resources: oil
L5926 – Years 9–10

Students conduct tests including 2D seismic surveying, 3D seismic surveying, sniffer surveying and deep drilling.

Exploring for resources: diamonds
L5927 – Years 9–10

Students conduct tests including drainage sampling, aerial magnetic surveying and bulk sampling.

This series contains non-TLF content. See Acknowledgements in the learning object.
Resort rescue series (Years 9–10)

Students consider the long-term environmental, social and economic effects of development at a beach resort over the past 15 years. They then compare the merits of different environmental management solutions and recommend and evaluate their solutions.

Features include:
- illustrations of long-term effects of environmental degradation and remediation in a coastal tourist resort
- tools to analyse the economic, social and ecological consequences of various social, economic and environmental issues
- tools to facilitate comparison of solutions that address various social, economic and environmental issues
- multiple-choice questions to test understanding of key concepts.

Students:
- explore social, economic and environmental issues in a coastal management setting
- compare the merits of solutions to problems posed about various social, economic and environmental issues.

Resort rescue: coastal protection  
L2691 – Years 9–10

Students consider the long-term effects of development at a beach resort.

Resort rescue: fresh water use  
L2692 – Years 9–10

Students consider the long-term effects of unrestricted use of fresh water at a beach resort.

Resort rescue: water sports  
L2693 – Years 9–10

Students consider the long-term effects of motorised water sports at a beach resort.
| Resort rescue: overdevelopment  
L2694 – Years 9–10 |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Students consider the long-term effects of overdevelopment at a beach resort.</td>
</tr>
</tbody>
</table>

| Resort rescue: off-road vehicles  
L2695 – Years 9–10 |
<table>
<thead>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Students consider the long-term effects of off-road vehicles at a beach resort.</td>
</tr>
</tbody>
</table>

| Resort rescue: coastal protection [ESL]  
L9130 – Years 9–10 |
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Students explore social, economic and environmental issues in a coastal management setting and compare the merits of environmental management solutions. Features modified language for English as a Second Language users and an audio-supported glossary of terms used in the activity.</td>
</tr>
</tbody>
</table>

This series contains non-TLF content. See Acknowledgements in the learning objects.
Green machine series (Years 9–10)

Students investigate the connection between a vehicle's features and its greenhouse gas emissions and assemble a vehicle that meets specific targets for fuel consumption. They consider the responsibilities of Australian drivers within the context of global warming and its possible effects on planet Earth.

Features include:
- links between greenhouse gas emissions, the greenhouse effect and global warming
- automatic graphs to show the fuel consumption and greenhouse gas emissions of vehicle configurations
- comparisons between the fuel consumption and greenhouse gas emissions of vehicle configurations and an environmental target set by the Australian Government
- multiple-choice questions to test understanding of key concepts
- an option for students to print their green tips and reflections.

Students:
- relate a vehicle's features to its impact on the environment select product components according to personal preferences
- build a vehicle that minimises fuel consumption and greenhouse emissions.

Green machine: sedan
L2699 – Years 9–10

Students build a passenger car that causes as little harm as possible to the environment.

Green machine: four-wheel drive
L2700 – Years 9–10

Students build a four-wheel drive vehicle that causes as little harm as possible to the environment.

Green machine: sports car
L2701 – Years 9–10

Students build a sports car that causes as little harm as possible to the environment.

Green machine: luxury car
L2702 – Years 9–10

Students build a luxury car that causes as little harm as possible to the environment.
Green machine: ute
L2703 – Years 9–10

Students build a ute that causes as little harm as possible to the environment.

Green machine: hatchback
L2704 – Years 9–10

Students build a hatchback vehicle that causes as little harm as possible to the environment.
Content from other sources

Exploring Earth's structure (Years 5–9)

Students explore the physical conditions and composition of major geological layers within the Earth and identify relationships between physical conditions and properties of rock present under the Earth's crust.

Features include:
• introductory descriptions of the properties and composition of geological layers within the Earth.

Students:
• explore physical conditions and composition of major geological layers within the Earth
• identify relationships between physical conditions and properties of rock present under the Earth's crust.

Exploring Earth's structure: Earth probe
L3067 – Years 5–9

Students drill to the centre of the Earth, measuring the temperature and pressure in each layer, and looking at the composition of the rocks. Demonstrates that the temperature and pressure change progressively through the layers.

Down to Earth series (Years 5–10)

Students explore Australia’s geological history, the relationship between landscapes and the formation of rocks and minerals across time and the use of minerals in everyday items.

Features include:
• models of changes to the Earth's surface over geological time and their relation to plate tectonics
• maps showing geological features of the Australian continent at geologically small time intervals (around 10 million years)
• illustrations and descriptions of environments and living things belonging to each geological period or era
• illustrations of continental drift resulting from plate movements
• detailed information about geological time, plate tectonics and ancient environments
• a glossary and challenge questions.

Students:
• explore changes in the Australian landmass, environments and living things over the last 545 million years
• compare climatic conditions and sea levels over geological time
• relate geological changes in the Earth's surface to plate tectonics
• identify major periods in the geological time scale.

Down to Earth: palaeotraveller
L925 – Years 5–8

Students use a range of interactive tools and maps to explore changes in the Australian landmass, environments and living things over the last 545 million years and compare climatic conditions and sea levels over geological time. They also relate geological changes in the Earth's surface to plate tectonics and identify major periods in the geological time scale.
### Down to Earth: rock back in time
L926 – Years 8–10

This is similar to *Down to Earth: palaeotraveller* but the focus is on when, where and how a range of rock samples (e.g., coal, diamond, granite, sandstone) were formed in Australian geological time.

### Down to Earth: metals matter
L927 – Years 5–8

Students identify metals commonly found in household objects and relate demand for commodities to supply of mineral resources. They link the periodic table to descriptions of the properties and uses of metals and metalloids, and use an interactive notebook to record and print facts about commodities, metals and metalloids. An interactive calculator and global map show relationships between world demand for commodities and supply of mineral resources.

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**Get into geology series (Years 5–12)**

Students explore a range of tools and instruments used by geologists and examine the formation of rocks. Students compare sedimentary, igneous and metamorphic rocks and use physical and chemical tests to identify rock types.

**Features include:**
- examples of simple tests of physical and chemical properties used to identify rocks.
- photos of typical igneous, metamorphic and sedimentary rocks
- a structured, systematic pathway for identifying rocks

**Students:**
- engage with jigsaw pieces to complete a puzzle about geological strata
- explore the appearance and function of a range of geological tools
- test physical and chemical properties to identify rocks
- compare sedimentary, igneous and metamorphic rocks
- explore the geological processes involved in the formation of common rock strata.

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**Get into geology: tools of the trade**
L3064 – Years 5–12

Students explore the appearance and function of a range of geological tools and instruments.

**Get into geology: what rock is that? [Windows version]**
L3065 – Years 5–12

Students test physical and chemical properties to identify rock types, eg whether a rock floats in water or reacts with vinegar. They compare sedimentary, igneous and metamorphic rocks.

**Get into geology: superposition puzzle**
L3066 – Years 5–12

Students position jigsaw pieces to complete a diagram of sediment layers. They explore the formation of rocks such as marble, mudstone, shale and granite and look at the effects of erosion on rock layers.

**Get into geology [Windows version]**
L3063 – Years 5–12 🌟

This learning object is a combination of the three objects in the series.

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Map tool series  (Years 7–10)

Students explore the geography and background of Asian and Pacific countries.

Features include:
- an interactive map showing national boundaries
- general background information on South-East Asian and Pacific countries.

Students:
- compare factors affecting Asian and Pacific countries.

Map tool: Asia-Pacific

L1432 – Years 9–10

Students zoom in on a map of countries in the Asia-Pacific region and explore key features of each country.

Map tool: South-East Asia and the Mekong River

L1391 – Years 7–10

Students trace the path of the Mekong River through China, Lao PDR, Myanmar, Thailand, Cambodia and Vietnam. They explore how these countries use resources from the river as well as issues such as river pollution.
The secret of Itsall Mine (Years 9–12)

Students explore methods used in geology and palaeontology. Students differentiate between igneous, metamorphic and sedimentary rocks by comparing the properties of rock samples.

Features include:
- a facility for entering code words so that students can resume the game at a later stage
- methods used in geology and palaeontology
- rock classification and descriptions of common examples of each type.

Students:
- identify geological clues to solve a mystery
- explore methods used in geology and palaeontology
- compare the properties of rock samples
- differentiate between igneous, metamorphic and sedimentary rocks.

The secret of Itsall Mine
L3013 – Years 9–12

Students enter a mineshaft to explore rock layers and fossils and use geological tools and instruments to find a lost fossil. They gather, analyse and date rock samples and get passwords by solving geological puzzles.
**Digital resources**

A remarkable range of digitised items licensed from leading cultural and scientific institutions is available to teachers and students of Geography. These items include:

- clips from documentaries, newsreels, television programs and feature films
- photographs, line drawings, maps and documents
- audio files of interviews, broadcasts and speeches.

With each item, TLF supplies an educational value statement comprising a description and contextual information that enriches the value of the asset.

Two views of each resource are available – one with the description, educational value statement and acknowledgments, another with the resource and acknowledgments.

**View 1 – Resource and acknowledgements**

[Image of Icebergs in Paradise]

Reproduced courtesy of Seth Resnick and Getty Images. Photograph by Seth Resnick.

**View 2 – Resource, description, educational value statement and acknowledgments**

[Table and description of Icebergs in Paradise]

Authorized by the photographer, PassionateL, at first destination for the reflected. summer style city, is surrounded by the nature, which make the photography reflected for the first time. Photograph Credit: Stephen Knowles and Associates, 7838491868; Stephen Knowles, 7839404248; Source: Getty Images.
Australian Voices

The Australian Voices project is a collection of recorded interviews commissioned by TLF that relate directly to other sound, still or moving image items in TLF’s pool of digital curriculum content. The interviews include first-hand accounts from people in fields such as creative arts, science, medicine, sport and politics. They speak about experiences such as war, natural disasters, working and everyday life.

A selection from Australian Voices recordings useful for Geography is described here. You can use the search options in your educational jurisdiction’s gateway to TLF to view the content.

### John Teniswood recalls the ‘Black Tuesday’ bushfires, 2005

The 110 fires recorded on Black Tuesday spread quickly on a day of high temperatures, very strong winds and low humidity. Teniswood gives a firsthand account of Tasmania’s most devastating fire outbreak, ‘Black Tuesday’.

### Kerry Alcock describes his Cyclone Larry experience, 2008

Queensland banana grower Kerry Alcock describes the devastation wrought by Cyclone Larry on his family business plantation in March 2006. Alcock tells how his crop was totally destroyed and how a new crop had to be planted from scratch using about 65,000 ‘suckers’.

### Trevor Smith discusses dealing with droughts, 2008

Smith gives an insight into the financial and psychological strains farmers face as a result of drought. Smith tells how, despite cash-flow problems, most sheep farmers try to keep their breeding stock alive by buying feed so they can rebuild their flocks when a drought breaks.
The National Film and Sound Archive's *australianscreen* online is an innovative website with more than 2,000 moving-image clips from Australian feature films, documentaries, newsreels, short films, home movies and animations. As the education partner in this major project, TLF has selected hundreds of clips and provided accompanying teachers' notes.

**Concrete City, 1994: Save our park**
This clip from the documentary *Concrete city*, documents the struggle of the residents of Pyrmont to preserve the character and community of their suburb in the face of large-scale residential and commercial development in the early 1990s. Links to the past can be seen in the barren landscape and sandstone shelves, evidence of past quarrying in an area now used as a playground for the local children.

**Four Corners – We'll All Be Rooned, 1982: Of droughts and flooding rains**
Reporter Jim Downes stands on the dry bed of the Castlereagh River. When British explorers found the river it was so full they thought it might be an inland sea. However, the area proved prone to extremes of drought and flood. As the camera moves through stunted wheat crops in baked, cracked earth, Downes says that local farms have been affected by drought and local towns by economic depression.

**The Franklin Wild River, 1980: Australian wilderness**
This clip shows part of the journey that environmentalist Bob Brown and forester Paul Smith made when they paddled the Franklin River in inflatable rafts in 1976. Brown outlines what he believes characterises wilderness and describes the Franklin River as a place with these qualities. He expresses his frustration and indignation at the damming of Lake Pedder and reflects on human progress and development.
The Commonwealth Scientific and Industrial Research Organisation (CSIRO) is Australia’s national science agency. TLF makes available hundreds of the CSIRO’s scientific still and moving images in the pool of digital curriculum content.

**Damselfly habitat at Alexander Billabong, Victoria**
This asset shows a billabong that is an example of an aquatic habitat with an ‘edge zone’, where the current is small or non-existent. Such zones may have reeds, overhanging vegetation, undercut banks or matted root structures. Damselfly nymphs live in such freshwater environments and prey on other small aquatic creatures.

**Rainforest**
This clip shows a wet, tropical north Queensland rainforest. In Australia, rainforests grow in areas of high rainfall along the east coast, from Tasmania to far north Queensland. There are five main types of rainforest: tropical, subtropical, dry, warm temperate and cool temperate.

**Eucalypt bark and bushfires, 2000**
This is a clip about predicting the spread of bushfires based on the types of ‘Eucalyptus’ spp in the Australian bush. The behaviour of bushfires is influenced by factors such as fuel characteristics, atmospheric conditions and topography. Scientists are attempting to build models that can quickly predict bushfire behaviour based on these factors.
 Getty Images

TLF has licensed hundreds of high-quality images from the extensive Getty Images collection to include in the digital curriculum content pool.

A selection of Getty Images content useful for Geography is described here. You can use the search options in your educational jurisdiction’s gateway to TLF to view the content.

**Great Wall of China**

TLF ID: R8328

The Great Wall of China is one of the largest building-construction projects ever carried out. Counting all its branches and secondary sections, the wall extends for 7,300 km from the bank of the Yalu River to the foot of the Qilian Shan and Tian Shan mountains.

Reproduced courtesy of John W Banagan and Getty Images.

**Earth viewed from space**

TLF ID: R8363

This is a colour photograph of part of the Earth viewed from space. This image was taken over the Bering Sea, the northern extension of the Pacific Ocean bordered by Alaska to the east and Russia to the west. Photographs of Earth from space are important for analysing the climatology, ecology and oceanography of our planet.

Reproduced courtesy of Space Frontiers and Getty Images.

**Machu Picchu, Peru**

TLF ID: R8424

Machu Picchu is situated at an elevation of 2,400m on a narrow ridge between two sharp peaks in the Peruvian Andes. The city was designed to blend into the landscape and comprised an urban sector and an agricultural sector of steeped terraces built on the mountain slopes.

Reproduced courtesy of Navaswan and Getty Images.
National Archives of Australia

The vast collection of items in the National Archives of Australia reflects the actions, decisions and interactions of the Australian Government. TLF has licensed hundreds of items for inclusion in the pool of digital curriculum content.

**Natural rock arch formation, Sorrento, 1945**

This shows the natural formation of a rock arch at Sorrento Back Beach on the Bass Strait side of the Mornington Peninsula, Victoria. Such rock formations are common to the Victorian ocean coastline, which is battered by the fierce waves of Bass Strait.

From the collection of the National Archives of Australia. Photograph by the Department of Information.

**The Aurora on the edge of the Antarctic iceshelf, c1912**

This image shows the Aurora, a ship owned by the Australasian Antarctic Expedition, anchored at the edge of the Shackleton Ice Shelf off the Queen Mary Land coast in eastern Antarctica. The photograph was taken at Western Base where eight members of the Expedition were stationed. The team carried out valuable scientific work and charted large areas of the coastline.

From the collection of the National Archives of Australia. Photograph by Frank Hurley.

**Sign pointing to water, Murray River, 1946**

This asset shows a dry and scruffy landscape with powdery soil near the Murray River, Australia's largest river. It illustrates the absence of water in the Murray River during the 1937–47 drought, when the Hunter, Hawkesbury and Murray Rivers all partially stopped flowing.

From the collection of the National Archives of Australia.
As Australia's largest reference library, the National Library of Australia preserves a wide variety of Australian artefacts and national treasures. It holds a comprehensive collection ranging from iconic photographs and prints to sheet music and ephemera. TLF has licensed hundreds of these items for inclusion in the pool of digital curriculum content.

**Dry weather in Melbourne, 1882**
This image portrays Melbourne at a time of water shortage. During times of low rainfall in the catchment area north-east of the city, water supplies were limited, and there was a serious drought in Victoria from 1877 to 1881.

**Mercator world map, 1695**
This is a hand-coloured map that shows the limitations of geographical knowledge in the 17th century. The northern hemisphere is shown in great detail, although there are substantial distortions, particularly for India and Sri Lanka. There is very little drawn in the southern hemisphere, which is labelled 'Climata australia'.

**Map of Australia, c1891**
This is an example of a map of Australia produced in the 1890s when Australia still comprised six separate British colonies. It clearly shows the continent to be relatively flat, with hachures used to indicate the few mountainous areas such as the Great Dividing Range.
Powerhouse Museum

Powerhouse Museum holds a unique and diverse collection of more than 385,000 items that span history, science, technology, design, industry, decorative arts, music, transport and space exploration. TLF has licensed hundreds of these items for inclusion in the pool of digital curriculum content.

**Dryland salinity at Boorowa, 2001**

Dryland salinity is widespread across Australia. It is caused by replacing deep-rooted native plants with shallow-rooted crops and pasture that do not use as much water. Unused water builds up in the groundwater, causing it to rise. As the watertable rises, it brings to the surface salt that has accumulated over millions of years.

**Bombo metal quarries, Kiama, 1884–1917**

This shows a Kiama basalt quarry in the 19th or early 20th century. It shows impressive cliffs of columnar basalt. Basalt, which has been used since Ancient Egyptian times, is a hard igneous rock formed when hot lava cools on the Earth's surface. It has a dark, glassy appearance, is fine grained and is the most common of the volcanic rocks.

**Giant fig tree, 1884–1917**

This is an example of part of the natural environment of an Australian rainforest. Rainforests contain a great diversity of plant and animal species and usually form a distinctive tree-top canopy. This depicts a huge old-growth forest giant – a Moreton Bay fig tree.
Themes

The Earth's changing surface (Years 5–10)

This thematic collection is designed to illustrate the range of digital curriculum content available to assist teaching and learning about the Earth's geological structure and how it has changed over time. Students can apply their understandings in different contexts, including investigation of the work of geologists.

The Changing Face of Australia, 1970: Uluru
This clip shows images of the ancient sandstone monolith Uluru (previously known as Ayers Rock). Uluru is an inselberg (island mountain), an isolated remnant of an ancient mountain range originally laid down as fan-shaped alluvial sand deposits, which eventually became sandstone. Erosion over millions of years has revealed part of the rock, although the major part of it is still below the Earth's surface.

TLF ID: R8269

London Bridge, Port Campbell, c1900
This photograph shows a natural double bridge geological structure, formed by wind and wave erosion. The constant action of the wind and sea weakened the bridge's landward arch, which consequently collapsed in 1990.

Reproduced courtesy of National Library of Australia.

TLF ID: R3201

The San Andreas Fault, California
This photograph of the San Andreas Fault in California, USA, shows the fault line as it dissects the Carrizo Plain grassland. The central fault line divides two tectonic plates: on the right of the fault is the Pacific plate and on the left is the North American plate.

Courtesy of James P Blair and Getty Images. Photograph by James P Blair.

TLF ID: R8440
**Shaping the land**

Students explore the ongoing and dynamic processes (deposition, folding, faulting, erosion, intrusion) that interact to form and reshape the Earth's crust. They examine cross-sections and actual geological landforms and are challenged to determine the geological events that have led to their formation.

**Down to Earth: palaeotraveller**

Students use a range of interactive tools and maps to explore changes in the Australian landmass and its environments and living things over the last 545 million years and compare climatic conditions and sea levels over geological time. They also relate geological changes in the Earth's surface to plate tectonics and identify major periods in the geological time scale.

**Down to Earth: rock back in time**

This is similar to *Down to Earth: palaeotraveller* but the focus is on when, where and how a range of rock samples (eg coal, diamond, granite, sandstone) were formed in Australian geological time.

**Tectonics investigator**

Students investigate some of the scientific evidence which leads to our understanding of the current model of the Earth's structure. They also look at the scientific observation of magnetic stripes at divergent plate boundaries and how this supports tectonic plate theory.

**Tectonic boundaries**

Students use models of tectonic processes to understand geologic events on Earth. Students apply their understanding of plate tectonics to world regions and explain how major geological features were created.
<table>
<thead>
<tr>
<th>TLF ID:</th>
<th>L493</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Travel back in time</strong></td>
<td>Students act as curators in a futuristic museum and collect, categorise, label and display geological exhibits for an exhibition.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>TLF ID:</th>
<th>L515</th>
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</thead>
<tbody>
<tr>
<td><strong>Science reporter: geologist</strong></td>
<td>Students explore the lives and interests of a geologist. They take the role of a science reporter on a virtual online newspaper and investigate text, images, sound clips and videos about each scientist, then compile their report using a digital report maker. Students can output their report to view on screen or print out.</td>
</tr>
</tbody>
</table>
The destructive forces of nature

This collection provides images and film footage of the impact of a range of natural phenomena including a tsunami, a cyclone, earthquakes, volcanoes, floods and drought.

**Banda Aceh, three weeks after the 2004 tsunami**
The photograph is a dramatic depiction of the damage that a large tsunami can cause. This tsunami hit Aceh on 26 December 2004. A boy stands on top of a huge pile of debris in the provincial capital, Banda Aceh. The debris is the wreckage of what had previously been houses.

**Banda Aceh, six weeks after the 2004 tsunami**
This is a colour aerial photograph of part of the coast of the Indonesian province of Aceh, taken on about 6 February 2005, six weeks after the province was hit by a devastating tsunami. The location is the provincial capital, Banda Aceh. The low-lying area is heavily flooded and all buildings are apparently in ruins. There is no sign of human life.

**Back to business after Cyclone Tracy, Darwin, 1974**
This is a black-and-white photograph of a barber cutting a client's hair in the wreckage of his shop in the main street of Darwin, Northern Territory, after Cyclone Tracy has passed. Cyclone Tracy, one of Australia's worst natural disasters, struck just after midnight Christmas Eve, 1974. The rainfall was torrential and winds were officially recorded at 217km per hour before the equipment failed, although speeds are believed to have reached up to 300km per hour.

**Keith Bushnell – Cyclone Tracy Aftermath, 1974: The army arrives**
This clip shows the devastation of Darwin by Cyclone Tracy in 1974. The footage was taken from the rooftop of a damaged house that men are shown securing. The film shows empty streets, ruined buildings and some of the extensive damage done to the city.
### The San Andreas Fault, California

This photograph of the San Andreas Fault in California, USA, shows the fault line as it dissects the Carrizo Plain grassland. The central fault line divides two tectonic plates: on the right of the fault is the Pacific plate and on the left is the North American plate.

![Image](https://via.placeholder.com/150)

**Courtesy of James P Blair and Getty Images. Photograph by James P Blair.**

### Quake line near Meckering, 1968

This black-and-white aerial photograph shows fissures left by an earthquake near the township of Meckering in Western Australia, in 1968. The fissures run through the Great Eastern Highway and through wheat fields on either side.

![Image](https://via.placeholder.com/150)

**Reproduced courtesy of Getty Images. Photograph by Central Press, 1968.**

### Aerial view of Mt Pinatubo, 1997

Mount Pinatubo is located on the island of Luzon in the Philippines. This aerial photograph taken in 1997 shows the caldera (a huge depression) and the crater lake that formed after the volcano's 1991 eruption.

![Image](https://via.placeholder.com/150)

**Reproduced courtesy of Joanna B Pinneo and Getty Images. Photograph by Joanna B Pinneo, 1997.**

### Indonesia's Mount Merapi, 2006

This shows the peak of Mount Merapi in Central Java Province on the Indonesian island of Java. This photograph was taken on 12 June 2006 during a period of volcanic activity. Bright orange lava is flowing down the conical volcano, and clouds of hot gas and ash are streaming into the atmosphere. As seen in the image, the summit of Merapi lacks vegetation.

![Image](https://via.placeholder.com/150)

**Reproduced courtesy of Getty Images. Photograph by Dimas Ardian, 2006.**
Lava flowing from Mount Etna, 2006
This shows a lava flow at Mount Etna on the Italian island of Sicily in 2006. The bright orange colour of the intensely hot and fast-flowing lava is clearly seen. The lava appears to be moving downhill through a channel.

Mudflow from Mount Ruapehu, 2007
This is a colour photograph of a mudflow flowing under the Tangiwai rail bridge in the path of the Whangaehu River on the North Island of New Zealand. The mudflow (or lahar) occurred in March 2007 when a crater lake on Mount Ruapehu overflowed.

Flooding in Brisbane CBD, 1974 – part 1 of 2
This film shows the some of the extent of the 1974 floods in Brisbane, caused by Cyclone Wanda. The devastating flood directly affected 35,000 people. Sixteen people died, more than 300 were injured and more than 8,000 were made homeless.

Record low water levels in Hume Reservoir, 2007
The photograph reveals the effect on the Hume Reservoir of severe drought in 2006–07, which dramatically reduced inflows from the catchment area and lowered the Reservoir's water level to below 17 per cent of its 3,038–GL capacity.

The Forerunner, 1957: Flood and drought
This clip portrays the effects on livestock and the landscape of drought, a prolonged, abnormally dry period with not enough water for normal needs. It also reveals the aftermath of floods that devastated Maitland, NSW, in February 1955.