

Year 4: The Environment Sustains Life

Aligned with the Australian National Curriculum



Section 1:
The Importance
Of The
Environment

Section 2:
Natural
Vegetation
And Climate

Section 3:
Sustainable
Management
Of Waste And
Natural
Resources



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Teachers' Notes

Year 4: The Environment Sustains Life is part of the *Australian Geography Series* which comprises nine books in total. This book has been written specifically for students in Year 4, who are living in Australia and studying Geography. The activity book is divided into three sections: *The Importance Of The Environment*; *Natural Vegetation And Climate*; and *Sustainable Management Of Waste And Natural Resources*. Each section is closely linked to the Australian National Curriculum.

The first section, *The Importance Of The Environment*, examines the relationship that Indigenous Australians have formed with the environment over time and the circumstances under which these relationships were formed. Students will also explore the distribution of Indigenous Australians before colonisation and how their ways of living were adapted to the resources of their Country and Place. Also included are activities which encourage students to recognise that places, for a variety of reasons, are significant to people and animals and should be preserved for future generations to enjoy.

The second section, *Natural Vegetation And Climate*, focuses on savannahs as a type of natural vegetation in Australia and South America and explores how climate affects this vegetation. The natural processes that shape the Earth's surface, in particular landforms and features in this section together with an exploration of how the daily weather is determined by air pressure systems and fronts. Students will extend their understanding of place by developing mapping skills.

The third section, *Sustainable Management Of Waste And Natural Resources*, investigates the management of waste through the exploration of reducing, reusing, recycling and replacing. Students will investigate glass and understand that it is made from raw materials produced by the environment.

Year 4: The Environment Sustains Life is a teacher-friendly resource for 9 to 10 year olds studying Geography. The topics developed for each section are well-supported by illustrations, graphic and photographic resources, which will help stimulate students' thinking about the way we live locally, nationally and globally. The strong research component built into tasks will invite students to dig deeper into geographical questions from their own and other people's points of view.

National Curriculum Links

Geographical Knowledge and Understanding

The location of the major countries of Africa and South America in relation to Australia, and their main characteristics, including the types of natural vegetation and native animals in at least two countries from both continents (ACHGK020)

- using geographical tools, for example, a globe, a wall map or digital application such as Google Earth, to identify the major countries of Africa and South America and their relative locations
- using a globe to investigate the Great Circle routes of aeroplane travel between Australia and the major countries of Africa and South America
- researching the main types of natural vegetation and native animals in a climate zone in Australia and comparing them with those found in a similar climate in Africa or South America

The types of natural vegetation and the significance of vegetation to the environment and to people (ACHGK021)

- identifying the main types of natural vegetation, including forest, savannah, grassland, woodland and desert, and explaining the relationship between climate and natural vegetation
- exploring how vegetation produces the oxygen all land animals (including people) breathe; protects land from erosion by water or wind; retains rainfall; provides habitat for animals; shelters crops and livestock; provides shade for people; cools urban places; produces medicines, wood and fibre; and can make places appear more attractive

The importance of environments to animals and people, and different views on how they can be protected (ACHGK022)

- explaining how people's connections with their environment can also be aesthetic, emotional and spiritual
- recognising that there are different perspectives on what constitutes environmental sustainability and considering the role of people in protecting the environments that provide habitats for animals and discussing ways of doing this
- exploring strategies to protect particular environments that provide the habitats for animals, for example, planting bird-attracting vegetation

The custodial responsibility Aboriginal and Torres Strait Islander Peoples have for Country/Place, and how this influences their past and present views about the use of resources (ACHGK023)

- recognising that the distribution of Aboriginal and Torres Strait Islander Peoples before colonisation was concentrated in the coastal and riverine areas of Australia
- investigating how Aboriginal and Torres Strait Islander Peoples' ways of living were adapted to the resources of their Country/Place, for example, the alpine country of the Ngarigo People; the rainforests, beaches and dunes of the KuKu Yalanji People; the desert country of the Arrernte People; the savannah country of the Jawoyn People; the riverine plains of the Wiradjuri People; and the local Country/Place
- investigating how knowledge and practices shared among Aboriginal and Torres Strait Islander Peoples are linked to sustainable use of resources and environments (rotational use and harvesting of resources, mutton bird harvesting in Tasmania, and the collection of bush food from semiarid rangelands)

The natural resources provided by the environment, and different views on how they could be used sustainably (ACHGK024)

- identifying some of the resources produced by the environment and where they come from, for example, water, food, and raw materials, fibres, timber and metals that make the things they use

The sustainable management of waste from production and consumption (ACHGK025)

- describing how natural processes can break down and recycle some wastes safely, for example, through composting or purifying water as it moves through the environment
- exploring different ways of managing wastes sustainably, and how these may include the principles of reduce, reuse, recycle and replace

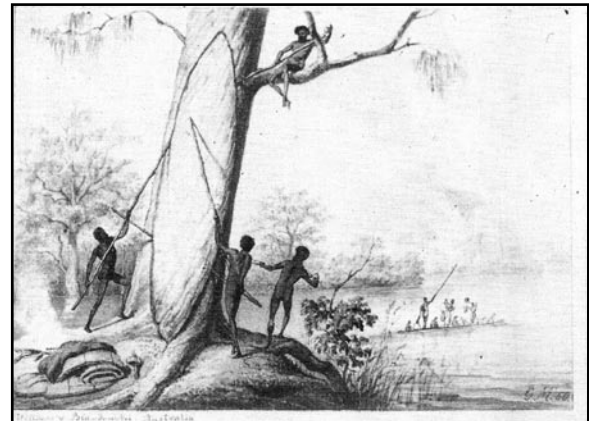
Distribution Of Indigenous Peoples

For forty thousand years before Europeans settled in Australia, Indigenous Australians lived in the lands near the Murray River. The river land provided people with the things that they needed to live: fish, water, birds and mammals for food, wood and reeds for making artefacts and kangaroo skins to keep warm.

This environment, rich in natural resources, has changed over time. Long gone are the megafauna like Diprotodon, the two-tonne giant wombat (see image below). Enormous inland lakes, such as Mungo, used to be located between the Murray and Darling Rivers, but they dried up to become a deserted, sandy landscape. The people who lived near the inland lakes were forced to move closer to the Murray River as the lakes began to dry up about 14,000 years ago. Their food sources gradually disappeared. The people's footprints though, can still be seen today preserved on a dry lake bed in the Willandra Lakes World Heritage area in New South Wales.



Wikimedia Commons



Gustav Mutzel (1839-1893) "Making a Bark Canoe at the bank of the Murray."

Wikimedia Commons

Life Along The Murray

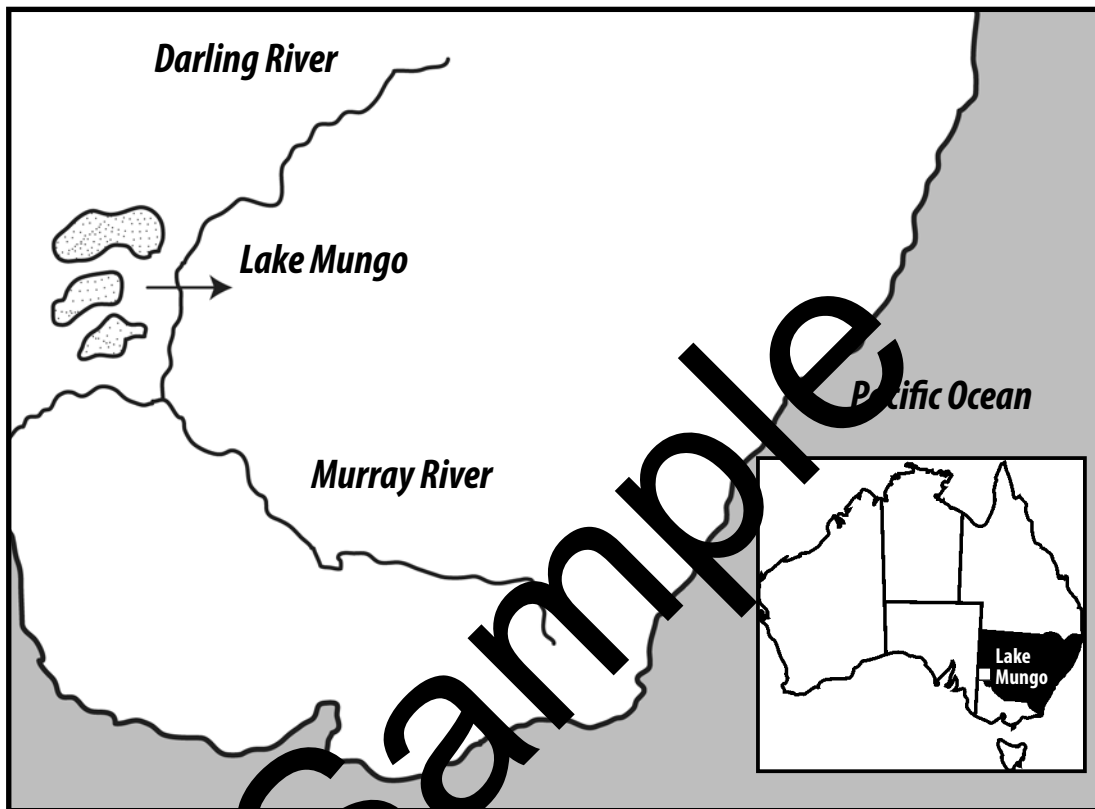
Indigenous Australians often camped on the sandy beaches of the Murray, where they would gather around a fire to enjoy a feast of mussels, oysters, crayfish and duck. In the channels and creeks near the river, people would build stone dams to trap fish and eels and after they had caught what they needed, the stones were removed so that the water could run once more. Hidden among the roots of the tall river red gums were juicy moth grubs. People also used the red gums to carve "bark canoes". A few of these trees still exist along the Murray today. Evidence from archaeological sites and stories from the early settlers tell us that the people from these river lands were tall and strong because of their nutritious diet. The arrival of Europeans, who cleared much of the river land for farms and grazing, would change the red gum landscape forever.

Activity

Indigenous Distribution 1

❑ The information on page 11 together with the map below will help you to complete the task and questions on this page.

1. Look at this map of the Willandra Lakes area as it would have been before the lakes dried up. Annotate the map with ideas from the information on page 11 and with your own pictures about how Indigenous Australians would have lived 20,000 years ago.



2. What importance did the red river gums play in the lives of Indigenous Australians living near the Murray River? Look at the image on page 11 to help you.

3. How did the arrival of European settlers change the way of life for Indigenous Australians in the river lands?

Indigenous Peoples And Resources

Over many generations, Indigenous Australians have been observing the cycles of life around them. They have knowledge of when trees flower, when birds migrate and when floods are likely to occur. This understanding of weather patterns in their country has helped them to survive. Their knowledge of the weather has been passed down to younger generations of Indigenous Australians through rock art, songs, Dreaming stories and sacred ceremonies. Indigenous Australians use symbols to represent different kinds of weather. Right are weather symbols drawn by some indigenous cultures across Central Australia.



rainbow



stormy weather



rain

How Indigenous Australians View The Seasons

When Europeans arrived in Australia, they divided the year into four seasons based on the tradition in their homelands. It was different, however, because summer, autumn, winter and spring occur in Australia at the opposite time to the seasons in the northern hemisphere.

Indigenous Australians described the seasons according to what the weather conditions were like and what was happening to the plants and animals in their territories.

Seasons were thought of differently by Indigenous Australians living in different areas of the continent. For example, the Bardi people of the Kimberley region of Western Australia divide the year up into six seasons. The Bardi take into account features such as:

- the direction of the prevailing wind;
- how heavy the rain is;
- the time trees flower;
- the time fruit ripens;
- how fat the animals are;
- how many animals are in the area.

These seasons tell the Bardi when and where to move, where to find food and resources, and when to return to *Country* to take care of it.

NORTHERN HEMISPHERE
SUMMER: June, July, August
AUTUMN: September, October, November
WINTER: December, January, February
SPRING: March, April, May

SOUTHERN HEMISPHERE
SUMMER: December, January, February
AUTUMN: March, April, May
WINTER: June, July, August
SPRING: September, October, November

Coral Reefs Are Important Places

Without a doubt, coral reefs are among the world's greatest treasures. Coral reefs teem with so much life. In fact, they are the most diverse ecosystems on the planet. Hidden beneath crystal tropical waters are hundreds of thousands of marine species that we know and many more we are yet to discover. Coral reefs need protecting because:

- they are the world's largest living organisms;
- they are the breeding grounds and nurseries of the world's fish stocks;
- they provide communities with food and a means of making a living;
- they are an important part of people's culture, history and heritage;
- coral reefs are an untapped source of medicines to treat diseases.

Coral Reefs Are At Risk

Coral reefs are threatened on many fronts. Pollution is a major risk. Chemicals used on farming land near

reefs can filter into the ocean and damage the coral. Oil tankers and ships running aground can empty millions of litres of oil and cause devastating, long-term effects. Global climate change is making the oceans warmer. This causes the water to become more acidic and the coral takes on a bleached look. Marine life moves away from the area and tourists are not attracted to reefs that have been damaged.

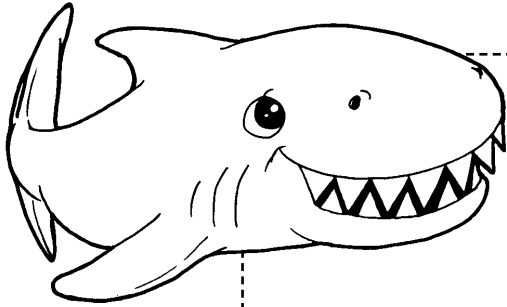
Protecting Coral Reefs

Volunteers are working in Australia and in Asian countries to donate their time to activities that will conserve the marine environment of coral reefs. Some of the projects include: making a census of marine life (for example, counting seahorse or sea turtle populations), cleaning up rubbish from reefs and beaches, teaching children about the importance of reefs and running programmes for local fisherman about how to fish in a sustainable way. Where a reef has been destroyed, volunteers may be asked to help to create a new one from sunken ships and concrete blocks.



- ☐ Read the information on page 20 to help you to complete the tasks and questions below.

1. Make a list of five good reasons why we should protect coral reefs.



Why We Should Protect Coral Reefs

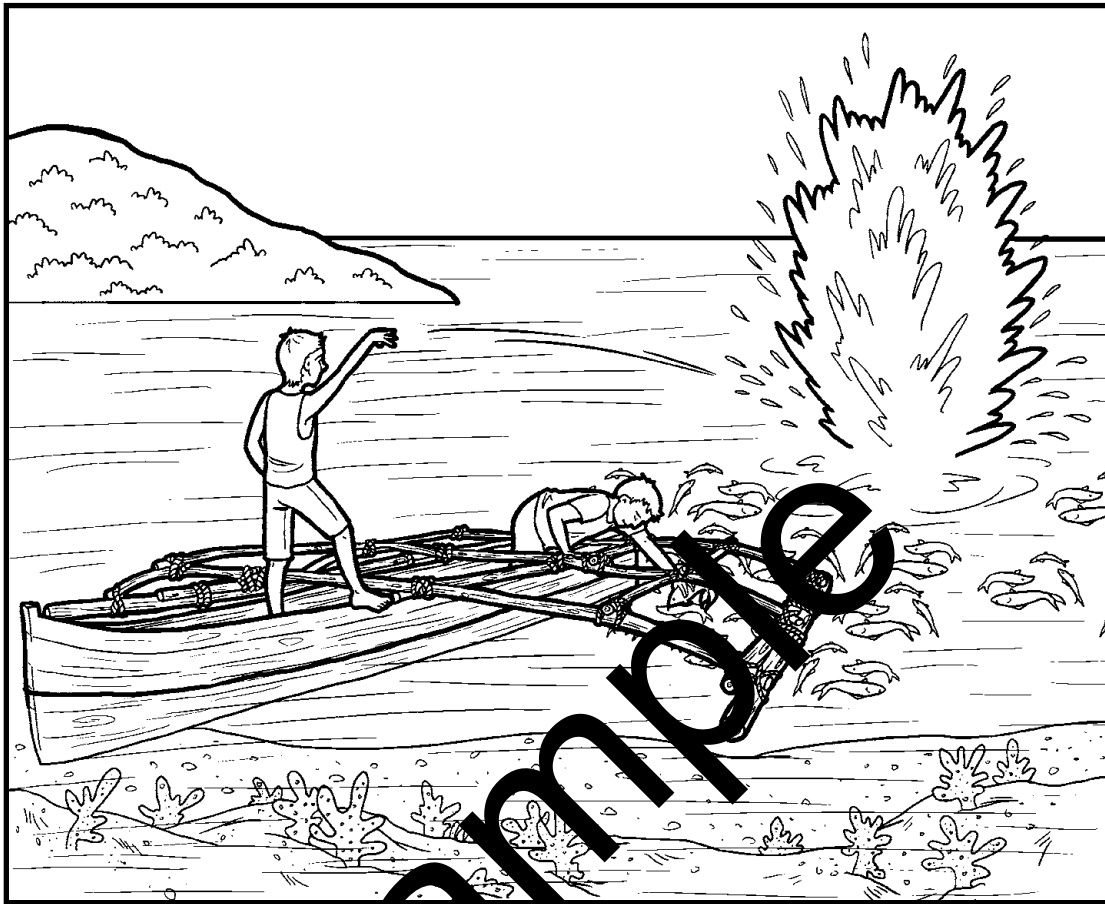


2. Why are coral reefs so attractive to tourists?

3. What threats do coral reefs face nowadays?

4. Would you like to volunteer to save a coral reef? What kind of activities would you choose to help out with?

- ☐ Look at the picture below that shows a fishing method using explosives that is used in several nations in Asia and the Pacific.



1. Why would fishermen find this an easy way of catching food for their families?

2. How could this fishing method lead to the destruction of coral reefs?

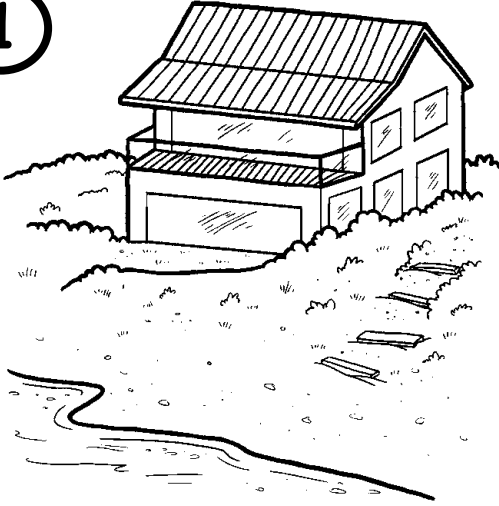
3. How would you try to convince this fisherman to stop using this method?

Activity

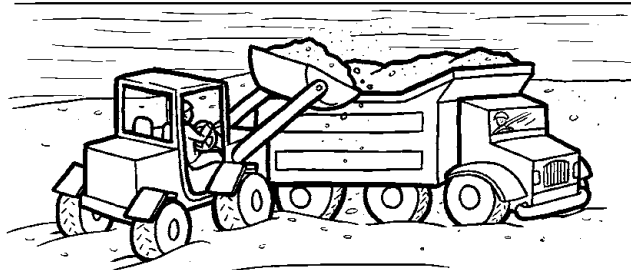
Protecting Sand Dunes 2

- ☐ Study the illustrations below which show possible threats to sand dunes. Briefly explain in the space underneath each illustration how sand dunes can be damaged or destroyed in certain situations.

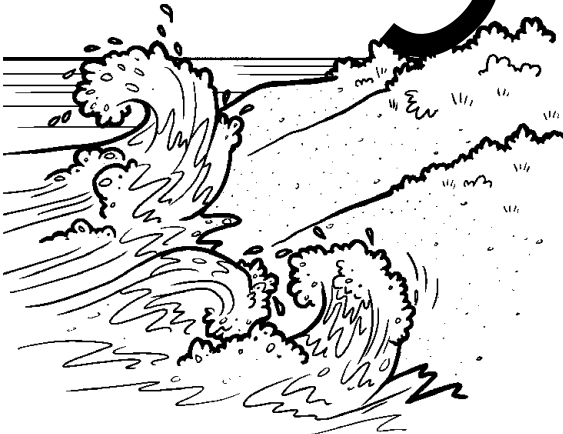
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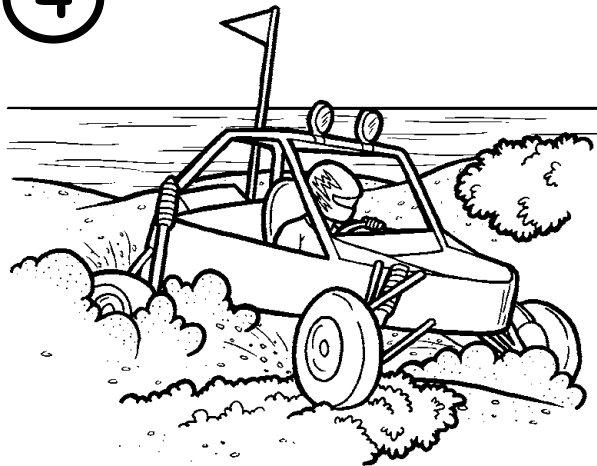
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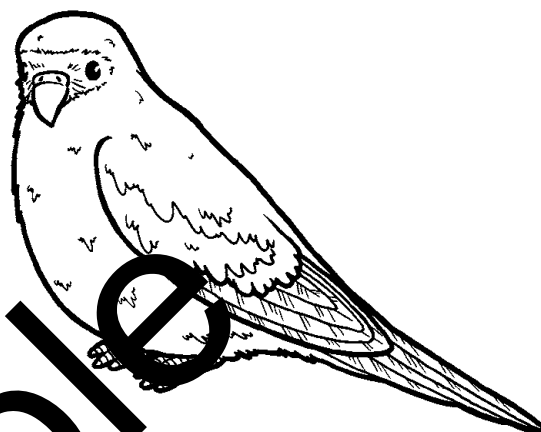


- ☐ Read about a special sand dune dweller – the rock parrot. Fill in the gaps below using the bolded words listed. Use each word once.

seaweed foraging birdwatchers sandy perch disturbing

THE ROCK PARROT

The plump little rock parrot lives in the (1) _____ coastal dunes in south and west Australia. It is rarely found more than a few hundred metres from the sea. The parrot loves to pick among the (2) _____ washed up on the beach for food, and nestle in the vegetation that grows on the dunes.



Unlike other Australian parrots, it does not (3) _____ in trees, but scurries along the ground. It has been found sheltering from bad weather under rocks. It also lives in small groups and not in large flocks.

Rock parrots can be seen (4) _____ for food around sand dunes in the early morning and again at dusk. Seeds, fruit and grasses make up their main diet.

(5) _____ think this parrot is a wonderful subject to capture on film because it is quite tame and doesn't fly off in alarm.

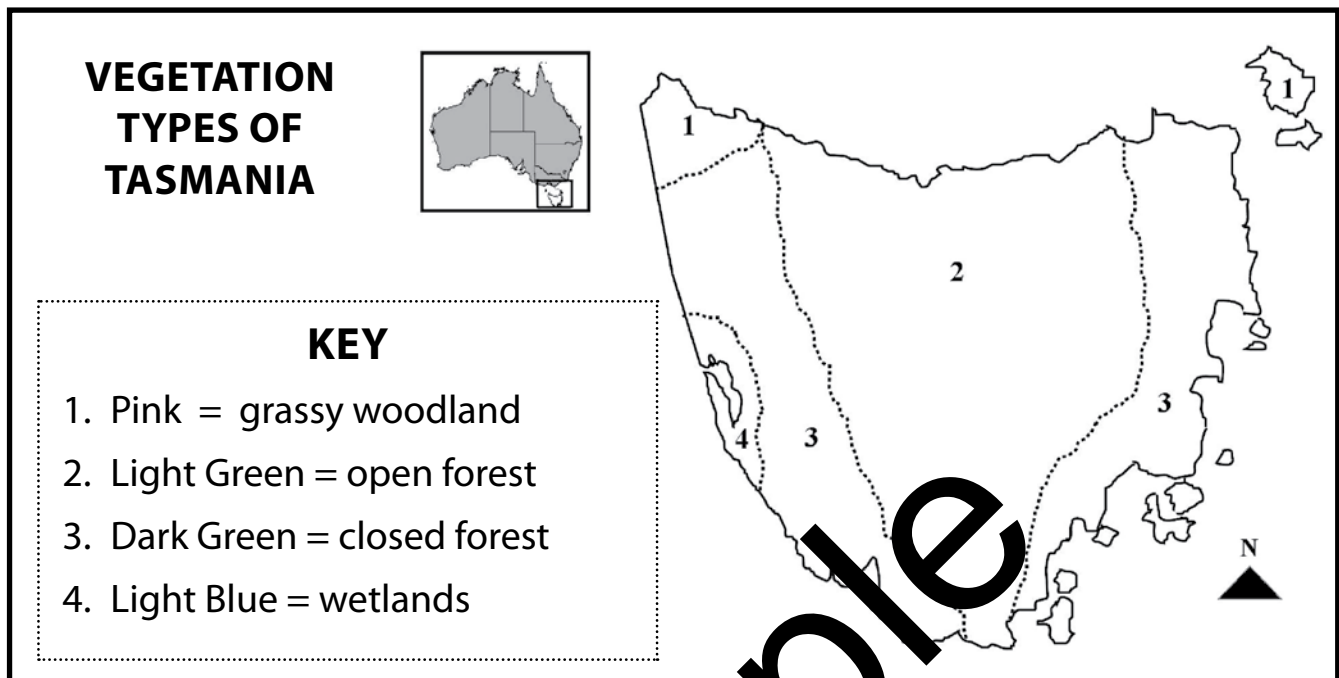
In South Australia, the number of rock parrots is decreasing. Housing and tourist developments near beaches are (6) _____ the bird's habitat. In Western Australia, rock parrot populations are not in danger.

Visit this website to see what the rock parrot looks like so that you can colour in the parrot: ► www.birdlife.org.au/bird-profile/rock-parrot

Activity

Types Of Vegetation

1. Use the key to colour in the main types of vegetation found in the state of Tasmania.



2. Draw a line to connect the type of vegetation with its description.

1 grassy woodland	a all eucalyptus trees growing closely together
2 open forest	b mostly grasses, ferns, mosses and rushes
3 closed forest	c trees with grass and herbs growing underneath
4 wetlands	d small trees and shrubs spaced apart

3. What is the major type of vegetation found in Tasmania?

4. What types of animals and plants would live in Tasmania's wetlands?

5. How is the vegetation map the same as, or different to, the other maps that you have studied?

SAME: _____

DIFFERENT: _____