Stage 4

Regenerating Landscapes for a Healthy Future

Exploring Australia's Plant Ecosystems



Duration est. 11 hours

Tamworth Regional LANDCARE ASSOCIATION

Stage 4

Regenerating Landscapes for a Healthy Future

Australia is home to some of the most unique and biologically diverse plant ecosystems in the world. From alpine forests and coastal heathlands to tropical rainforests, arid shrublands and endangered Grassy Box Woodlands, each ecosystem supports an extraordinary diversity of plants, animals and microorganisms that interact in complex and fascinating ways.

This unit provides students with opportunities to investigate Australia's plant ecosystems through scientific inquiry, field investigations and hands-on learning experiences. Students explore the relationships between living and non-living components of ecosystems, examine the importance of biodiversity, and investigate how nutrient, water and energy cycles sustain healthy environments.

Throughout the unit, students develop an understanding of ecological relationships, adaptations and habitat requirements while investigating the environmental challenges facing Australia's native ecosystems. A particular focus is placed on Grassy Box Woodlands, one of Australia's most endangered ecological communities, providing students with opportunities to examine the causes of habitat loss and the importance of conservation and restoration.

Building on this ecological knowledge, students explore the principles of regenerative agriculture and investigate how land management practices can improve soil health, increase biodiversity, restore ecosystem function and support sustainable food production. Students apply their understanding by designing resilient landscapes that balance agricultural productivity with environmental stewardship.

The unit concludes by encouraging students to recognise their role as environmental stewards and to investigate how individuals, schools, communities and landholders can work together to protect and restore Australia's natural landscapes for future generations.
Through observation, collaboration, scientific investigation and critical thinking, students develop a deeper appreciation of Australia's natural environment while gaining the knowledge and skills needed to contribute positively to healthy, resilient landscapes.

Lesson 1: Exploring Australia's Plant Ecosystems	Duration: 70 min
Lesson 2: Living and Non-Living Connections	Duration: 60 min
Lesson 3: The Cycles of Life	Duration: 75 min
Lesson 4: Homes for Wildlife	Duration: 70 min
Lesson 5: Nature's Survival Strategies	Duration: 70 min
Lesson 6: Life Working Together	Duration: 75 min
Lesson 7: Protecting Grassy Box Woodlands	Duration: 70 min
Lesson 8: Regenerative Agriculture: Restoring Landscapes	Duration: 90 min
Lesson 9: Becoming Landscape Stewards	Duration: 70 min

Unit Materials

- Field journals
- Clipboards
- Pencils and coloured pencils
- Plant identification guides
- Local flora and fauna field guides
- Quadrat frames
- Measuring tapes
- Magnifying glasses
- Buckets and trays
- Soil sampling equipment
- Thermometers
- Historical and current vegetation maps
- Regenerative Agriculture Principles Poster
- How to Build a Regenerative Farm Activity Poster
- Plant Species Cards
- Habitat Feature Cards
- Food Web Cards
- Adaptation Cards
- Grassy Box Woodland Species Identification Cards
- Soil Health Assessment Sheets
- Worm Observation Jar
- Large poster paper
- Sticky notes
- Digital camera or tablet (optional)
- Native seed samples (optional)



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Stage 4: Overview

Curriculum Outcomes

NESA Science
SC4-WS-01
Uses scientific tools and instruments to make and record observations.
SC4-WS-02
Poses questions and makes predictions for scientific investigations.
SC4-WS-06
Analyses data and information to draw evidence-based conclusions and communicate scientific understanding.
SC4-LIV-01
Explains how living things interact with each other and with their environment to sustain ecosystems.
SC4-ENV-01
Investigates factors that affect ecosystem health and evaluates actions that support environmental sustainability and biodiversity.

NESA Geography
GE4-1
Locates and describes the diverse features and characteristics of places and environments.
GE4-2
Describes processes and influences that form and transform places and environments.
GE4-3
Explains how interactions and connections between people, places and environments result in change.
GE4-5
Examines strategies for sustainable environmental management.
GE4-7
Acquires and communicates geographical information using geographical tools for inquiry.
Australian Curriculum Outcomes

Science
AC9S7U01
Classify and describe the diversity of living things and explain how they can be grouped based on shared characteristics.
AC9S7U02
Investigate interactions between organisms and their environments, including the effects of environmental change on ecosystem stability.
AC9S7I03
Plan and conduct investigations, analyse evidence and communicate scientific explanations using appropriate scientific language.

Humanities and Social Sciences (Geography)
AC9HG7K01
Describe the characteristics of environments and explain the processes that influence their formation and change.
AC9HG7K02
Explain how people influence the environmental characteristics of places and propose actions that contribute to sustainable management.
AC9HG7S03
Collect, interpret and communicate geographical information using maps, fieldwork and other geographical tools.

Key Inquiry Questions

What makes Australia's plant ecosystems unique?

- How do living and non-living components interact within ecosystems?
- Why is biodiversity important?
- How do nutrient, water and energy cycles support life?
- How do plants and animals adapt to different environments?
- Why are ecological relationships essential for healthy ecosystems?
- Why are Grassy Box Woodlands important?
- How can regenerative agriculture restore healthy landscapes?
- What role can individuals and communities play in protecting Australia's natural environments?

Key Concepts

Throughout this unit students investigate:

Australian Plant Ecosystems
- Biodiversity
- Biotic and Abiotic Factors
- Habitat
- Ecological Relationships
- Adaptations
- Water Cycle
- Nutrient Cycle
- Energy Flow
- Food Webs
- Soil Health
- Pollination
- Seed Dispersal
- Mycorrhizal Fungi
- Habitat Fragmentation
- Conservation
- Restoration
- Regenerative Agriculture
- Environmental Stewardship
- Caring for Country

Cultural disclaimer: The guided visualisation by Nell Chaffey, Stage 4, and aspects of stage 1, 2 and 3 Aboriginal Perspective has not been developed by an Aboriginal person. In recognition of the importance of respecting Elders, cultural knowledge and local cultural authority, we acknowledge that the visualisation has not been reviewed or endorsed by a Gamilaroi Elder or knowledge holder. It is not intended to represent or speak on behalf of Gamilaroi cultural knowledge, language, perspectives or practices.



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Stage 4: Overview

Curriculum Alignment

New South Wales Science
This unit supports Stage 4 Science by engaging students in scientific inquiry and practical investigations that develop their understanding of ecosystems, biodiversity and environmental sustainability.

Students investigate:
- The interactions between living and non-living components of ecosystems
- The importance of biodiversity in maintaining healthy ecosystems
- Adaptations that enable plants and animals to survive in different environments
- Ecological relationships including pollination, competition, predation and symbiosis
- Nutrient, water and energy cycles
- Human impacts on ecosystems
- Strategies used to protect and restore Australia's natural environments.

Students develop scientific inquiry skills by:
- Posing questions
- Planning investigations
- Collecting and recording data
- Analysing observations
- Communicating scientific ideas
- Applying scientific knowledge to real-world environmental challenges.

New South Wales Geography
This unit complements Stage 4 Geography by exploring Australian environments, landscapes and sustainable land management.

Students investigate:
- The characteristics of Australian environments
- Environmental change
- Human impacts on landscapes
- Sustainable environmental management
- Geographical inquiry through authentic fieldwork.

Students develop skills in:
- Observation
- Mapping
- Recording field data
- Interpreting evidence
- Evaluating environmental issues
- Proposing sustainable management strategies.

Australian Curriculum
This unit supports learning across the Australian Curriculum by integrating science, geography and sustainability through inquiry-based learning experiences.

Cross-Curriculum Priorities
- Sustainability
- Aboriginal and Torres Strait Islander Histories and Cultures

General Capabilities
- Critical and Creative Thinking
- Ethical Understanding
- Personal and Social Capability
- Literacy
- Numeracy
- ICT Capability

Local Species (North West NSW)

Trees: White Box, Yellow Box, Blakely's Red Gum, Cypress Pine

Groundcover: Kangaroo Grass, Wallaby Grass, native herbs and wildflowers

Animals: Echidna, Sugar Glider, Eastern Grey Kangaroo, Microbats

Birds: Kookaburra, Superb Fairy-wren, Galah, Wedge-tailed Eagle

Invertebrates: Earthworms, ants, beetles, fungi



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Lesson 1

Exploring Australia's Plant Ecosystems



Lesson Overview
Australia supports an extraordinary diversity of plant ecosystems, each shaped by climate, soils, landforms and natural processes. These ecosystems provide habitat for an incredible variety of plants and animals while supporting essential ecological functions that sustain life.

In this lesson, students investigate the characteristics of Australia's major plant ecosystems and develop an understanding of how environmental conditions influence the plants and animals that live within them. Through field observations and inquiry-based investigations, students begin to recognise the interconnected nature of ecosystems and appreciate the importance of biodiversity.

Learning Intentions

Students will:
- Identify Australia's major plant ecosystems
- Investigate the characteristics of different ecosystems
- Recognise the interactions between living and non-living components
- Understand the importance of biodiversity
- Develop observation and field investigation skills.

Materials Required

- Field journals
- Clipboards
- Plant identification guides
- Magnifying glasses
- Coloured pencils
- Local vegetation maps
- Digital camera or tablet (optional)

Teacher Preparation

Select a suitable outdoor learning area, local reserve, school grounds or Grassy Box Woodland site where students can safely observe vegetation and habitat features. Prepare field journals and identification guides before the lesson and discuss expectations for working safely and respectfully outdoors.

Aboriginal Perspective

Language: Winanga-y - Understand / know

Kamilaroi/Gomeroi Perspective
For Aboriginal peoples, plants, animals, water and land are all interconnected as part of Country. Caring for Country involves understanding seasonal changes, respecting biodiversity and maintaining healthy relationships with the natural environment.

Discuss how Traditional Ecological Knowledge has supported healthy Australian landscapes for thousands of years and continues to inform environmental management today.

Discussion / Yarning Circle: Choose one Australian ecosystem and discuss the relationships between its plants, animals, water, soils and seasons. How might careful observation over time help people understand when that Country is healthy or changing?

Contributed by: TRLA

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Lesson 1

Exploring Australia's Plant Ecosystems

Introduction
Begin the lesson by asking students: "What makes Australia's plant ecosystems unique?"
Invite students to brainstorm the different environments found across Australia. Record responses and discuss how climate, rainfall, soils and landforms influence the plants and animals that live in each ecosystem. Introduce the term ecosystem and explain that an ecosystem is made up of living organisms interacting with one another and with their physical environment.

Teaching and Learning

Activity 1
Exploring Australian Plant Ecosystems

Display photographs or maps of Australia's major plant ecosystems, including:
- Tropical Rainforest
- Eucalypt Forest
- Grassy Box Woodland
- Grasslands
- Coastal Heath
- Arid Shrublands
- Alpine Regions

Working in small groups, students discuss the characteristics of each ecosystem and identify how they differ.
Encourage students to consider:
- Rainfall
- Climate
- Soil type
- Vegetation
- Wildlife
- Human influences.

Class groups share their observations.

Activity 2
Field Investigation

Visit a local natural area or the school grounds. Students observe and record:
- Dominant plant species
- Canopy layer
- Understorey vegetation
- Groundcover
- Evidence of wildlife
- Living components
- Non-living components

Students sketch the site in their field journals and label significant features.
Encourage students to record questions that arise during their observations.

Activity 3
Ecosystem Connections

Working in pairs, students identify examples of interactions between living and non-living components.

Examples may include:
- Plants growing in different soil types
- Insects pollinating flowers
- Birds nesting in trees
- Fallen logs providing habitat
- Leaf litter protecting the soil

Discuss how every organism plays an important role within the ecosystem.

Assessment

Students demonstrate their learning by:
- Identifying features of Australian plant ecosystems
- Recording field observations
- Participating in class discussions
- Completing field journal entries
- Explaining relationships between living and non-living components.

Reflection

What do I already know about Grassy-Box Woodlands (in our local ecosystem).
Students complete the statement:
"One thing that surprised me about Australia's plant ecosystems was..."
Discuss how even small changes to one part of an ecosystem can influence many other living things.

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Lesson 2

Living and Non-Living Connections



Lesson Overview
Every ecosystem is made up of living (biotic) and non-living (abiotic) components that interact to create healthy, functioning environments. Plants, animals, fungi and microorganisms depend upon sunlight, water, air, soil and climate for survival, while changes to one part of an ecosystem can influence many others.
In this lesson, students investigate the relationships between biotic and abiotic factors through field observations and practical investigations. Students begin to understand that healthy ecosystems rely on the balance and interaction of many interconnected components.

Learning Intentions

Students will:
- Distinguish between biotic and abiotic components of ecosystems
- Investigate how living and non-living factors interact
- Observe ecosystem relationships through field investigations
- Rcognise how environmental changes affect ecosystem health
- Develop scientific observation and recording skills.

Materials Required

- Field journals
- Clipboards
- Thermometers
- Magnifying glasses
- Quadrat frames
- Soil sampling equipment
- Habitat recording sheets
- Coloured pencils

Teacher Preparation

Select an outdoor learning area where students can observe a range of living and non-living features. Prepare field journals and equipment prior to the lesson.

Aboriginal Perspective

Language: Burranba-li - Cause a change

Kamilaroi/Gomeroi Perspective
Aboriginal peoples recognise that all living and non-living elements of Country are connected. Water, soils, plants, animals and people each have an important role in maintaining healthy landscapes.

Discuss how careful observation of seasonal changes has guided land management for thousands of years.

Discussion / Yarning Circle: Think about one place you know well. What living and non-living elements are connected there? If one element changed - such as water availability, soil condition or vegetation - what flow-on effects might occur across the rest of the ecosystem?

Contributed by: TRLA

Assessment

Students demonstrate their learning by:
- Identifying biotic and abiotic factors
- Recording accurate field observations
- Explaining ecosystem interactions
- Contributing to class discussions
- Completing field journal reflections.

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Lesson 2

Living and Non-Living Connections

Introduction
Begin by asking students: "Can living things survive without the non-living parts of an ecosystem?"
Encourage discussion before introducing the terms biotic and abiotic.
Explain that:
Biotic factors are all living organisms within an ecosystem.
Abiotic factors are the non-living parts of an ecosystem, including sunlight, water, air, temperature and rocks.
Discuss how both are essential for maintaining healthy ecosystems.

Teaching and Learning

Activity 1
Biotic or Abiotic?

Working in small groups, students sort photographs or natural objects into two categories:
Biotic
Examples may include:
- Grasses
- Trees
- Insects
- Fungi
- Birds
- Worms
- Mosses

Abiotic
Examples may include:
- Sunlight
- Rocks
- Soil
- Water
- Temperature
- Rainfall
- Wind.

Discuss why each item belongs in its category.

Activity 2
Ecosystem Investigation

Students visit the selected field site.
Using quadrats or observation areas, students identify and record:
Biotic observations
- Plant species
- Insects
- Birds
- Fungi
- Evidence of mammals
- Leaf litter organisms

Abiotic observations
- Soil type
- Moisture
- Sunlight
- Temperature
- Slope
- Rocks
- Wind exposure.

Students sketch their investigation site and record observations in their field journals.

Activity 3
Making Connections

Students select one living organism they observed.
Working in pairs, students identify all the non-living components that organism depends upon.
For example:
A eucalypt tree requires:
- Sunlight
- Water
- Nutrients
- Air
- Soil

Students then identify other living organisms that depend on the eucalypt tree.
Examples may include:
- Birds
- Insects
- Mammals
- Fungi
- Microorganisms.

Discuss how one organism supports many others.

Activity 4
What Happens if Something Changes?

Present students with different scenarios.
For example:
- Prolonged drought
- Removal of fallen timber
- Introduction of weeds
- Clearing native vegetation
- Bushfire
- Flooding.

Working in groups, students discuss how each change may affect both living and non-living components of the ecosystem.
Groups present their ideas to the class.

Reflection

Students complete the sentence: "One important connection I discovered today was..."

Discuss why understanding these relationships is important for protecting ecosystems.

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Lesson 3

The Cycles of Life



Lesson Overview
Healthy ecosystems rely on the continuous movement of water, nutrients and energy. These natural cycles support plant growth, recycle essential nutrients and sustain all living organisms.
In this lesson, students investigate the water cycle, nutrient cycle and energy flow within ecosystems. Through practical investigations, students explore how decomposers, soil organisms and healthy soils play a vital role in maintaining ecosystem function.

Learning Intentions

Students will:
- Investigate the water, nutrient and energy cycles
- Recognise the importance of decomposers in ecosystems
- Explore the role of healthy soils
- Investigate how nutrients are recycled
- Understand how energy flows through ecosystems.

Materials Required

- Field journals
- Clipboards
- Clear jars
- Soil samples
- Leaf litter
- Magnifying glasses
- Worm observation jar
- Water spray bottle
- Decomposition samples

Teacher Preparation

Prepare soil samples containing leaf litter and organic matter.

Set up the worm observation jar and collect examples of decomposing material for students to investigate.

Aboriginal Perspective

Language: Gali - Water

Kamilaroi/Gomeroi Perspective
For Aboriginal peoples, healthy Country depends upon healthy soils, clean water and thriving ecosystems. Observing seasonal changes and understanding natural cycles has guided sustainable land management for countless generations.

Discussion / Yarning Circle: Consider the natural cycles you have investigated. How might observing changes in water, soil, plants, animals and seasons over many years build knowledge about Country? Why is long-term observation important when caring for landscapes?

Contributed by: TRLA

Reflection

Students complete the sentence:
"Healthy soil is important because..."
Discuss how nutrient cycling supports every living organism in an ecosystem.

Assessment

Students demonstrate their learning by:
- Explaining nutrient cycling
- Investigating soil organisms
- Recording observations
- Describing the role of decomposers
- Participating in practical investigations.

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Lesson 3

The Cycles of Life

Introduction
Ask students: "What happens to a fallen leaf after it lands on the ground?"
Allow students to share ideas before introducing the concept of nutrient cycling.
Explain that nothing in nature is wasted. Dead plants and animals are broken down by decomposers, returning nutrients to the soil where they can be reused by new plants.

Teaching and Learning

Activity 1
Following a Leaf

Students investigate the journey of a fallen leaf.
Discuss:
- Decomposition
- Fungi
- Bacteria
- Worms
- Insects
- Microorganisms.

Students create a flow diagram showing how nutrients move from leaf litter back into living plants.

Activity 2
Investigating Healthy Soil

Students examine soil samples using magnifying glasses.
Observe:
- Roots
- Fungi
- Insects
- Worms
- Organic matter
- Moisture.

Discuss what these observations reveal about soil health.

Explain that healthy soil is a living ecosystem containing billions of organisms.

Activity 3
Worm Investigations

Using the classroom worm observation jar, students investigate:
- How worms move
- How worms improve soil
- How organic matter changes over time
- How tunnels improve water infiltration

Students record observations in their field journals.

Discuss why worms are often called "nature's recyclers."

Activity 4
Water in the Landscape

Students investigate how vegetation influences water movement.
Using trays of bare soil and vegetated soil, pour equal amounts of water over each.



Observe differences in:
- Runoff
- Infiltration
- Erosion
- Water retention

Discuss why vegetation is important for healthy landscapes.

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Lesson 4

Homes for Wildlife



Lesson Overview
Every living organism requires a suitable habitat to survive. Habitats provide the food, water, shelter and space that plants and animals need to grow, reproduce and thrive. Healthy ecosystems contain a variety of habitats that support an incredible diversity of life, from insects living beneath fallen logs to birds nesting in the canopy of mature trees.

In this lesson, students investigate the different habitat layers within Australian plant ecosystems and explore how habitat diversity supports biodiversity. Through field investigations, students identify habitat features, examine the needs of different species and recognise the importance of protecting habitat for the survival of native plants and animals.

Learning Intentions

Students will:
- Identify the features of a healthy habitat
- Investigate the habitat layers within Australian plant ecosystems
- Explore how different species depend on specific habitats
- Recognise the relationship between habitat diversity and biodiversity
- Develop field observation skills through habitat investigations.

Materials Required

- Field journals
- Clipboards
- Habitat Assessment Sheets
- Plant identification guides
- Magnifying glasses
- Coloured pencils
- Measuring tapes
- Digital camera or tablet (optional)
- Examples of Biota in a Grassy
- Box Woodlands Worksheet

Teacher Preparation

Select an outdoor learning area where students can investigate a variety of habitat features. This may include a local reserve, Grassy Box Woodland, creek line or the school grounds.

Prepare habitat recording sheets and discuss safe and respectful behaviour when observing wildlife and natural environments.

Teacher Notes

Encourage students to look beyond the obvious. A healthy habitat is more than just trees it includes native grasses, shrubs, fallen timber, leaf litter, fungi and healthy soils. Many of Australia's smallest organisms depend on these often -overlooked habitat features, highlighting the importance of protecting entire ecosystems rather than individual species alone.

Aboriginal Perspective

Language: Walaay - Camp / home

Kamilaroi/Gomeroi Perspective
For Aboriginal peoples, every plant and animal has an important place within Country. Caring for habitat ensures that ecosystems remain healthy and continue to support the many interconnected relationships between plants, animals, water and people.
Discuss how Traditional Ecological Knowledge recognises the importance of protecting habitat to maintain biodiversity and healthy Country.

Discussion / Yarning Circle: Choose one habitat feature - such as a hollow-bearing tree, fallen log, native grass, water source or leaf litter. Discuss the different living things that depend upon it. What might happen to the wider ecosystem if that habitat feature disappeared?

Contributed by: TRLA

Assessment

Students demonstrate their learning by:
- Identifying habitat layers
- Recording habitat observations
- Explaining the needs of different species
- Participating in class discussions
- Completing field journal reflections.

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Lesson 4

Homes for Wildlife

Introduction
Begin the lesson by asking students: "What makes a good home for a native animal?"
Invite students to brainstorm the basic needs of living things.
Guide the discussion towards the four essential habitat requirements: Food - Water - Shelter - Space
Explain that different species require different habitat features and that healthy ecosystems provide a wide variety of habitats.

Teaching and Learning

Activity 1
Exploring Habitat Layers

Introduce the different vegetation layers commonly found within Australian plant ecosystems.
Discuss:
Canopy
Upper and mid-storey trees that provide nesting sites, shade and food for many birds, mammals and insects.
Understorey
Ground cover, shrubs and small trees that provide shelter and food for a variety of wildlife.
Ground Layer
Native grasses, wildflowers and herbs that support insects, reptiles and small mammals.
Leaf Litter
Fallen leaves, bark, rocks, fallen timber and organic matter that provide habitat for decomposers, insects, fungi and microorganisms while protecting the soil.
Above Ground Biota
Living things found above the soil surface, including trees, shrubs, grasses, wildflowers, mammals, birds, reptiles, insects and other invertebrates.
Underground Biota
Living things found in and below the soil, including earthworms, fungi, bacteria, protozoa, insect larvae, mites, springtails and nematodes.
These organisms help decompose organic matter, cycle nutrients, build healthy soil and support plant growth.

Working in small groups, students identify examples of each habitat layer within the investigation site.

Activity 2
Habitat Detectives

Students investigate the study area looking for evidence of wildlife habitat.
Record observations including:
- Tree hollows
- Fallen timber
- Native grasses
- Flowering plants
- Bird nests
- Animal scats
- Insect activity
- Spider webs
- Fungi
- Leaf litter
- Rocks.

Students record how each feature provides habitat for living organisms.
Encourage careful observation without disturbing wildlife.

Activity 3
Who Lives Here?

Provide students with a selection of native Australian species.
Examples may include:
- Superb Fairy-wren
- Eastern Rosella
- Sugar Glider
- Echidna
- Blue-tongue Lizard
- Native Bee
- Butterfly
- Huntsman Spider.
- Grey-flying fox (vulnerable species)

Working in pairs, students investigate:
- Where does the animal live?
- What does it eat?
- Which habitat features does it depend upon?
- What might happen if its habitat disappeared?

Students present their findings to the class.

Activity 4
Habitat Under Threat

Discuss the importance of habitat protection.
Present students with several scenarios, such as:
- Removal of hollow-bearing trees
- Clearing native vegetation
- Overgrazing
- Weed invasion
- Frequent disturbance
- Urban development.
- For a positive makeover and reputation

Working in groups, students discuss how each scenario may affect local wildlife.

Encourage students to consider both immediate and long-term impacts on biodiversity.

Reflection

Students complete the sentence:
"One habitat feature I now realise is important is..."
Invite students to explain why protecting habitat is essential for maintaining healthy ecosystems.

Lesson Wrap-Up
Conclude the lesson by asking: "Why is protecting habitat just as important as protecting wildlife?"

Guide students to recognise that without healthy habitats, native species cannot survive. Explain that the next lesson will investigate the remarkable adaptations that enable plants and animals to survive in Australia's diverse and often challenging environments.

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Lesson 5

Nature's Survival Strategies



Lesson Overview
Australia's plants and animals have developed remarkable adaptations that enable them to survive in some of the world's most challenging environments. From deep root systems and thick bark to camouflage, nocturnal behaviour and specialised feeding habits, these adaptations help organisms respond to changing environmental conditions.

In this lesson, students investigate the structural, behavioural and physiological adaptations of Australian plants and animals. Through field investigations and collaborative activities, students explore how adaptations improve survival and contribute to the resilience of ecosystems.

Learning Intentions

Students will:
- Identify structural, behavioural and physiological adaptations
- Investigate how adaptations improve survival
- Explore the relationship between adaptations and environmental conditions
- Recognise that adaptations develop over many generations in response to environmental pressures
- Investigate adaptations through field observations and scientific inquiry.

Materials Required

- Field journals
- Clipboards
- Plant identification guides
- Magnifying glasses
- Species identification cards
- Coloured pencils
- Adaptation recording sheets
- Digital camera or tablet (optional)

Teacher Preparation

Select an outdoor learning area where students can observe a variety of native plants and evidence of wildlife.
Prepare adaptation cards featuring a range of Australian plant and animal species.

Teacher Notes

Encourage students to think beyond obvious adaptations. Many important adaptations occur below the ground or inside living organisms. Deep root systems, relationships with soil fungi, water conservation and interactions with pollinators all contribute to the survival of Australian plants.

Where possible, use local species during field investigations so students develop a stronger connection to the ecosystems in their own region.

Aboriginal Perspective

Language: Bamba ngarrili - Watch carefully

Kamilaroi/Gomeroi Perspective
For Aboriginal peoples, careful observation of plants and animals has provided knowledge about seasonal changes, weather patterns and the availability of food and resources for thousands of years.

Understanding how species respond to environmental conditions remains an important part of caring for Country and maintaining healthy ecosystems.

Discussion / Yarning Circle: Share an example of a seasonal change, plant response or animal behaviour that could provide information about environmental conditions. How can close observation of these signs help people understand and care for Country?

Contributed by: TRLA

Assessment

Students demonstrate their learning by:
- Identifying different types of adaptations
- Recording field observations
- Explaining how adaptations improve survival
- Participating in group discussions
- Completing field journal reflections.

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Lesson 5

Nature's Survival Strategies

Introduction

Begin the lesson by asking students: "Why don't all plants and animals look or behave the same?"

Encourage students to share examples of unusual Australian plants and animals.

Introduce the term adaptation and explain that adaptations are characteristics or behaviours that improve an organism's ability to survive and reproduce in its environment. Discuss the three main types of adaptations.

Structural adaptations are physical features, such as thick bark, waxy leaves or sharp claws.

Behavioural adaptations are actions or behaviours, such as nocturnal activity, migration or burrowing.

Physiological adaptations are internal processes, such as conserving water or tolerating extreme temperatures.

Teaching and Learning

Activity 1
Adaptation Detectives

Students investigate the local environment looking for examples of adaptations.

Encourage students to observe:

- Leaf size and shape
- Bark texture
- Seed structures
- Root systems (where visible)
- Flower characteristics
- Evidence of animal shelters
- Feeding adaptations

Students sketch or photograph examples and record how each adaptation may assist survival.

Activity 2
Matching Adaptations

Working in small groups, students use species cards to investigate a variety of Australian organisms.

Examples may include:

Plants

- Grey Box
- Yellow Box
- River Red Gum
- Kangaroo Grass
- Wattle
- Native Saltbush

Animals

- Echidna
- Sugar Glider
- Koala
- Wedge-Tailed Eagle
- Eastern Grey Kangaroo
- Blue-Tongue Lizard
- Grey-Headed Flying Fox

Students identify:

- The organism's habitat
- Its adaptations
- How those adaptations improve survival
- The environmental challenges it faces.

Groups share their findings with the class.

Activity 3
Adapting to Australia's Climate

Discuss the environmental conditions found across Australia, including:

- Drought
- Bushfire
- Flooding
- Extreme heat
- Nutrient-poor soils

Ask students:
"How have Australian plants adapted to survive these conditions?"

Investigate examples such as:

- Lignotubers
- Epicormic growth
- Thick bark
- Small leaves
- Waxy leaf coatings
- Deep root systems
- Seed dormancy

Discuss how these adaptations improve resilience.

Activity 4
Survival Challenge

Present students with different environmental scenarios.

Examples include:

- An extended drought
- A bushfire
- Prolonged flooding
- The arrival of an introduced predator
- Habitat loss

Working in groups, students select one Australian species and explain how its adaptations may help or limit its ability to survive under these changing conditions.

Groups present their ideas, using scientific evidence to support their explanations.

Reflection

Students complete the statement: "The adaptation I found most interesting was..."

Encourage students to explain why they believe this adaptation improves survival.

Lesson Wrap-Up

Conclude the lesson by asking: "If Australia's environment changes, will every species be able to adapt?"

Guide students to recognise that while adaptations help species survive, rapid environmental change can place enormous pressure on ecosystems. Some species adapt successfully, while others may decline if habitats are altered too quickly.

Explain that in the next lesson students will investigate how living things depend on one another through ecological relationships such as pollination, seed dispersal, symbiosis and food webs.

Contributors: Nell Chaffey, Toni McLeish and Kate Spry.

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Lesson 6

Life Working Together



Lesson Overview
No organism survives in isolation. Every ecosystem depends upon a complex network of relationships between plants, animals, fungi and microorganisms. These ecological relationships allow nutrients to cycle, plants to reproduce, populations to remain balanced and ecosystems to function effectively.

In this lesson, students investigate the interconnected relationships that exist within Australian plant ecosystems. Through field investigations and collaborative learning activities, students explore pollination, seed dispersal, food webs, competition and symbiosis, while recognising the important role each organism plays in maintaining healthy ecosystems.

Learning Intentions

Students will:
- Investigate ecological relationships within Australian ecosystems
- Explore how organisms depend upon one another for survival
- Identify examples of pollination, seed dispersal, food webs and symbiosis
- Recognise the importance of biodiversity in maintaining ecosystem health
- Investigate ecological relationships through field observations.

Materials Required

- Field journals
- Clipboards
- Plant identification guides
- Species cards
- Food Web Cards
- Magnifying glasses
- String or wool
- Coloured pencils
- Ecosystem Game-PDF
- Digital camera or tablet (optional)

Teacher Preparation

Select a local study site where students can observe plants, insects and signs of wildlife. Prepare food web cards featuring local plants, animals, insects, fungi and decomposers found within Grassy Box Woodlands or similar ecosystems.

Teacher Notes

Encourage students to look beyond the obvious relationships they can see. Many of the most important interactions occur below the ground between plant roots, fungi, bacteria and soil organisms. These hidden relationships are fundamental to healthy soils, nutrient cycling and resilient ecosystems.

Where possible, use local examples from your own region to help students connect ecological concepts with landscapes they know and experience.

Aboriginal Perspective

Language: Guumali - Gather

Kamilaroi/Gomeroi Perspective
Aboriginal peoples understand that every living thing has a role within Country. Plants, animals, fungi, water and people are connected through relationships that have been carefully observed over thousands of years.
Discuss how understanding these relationships supports healthy Country and sustainable environmental management.

Discussion / Yarning Circle: Choose one organism in the Grassy Box Woodland and trace as many of its relationships as you can - with plants, animals, fungi, soil, water and people. What does this reveal about the consequences of losing even one part of an ecosystem?

Contributed by: TRLA

Assessment

Students demonstrate their learning by:
- Identifying ecological relationships
- Constructing a woodland food web
- Recording field observations explaining how organisms depend upon one another
- Participating in collaborative investigations.

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Lesson 6

Life Working Together

Introduction
Begin the lesson by asking students: "What would happen if bees suddenly disappeared?"
Allow students to discuss their ideas before introducing the concept of ecological relationships.
Explain that ecosystems depend upon many different interactions between living organisms. If one part of the ecosystem changes, many other organisms may also be affected.

Lesson Wrap-Up
Conclude the lesson by asking:
"Can an ecosystem remain healthy if one important relationship is lost?"
Guide students to recognise that ecosystems rely upon countless interactions occurring every day. Healthy biodiversity strengthens these relationships and improves the resilience of ecosystems.
Explain that the next lesson will investigate Grassy Box Woodlands, bringing together everything students have learned about ecosystems, habitats, biodiversity and ecological relationships while exploring one of Australia's most endangered ecological communities.

Teaching and Learning

Activity 1
Nature's Connections

Working in pairs, students investigate different ecological relationships.
Introduce examples including:
- Pollination
- Seed dispersal
- Predator and prey
- Competition
- Mutualism
- Decomposition.

Students discuss why each relationship is important for maintaining healthy ecosystems

Activity 2
Pollination Investigation

Students observe flowering plants within the study area.
Record observations including:
- Flowering species
- Visiting insects
- Native bees
- Butterflies
- Beetles
- Flies
- Birds (where observed)
- Grey-Headed Flying Foxes

Discuss how pollinators assist plants to reproduce.

Explain that many Australian plants depend upon insects, birds and mammals for successful pollination.

Activity 3
Seed Dispersal

Investigate different methods of seed dispersal.
Students collect examples of seeds (where appropriate) and identify how they may be dispersed.
Examples include:
- Wind
- Water
- Animals
- Birds
- Mistletoe Birds
- Gravity.

Students examine seed structures and discuss how their design improves the chances of successful dispersal.

Activity 4
Building a Woodland Food Web

Working in small groups, students use the Ecosystem Game Cards to build a food web representing a Grassy Box Woodland ecosystem.
Include examples such as:
Producers
- Native grasses
- Wattles
- Eucalypts
- Wildflowers

Primary Consumers
- Possums
- Grasshoppers
- Caterpillars
- Kangaroos
- Native bees
- Pollinators

Secondary Consumers
- Blue-tongue Lizards
- Small birds
- Spiders

Tertiary Consumers
- Wedge-tailed Eagle
- Powerful Owl
- Brown Snake

Decomposers
- Fungi
- Bacteria
- Earthworms

Once completed, use pieces of string or wool to connect each organism.
Ask students: "What happens if one organism disappears?"
Discuss how changes can affect many other species throughout the ecosystem.

Activity 5
Partners in Nature

Introduce the concept of symbiosis.
Explain that some organisms benefit from living closely with others.
Investigate examples including:
- Fungi and plant roots (mycorrhizae)
- Native bees and flowering plants
- Birds dispersing seeds
- Insects and other living organisms.

Discuss how these relationships improve ecosystem health.

Reflection

Students complete the sentence:
"One ecological relationship I did not realise existed was..."

Invite students to explain why they believe that relationship is important.

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Lesson 6

Life Working Together

The Ecosystem Game

Take students outdoors and play the Grassy Box Woodland Ecosystem Game using the Habitat Cards, Animal Cards, Event Cards and Recovery Cards.

Habitat cards remain stationary to form the structure of the ecosystem while students holding Animal Cards move to the habitat they depend upon.

Once the ecosystem has formed, introduce Event Cards (such as Firewood Collection, Drought or Weed Invasion) and ask students affected to sit down, demonstrating how changes in one part of the ecosystem affect many other organisms.

Finish by introducing Recovery Cards (such as Tree Planting, Protect Waterways and Regenerative Grazing) to rebuild the ecosystem and discuss how positive management restores resilience.

Credit: Ecosystem Thinking- Liz Blair

25-45 mins

Any group size

ACTIVITY OBJECTIVE

Allow foundational learning about ecosystem concepts through role play and active learning.

Expected Outcomes

Participants
1) Talk and interact with each other, sharing new knowledge about where animals live and what they eat.

2) Understand that an ecosystem is just a collection of animals and plants that interact, this can be simple or complex.

3) Understand that actions of an individual can influence the health of ecosystems. Their action can be negative (destroy) or positive (create).

4) Think about what common actions people take (e.g. cutting firewood) that might have negative consequences for animals that live in that ecosystem.

5) Start to use language of 'Habitat' 'Diversity' 'Structure' 'Function', and 'Composition'.

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ECOSYSTEM THINKING

OUTDOOR ACTIVITY
THE ECOSYSTEM GAME

PREPARATION & RESOURCES

Space and boundaries
An outside area is ideal, or a large covered indoor area with enough space for each person to stretch their hands out and swing around.

Understanding of the audience and group
Review the participant list to understand demographics, current issues, local context, and prior learning.

Game Cards
Make sure they are sorted into 2 groups - habitat and animals.

STRUCTURE AND TIMING

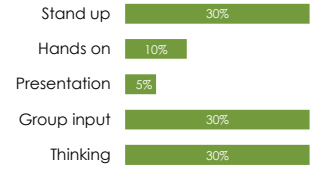
Introductions and Invitation to think (2mins)
Ask *''What do you know of the word 'Ecosystem'? Can you think of an example?* Get a sense of the groups understanding, in their own words. Start with a few people sharing their thoughts and build from there.

Hand out cards and form the Ecosystem (10 mins)
Ask the people who have habitat cards to find an open space to stand, clear from other people. *'You are a foundation, structure, we are building an ecosystem. You are not able to move yourself.*
Add the animals. Ask people to read their card, take on that role and take their place in the ecosystem. *Stand near someone or something you are connected to.* Ask a few people *Why did you stand here?*
Help people if needed and use examples for group. Once people are still, describe how this is a good, balanced, well-composed Ecosystem.

Play with the Ecosystem (10mins)
Set scenarios, and as elements are taken away, structures and animals that are impacted need to sit out of the game and cannot come back. *What happens if…? Where are you going to live now? What are you going to eat now? Is there a problem with me taking this away?*

Conclusion - opportunity to rebuild and recover (5mins)
Once most people have left the game, rebuild the ecosystem by building a new scenario – What happens if we bring back X, Y and Z? Discuss the power that comes with being human – the power to create or destroy ecosystems and the opportunity for everyday actions.

STYLE AND CONTENT



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Lesson 6

GRASSY BOX WOODLAND
ECOSYSTEM GAME

We are all connected!



Work together to build a healthy Grassy Box Woodland. Every plant, animal and habitat has a role to play!

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HABITAT CARDS – You are the foundation. Stand still and be the structure of the ecosystem.

MATURE GREY BOX TREE (*Eucalyptus microcarpa*)

I provide:
- Shelter
- Nesting hollows
- Food (leaves, sap)
- Shade

Who needs me? Birds, Possums, Bats, Insects, Koalas

Did you know? Hollow-bearing trees can take 100–150 years to form!

WHITE BOX TREE (*Eucalyptus albens*)

I provide:
- Shelter
- Nectar & pollen
- Nesting sites
- Shade

Who needs me? Birds, Insects, Possums, Lizards

Did you know? White Box trees flowers in spring and provide important nectar for many insects.

YELLOW BOX TREE (*Eucalyptus melliodora*)

I provide:
- Shelter
- Nectar & pollen
- Nesting sites
- Shade

Who needs me? Birds, Insects, Possums, Lizards

Did you know? Yellow Box flowers in summer and provides nectar for many insects.

NATIVE GRASSES

I provide:
- Seeds
- Shelter
- Protect soil
- Food for insects

Who needs me? Insects, Small mammals, Birds, Reptiles

Did you know? Native grasses store carbon in the soil and support biodiversity.

WILDFLOWERS

I provide:
- Nectar
- Pollen
- Seeds
- Colour

Who needs me? Bees, Butterflies, Pollinators

Did you know? Wildflowers support pollinators that help our whole ecosystem.

FALLEN LOG

I provide:
- Shelter
- Moisture
- Food for fungi
- Habitat for insects

Who needs me? Insects, Lizards, Frogs, Spiders, Microbes

Did you know? Dead wood is home to thousands of tiny living things!

LEAF LITTER

I provide:
- Food for decomposers
- Moisture
- Protect soil

Who needs me? Worms, Insects, Fungi, Microbes

Did you know? Leaf litter breaks down nutrients and feeds the soil.

HEALTHY SOIL

I provide:
- Nutrients
- Water storage
- Roots support
- Habitat for microbes

Who needs me? All plants and animals!

Did you know? One teaspoon of healthy soil can contain billions of living organisms!

SHRUB LAYER

I provide:
- Shelter
- Food (berries, leaves)
- Nesting sites
- Protection

Who needs me? Birds, Insects, Lizards, Small Mammals

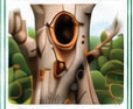
Did you know? Shrubs provide shelter for many species during hot and cold weather!

CREEK / WATERWAY

I provide:
- Drinking water
- Food
- Cool places
- Breeding habitat

Who needs me? Almost every animal!

Did you know? Clean waterways are essential for healthy woodlands.

TREE WITH HOLLOW

I provide:
- Shelter
- Nesting sites
- Protection
- Safe space

Who needs me? Owls, Possums, Birds, Bats

Did you know? Many animals rely on hollows, but they can't make their own.

ANIMAL CARDS – Read your card, take on your role and find where you belong in the ecosystem.

SUPERB FAIRY-WREN

I eat:
- Insects
- Seeds

I need:
- Shrubs
- Grasses
- Tree hollows

Did you know? They have complex family groups and help control insects.

EASTERN ROSELLA

I eat:
- Seeds
- Fruit
- Nectar

I need:
- Tree hollows
- Trees
- Water

Did you know? They glide spreed seeds far and wide.

SUGAR GLIDER

I eat:
- Nectar
- Gum
- Insects

I need:
- Tree hollows
- Mature trees

Did you know? They glide between trees to find food and shelter.

ECHIDNA

I eat:
- Ants
- Termites

I need:
- Leaf litter
- Logs
- Native vegetation

Did you know? Echidnas have spines for protection instead of fur.

BLUE-TONGUE LIZARD

I eat:
- Insects
- Fruit
- Flowers

I need:
- Rocks
- Logs
- Leaf litter

Did you know? They have a blue tongue to scare predators!

EASTERN BROWN SNAKE

I eat:
- Rodents
- Frogs
- Lizards

I need:
- Rocks
- Logs
- Native vegetation

Did you know? Snakes help control pest animals.

WEDGE-TAILED EAGLE

I eat:
- Mammals
- Birds
- Reptiles

I need:
- Large trees
- Open areas

Did you know? They can see prey from up to 2 km away!

POWERFUL OWL

I eat:
- Possums
- Birds
- Reptiles

I need:
- Large trees
- Tree hollows

Did you know? They hunt at night in the woodland.

NATIVE BEE

I eat:
- Nectar
- Pollen

I need:
- Flowers
- Water
- Nest sites

Did you know? Native bees don't sting and are vital pollinators.

BUTTERFLY

I eat:
- Nectar

I need:
- Host plants (caterpillars)
- Flowers

Did you know? Butterflies help pollen, snaring.

GRASSHOPPER

I eat:
- Grasses
- Leaves

I need:
- Grasses
- Shelter

Did you know? They are an important food source for many animals.

CATERPILLAR

I eat:
- Leaves

I need:
- Host plants
- Shelter

Did you know? They grow a lot before turning into butterflies or moths.

HUNTSMAN SPIDER

I eat:
- Insects

I need:
- Bark
- Rocks
- Leaf litter

Did you know? They are not botgerous and help control insects.

NATIVE ANT

I eat:
- Dead leaves
- Organic matter

I need:
- Host soil
- Leaf litter

Did you know? They aerate soil and help recycle nutrients.

KANGAROO

I eat:
- Seeds
- Insects
- Nectar

I need:
- Soil
- Leaf litter
- Shelter

Did you know? Frogs are up to healthy environment.

MICROORGANISMS (BACTERIA & FUNGI)

I eat:
- Dead matter
- Organic material

I need:
- Moisture
- Organic matter
- Soil

Did you know? They break down dead plants and recycle nutrients.

HOW TO PLAY

1. **Build** – Habitat cards stand still. Animals find where they belong.
2. **Play** – Listen to the scenarios. If your habitat is taken away, you must sit out.
3. **Rebuild** – Work together to recover and create a healthy ecosystem.

KEY CONCEPTS

- **Habitat** – Where living things live.
- **Diversity** – Lots of different living things.
- **Structure** – The physical parts that make up an ecosystem.
- **Function** – The roles and jobs living things do.
- **Composition** – The mix of living and non-living things.

EVENT CARDS – Change the ecosystem. Remove the habitat shown.

FIREWOOD COLLECTION

Remove Fallen Logs. ⊗

OLD TREE REMOVED

Remove Tree Hollow. ⊗

OVERGRAZING

Remove Native Grasses. ⊗

WEEDS INVADE

Remove Wildflowers. ⊗

DROUGHT

Remove Waterhole. ⊗

HOT BUSHFIRE

Remove Shrubs and Leaf Litter. ⊗

FERAL CAT

One small animal sits down. ⊗

FOX

One ground-dwelling bird sits down. ⊗

RECOVERY CARDS – Rebuild and restore the ecosystem.

TREE PLANTING / WILDLIFE CORRIDORS

Bring back trees to connect woodland habitats and create wildlife corridors. ⊕

LEAVE FALLEN TIMBER

Return a Fallen Log. ⊕

RESTORE NATIVE WILDFLOWERS

Return Wildflowers. ⊕

PROTECT WATERWAYS

Return the Waterhole. ⊕

REGENERATIVE GRADE CONTROL

Return Native Grasses. ⊕

WEED CONTROL

Return Shrubs. ⊕

Every choice we make can create a better future for our Grassy Box Woodland. *We have the power to create or destroy – let's choose to care!*

Tamworth Regional LANDCARE ASSOCIATION

Contributors: Nell Chaffey, Toni McLeish and Kate Spry.

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Lesson 7

Protecting Grassy Box Woodlands



Lesson Overview
Grassy Box Woodlands are one of Australia's most endangered ecological communities. Once widespread across south-eastern Australia, much of this ecosystem has been cleared or fragmented through land use changes, resulting in significant losses of native plants, wildlife habitat and biodiversity.

In this lesson, students investigate the characteristics of Grassy Box Woodlands, the threats they face and the importance of conservation and restoration. Through field investigations, case studies and collaborative activities, students examine how land managers, Traditional Custodians, Landcare groups and local communities are working together to restore these valuable ecosystems.

Learning Intentions

Students will:
- Identify the key features of Grassy Box Woodlands
- Investigate why Grassy Box Woodlands are an endangered ecological community
- Explore the impacts of habitat loss and fragmentation
- Recognise the role of conservation and community stewardship in ecosystem restoration
- Evaluate strategies that support biodiversity and landscape resilience.

Materials Required

- Field journals
- Clipboards
- Grassy Box Woodland species identification cards - NWLLS Special Places
- Maps or aerial photographs
- of local vegetation
- Quadrats
- Measuring tapes
- Magnifying glasses
- Restoration case study sheets
- Coloured pencils.

Teacher Preparation

Where possible, organise a visit to a local Grassy Box Woodland remnant or invite a Landcare representative, local landholder or environmental educator to share their experiences in restoring native vegetation. Prepare maps and photographs that illustrate changes in woodland cover over time.
Contact: Aboriginal Engagement Officer, Aboriginal Communitieis Office - NWLLS, Elders, LALC and Cultural Heritage Filed Advisor, Water NSW.

Teacher Notes

Encourage students to recognise that Grassy Box Woodlands are not simply collections of trees. They are complex living systems where plants, animals, fungi and soil organisms interact to create resilient ecosystems.

Where possible, connect learning to local Landcare projects or restoration initiatives so students can see how community action contributes to positive environmental outcomes. Highlight the important role of collaboration between landholders, Traditional Custodians, scientists and volunteers in protecting these valuable landscapes.

Aboriginal Perspective

Language: Maaruma-li Heal / make better

Kamilaroi/Gomeroi Perspective
Grassy Box Woodlands have been cared for by Aboriginal peoples for thousands of years through deep knowledge of Country and sustainable land management practices. Cultural burning, seasonal observation and careful stewardship have helped shape these landscapes and maintain healthy ecosystems.
Discuss how contemporary conservation benefits from combining Traditional Ecological Knowledge with modern ecological science.

Discussion / Yarning Circle: What does it mean to restore a Grassy Box Woodland rather than simply plant trees? Discuss how Traditional Ecological Knowledge, ecological science and community action can each contribute to caring for and restoring Country.

Contributed by: TRLA

Begin the lesson by stepping back approximately 200 years through Nell Chaffey's Grassy White Box Woodland: Yesterday - Guided Visualisation.

As students listen, ask them to identify evidence of a diverse, functioning woodland and the relationships between people, plants, animals, habitat and Country.

Think about: What can this description tell us about how Grassy Box Woodlands have changed - and what may need to be protected or restored today?

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Lesson 7

Protecting Grassy Box Woodlands

Introduction
Begin by asking students: "What happens when a large forest or woodland is broken into many small pieces?"
Encourage discussion about wildlife movement, habitat availability and ecosystem health.
Introduce the concept of habitat fragmentation, explaining that when ecosystems become isolated, it becomes more difficult for many species to survive and reproduce.

Teaching and Learning

Activity 1
Discovering a Grassy Box Woodland

Introduce the defining characteristics of Grassy Box Woodlands.
Students investigate photographs or visit a local site to identify features such as:

- Grey Box and Yellow Box eucalypts
- Native grasses
- Seasonal wildflowers
- Shrubs
- Fallen timber
- Tree hollows
- Leaf litter
- Healthy groundcover.

Students record observations in their field journals and discuss why each feature contributes to a healthy woodland ecosystem.

Activity 2
Threats to Biodiversity

Working in groups, students investigate common threats to Grassy Box Woodlands, including:

- Vegetation clearing
- Habitat fragmentation
- Invasive weeds
- Feral animals
- Inappropriate grazing management
- Altered fire regimes
- Climate change.

Students discuss how each threat affects biodiversity, ecosystem processes and wildlife habitat.

Activity 3
Restoration in Action

Present examples of practical restoration activities undertaken by Landcare groups, landholders and community volunteers (urban and non-urban).
Examples include:

- Planting native vegetation
- Protecting remnant trees
- Restoring native groundcover
- Controlling weeds
- Fencing sensitive areas
- Installing nest boxes
- Retaining fallen timber
- Improving habitat connectivity.

Students discuss how each action contributes to healthier ecosystems and greater biodiversity.

Activity 4
Woodland Health Investigation

Using a simple assessment sheet, students evaluate the health of a woodland site by observing:

- Canopy condition
- Plant diversity
- Native groundcover
- Evidence of regeneration
- Habitat features
- Signs of erosion
- Weed presence
- Evidence of wildlife.

Students assign an overall health rating and justify their conclusions using field observations.

Lesson Wrap-Up
Conclude the lesson by asking:
"Can damaged ecosystems recover?"

Guide students to recognise that while restoration takes time, thoughtful management and community action can significantly improve ecosystem health. Explain that the next lesson will explore one of the most exciting approaches to landscape restoration regenerative agriculture and investigate how food production and environmental stewardship can work together to build healthier, more resilient landscapes.

Reflection

Students complete the statement: "One action that could improve the health of a Grassy Box Woodland is..." Encourage students to explain how their chosen action benefits biodiversity and ecosystem resilience.

Assessment

Students demonstrate their learning by:

- Identifying the features of Grassy Box Woodlands
- Explaining the causes and impacts of habitat fragmentation
- Evaluating threats to biodiversity
- Participating in woodland health investigations
- Proposing practical restoration strategies supported by evidence.

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Lesson 7 Yesterday - Guided Visualisation

By Nell Chaffey

Extension Activity

Close your eyes, sit comfortably and relax .....
Breathe deeply ..... in ..... out ..... in ..... out ..... in ..... out
The buildings, fences, roads and sounds of machines begin to fade. Listen to the sounds of the natural world around you ..... bird noises ..... insect noises ..... leaves rustling as a breeze catches them ... ...
There are many trees, ancient, twisted gums ....., shrubs ....., the tall grasses a mixture of green and straw colours in scattered tufts, thicker in the clearings where there is little or no woodland canopy .....
It is spring ..... about two hundred years ago (c.1800) ... it is the time between The Dreaming and the coming of the Wunda (ghost/white people) to this place.
The land is vast..... in each direction bluish hills meet the sky, some close, ... others a distant irregular line on the horizon .....to the west, the line of hills ends, you glimpse the stretch of the plains, a far off sea of grasses dotted with islands of shrubby trees .....
..... trees blanket the countryside from the hilltops to the river, ... then hugging the rivers curving course, they stay with it across the plain.

The woodlands are all about you. You stand on a track used at times by all who pass this way, maybe a bandaarr (bundar/kangaroo) in a rush, or Murri (people) harvesting their land .....
Following the contours of the slope, the track makes its way down through trees ..... yarraan and bibil (gum and white box trees), alongside scattered tall, straight gurraray (cypress pine), shiny leafed, kurrajongs, weeping myall or wilga ..... a shrubby undergrowth of cassia, hopbush, wattle and others till it reaches the grassier open areas further down with their patchwork of grasses and leafy groundcovers .....the woodland of the lower slopes, river and creek flats is more open .....

It is day..... the bush is alive with the activities of birds and insects ..... in the air, on the ground, in, on and among the plants ..... creatures feeding, building, resting. Some creatures aren't so obvious, ...bandaarr ('bundar'/kangaroo) resting in the cool hollows and dappled shades of the woodland, mudhay ('moodai'/possum) sleeping in tree hollows, termites and grubs mining the trees and soil .....

The bilbil (white box tree) beside you, ... you cannot fit your arms around it, how old can it be? ..... many limbs have fallen over time, ...the hollow remnants of these lost branches stick out at odd angles from the trunk and branches of the tree. You observe and tend 'your country' well for this tree, like others of its kind, has been well managed and will continue to provide for the Murri (people), ... there is a hollow with the fresh, telltale marks of a possum den. Around another guni (native bees) come and go; mmm, sticky golden honey to be enjoyed. From others you hear the monotonous rasping call of young gilaa (galah), reminding their tired pink and grey parents, perched and grooming in the branches, they are awake and hungry ..... yurran thaali (tree goanna) will want to visit this tree, looking for unhatched, unguarded eggs. Listen, the sharp, raucous call of a muraay (white cockatoo) flying above the tree tops toward the river.....
At ground level, ... ripening grass seeds, when collected, will be ground into flour and baked into cakes... look, the native iris have multiplied from the roots left last year, the harvest of roots will be good again ..... you think about how good they are to eat when roasted.

Still following the track down towards the river, the leaf litter is thick on the ground, ... you step over logs, fallen branches, some housing termites, good places t for bigibilla (echidna), ... galibilalaa (red-bellied black snake), ...and lizard to live. ..... Good tucker.
Closer to the river, trees become larger, ... twisted, lumpy, river gums and whispering she-oaks stand among the bank and billabong clusters of bottlebrush, tea tree and reed beds which fringe the river's course.

..... the smell of smoke drifts through the air,..... you hear murri (people) laughing, talking, small groups are returning from the work of the day in the bush and along the river,..... they have fared well ..... the young men, using spears they traded axe heads for with tribes to the west, have proved their worth, there is a bandarr (bundar'/kangaroo), ... and the women and young children have a bigibilla (echidna), roots, fruit, leaves, and a harvesting of ginbaay (small mussels) from the bend in the river ..... and fresh garrang-ay (black duck) eggs, gathered from the reedbeds; the children only taking what can be eaten tonight and leaving at least one or two in each nest for the bird to hatch.

The afternoon is the time to prepare the fire and food for the evening meal, the main meal of the day. The murri (people) are busy. As yaraay (the sun) sets, the gugurrgaagaa (kookabuura) chuckle in the trees..... the woodland birds and ants cease their labours and begin to settle for the night .....

Tonight each shall eat according to his/her position and totem. After the meal, when darkness creeps to the edge of the camp, and surrounds it, ... the young children go, ... to sleep among mudhay (moodai'/possum) skin rugs in the refurbished gundi (bark shelters) at this camp by the bend in the river.

Clapping sticks clink, a singer recounts a Dreaming while the elders sit about the fire planning tomorrow, ... the older boys will be taken to select and remove bark from a tree to begin a canoe, ... there is goodoo (guduu/Murray cod) and thagaay (yellow belly) to be found in this place and stone for axe heads to trade with tribes down the river for ochre for ceremony, and good spear lengths for hunting.....

Families sit around small fires close to their gundi (bark shelters/ huts). ..... Men are shaping and carving barran (boomerang) or mending bilaar (spears), their women, making nets from the fibre of kurrajong and other plants to catch birds and fish or to make gulay (bags) to carry tools and food, ... or stitching together mudhay (moodai'/possum) skins; another possum skin to a cloak for a growing child. The night is quiet now except for the call of the bulul (mopoke), the rustle of busy mudhay (moodai'/possums) moving about the tree canopy, ... the territorial call of a far off koala.

As night begins to fade, ... you begin to wake up, you are leaving the camp in the woodland and returning to the present, you start to hear the sounds of machines again, you are aware of the classroom and fellow class members around you. ..... the buildings, fences and roads are returning, ... when you open your eyes, it will be (today's day/date) again.

Cultural disclaimer: This guided visualisation is a work of fiction, informed by research, to foster empathy and understandings about life in a Grassy Box Woodland prior to colonisation. The author is a non-Aboriginal person.

Contributors: Nell Chaffey, Toni McLeish and Kate Spry.

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Lesson 8

Regenerative Agriculture: Restoring Landscapes



Lesson Overview
Healthy landscapes depend upon healthy soils, diverse plant communities and thoughtful land management. Regenerative agriculture is an approach to farming that works with natural systems to improve soil health, increase biodiversity, strengthen ecosystem resilience and support sustainable food production.

In this lesson, students investigate the principles of regenerative agriculture using the Regenerative Agriculture Principles Poster and apply their understanding through the How to Build a Regenerative Farm Activity Poster. Through observation, discussion and collaborative design, students explore how farming practices can restore ecosystem function while producing healthy food and protecting natural resources.

Learning Intentions

Students will:
- Investigate the principles of regenerative agriculture
- Explore how farming practices influence ecosystem health
- Recognise the importance of healthy soils, biodiversity and groundcover
- Investigate management practices that improve landscape resilience
- Evaluate how regenerative agriculture contributes to sustainable land management.

Materials Required

- Field journals
- Clipboards
- Healthy and degraded soil samples (where available)
- Soil Health Assessment Sheets
- Regenerative Agriculture Principles Poster
- How to Build a Regenerative Farm Activity Poster
- Plant species identification guides
- Groundcover quadrats
- Magnifying glasses
- Coloured pencils

Teacher Preparation

Display the Regenerative Agriculture Principles Poster and the How to Build a Regenerative Farm Activity Poster before students arrive.
Prepare healthy and degraded soil samples for comparison and organise students into collaborative groups. If possible, collect photographs of local regenerative farming practices to support class discussion and connect learning to the local landscape.

Teacher Notes

The Regenerative Agriculture Principles Poster and the How to Build a Regenerative Farm Activity Poster are companion resources for this lesson and should be used throughout the learning sequence rather than as standalone activities.
Encourage students to use the posters as scientific resources, interpreting the illustrations, identifying ecological relationships and applying regenerative principles when designing their own farming systems.
Where possible, connect learning to local Landcare projects, regenerative farms or community restoration initiatives. This helps students recognise that the concepts explored in class are already being successfully implemented within Australian landscapes and demonstrates how science, agriculture and environmental stewardship can work together to create healthy, resilient ecosystems.

Aboriginal Perspective

Language: Ngaarr - Strong

Kamilaroi/Gomeroi Perspective
For thousands of years, Aboriginal peoples have cared for Country through careful observation, respect for natural systems and sustainable land management practices. Contemporary regenerative agriculture shares many of these principles by recognising the interconnected relationships between healthy soils, plants, animals, water and people.

Discuss how combining Traditional Ecological Knowledge with modern scientific understanding can contribute to resilient and productive landscapes.

Discussion / Yarning Circle: Compare the principles of regenerative agriculture with the idea of caring for Country. Where do you see connections in the way soil, water, plants, animals and people are considered? What could land managers learn by drawing on different knowledge systems respectfully?

Contributed by: TRLA

Assessment

Students demonstrate their learning by:
- Explaining the principles of regenerative agriculture
- Comparing landscape condition using scientific observations
- Interpreting information presented in the Regenerative Agriculture Principles Poster
- Designing a regenerative farm using the How to Build a Regenerative Farm Activity Poster
- Justifying how regenerative practices improve ecosystem health and landscape resilience.

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Lesson 8

Regenerative Agriculture: Restoring Landscapes

Introduction

Begin by asking students: "Can farming improve the environment?"

Encourage students to discuss their ideas and any farming practices they may have observed.

Explain that while agriculture can place pressure on ecosystems, many farmers are adopting management practices that restore soil health, improve biodiversity and increase the resilience of their landscapes.

Introduce regenerative agriculture as an approach that works with natural systems to regenerate the health of the land while producing food.

Teaching and Learning

Activity 1
Healthy Soil Investigation

Provide students with healthy and degraded soil samples.

Students compare:

- Soil structure
- Colour
- Smell
- Moisture
- Organic matter
- Visible roots
- Earthworms and other soil organisms (where present)

Students record their observations and discuss which soil appears healthier and why.

Students then refer to the Regenerative Agriculture Principles Poster and discuss which of the six principles may have contributed to the healthier soil. Encourage students to justify their responses using evidence gathered from their observations.

Relate their findings to previous lessons on soil organisms, nutrient cycling and ecosystem health. Discuss how healthy soils support plant growth, improve water infiltration, store carbon and provide habitat for countless living organisms.

Activity 2
Exploring the Principles of Regenerative Agriculture

Working in small groups, students investigate each of the six principles illustrated on the poster.

Discuss how each principle contributes to healthier landscapes.

Students consider how the principles:

- Minimise soil disturbance
- Protect soil with continuous groundcover
- Maintain living roots
- Increase plant diversity
- Improve biodiversity
- Use holistic planned grazing to improve ecosystem function.

REGEN POSTER DOWNLOAD

As a class, discuss how each principle supports healthier soils, cleaner water, increased biodiversity and more resilient farming systems. Encourage students to identify examples of these principles within the poster illustrations.

Activity 3
Comparing Landscapes

Using photographs provided by the teacher or local examples, students compare two contrasting landscapes.

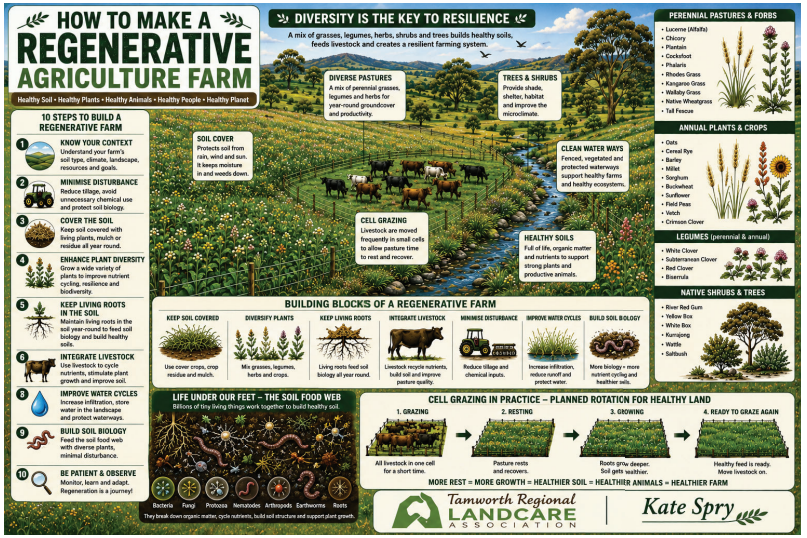
Students investigate:

- Groundcover
- Plant diversity
- Soil condition
- Evidence of erosion
- Water movement
- Wildlife habitat
- Signs of healthy ecosystem function.

Students discuss which landscape appears more resilient and justify their conclusions using scientific observations.

Reflection

Students complete the sentence:
"The regenerative agriculture principle I believe would have the greatest positive impact is..."
Students explain their reasoning using evidence from the lesson and the Regenerative Agriculture Principles Poster.



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Lesson 8

Regenerative Agriculture: Restoring Landscapes

Teaching and Learning

Activity 4
Designing a Regenerative Farm

Using the How to Build a Regenerative Farm Activity Poster as their guide, students work collaboratively to design their own regenerative farm.

BUILDING A REGEN FARM

Students should incorporate features such as:
- Holistic planned grazing using paddock cells
- Native vegetation corridors
- Shelterbelts
- Diverse perennial and annual pasture species
- Healthy groundcover
- Riparian vegetation along waterways
- Wildlife habitat
- Erosion control measures
- Healthy, biologically active soils.

Students annotate their farm design, explaining how each feature contributes to:
- Healthier soils
- Improved biodiversity
- Water cycling
- Wildlife habitat
- Sustainable food production
- Resilient landscapes .

Encourage students to continually refer back to the Regenerative Agriculture Principles Poster to justify the decisions included in their farm design.

Activity 5
Farmers as Landscape Stewards

Facilitate a class discussion exploring the role of farmers as environmental stewards.

Ask students:
- How can farmers improve biodiversity?
- Why are healthy soils important?
- How does protecting waterways benefit farms and wildlife?
- Can productive agriculture and conservation work together?

Students use evidence from the posters and previous investigations to support their responses.

Conclude by reinforcing that regenerative agriculture is based on understanding natural systems and making management decisions that benefit both people and the environment.

Lesson Wrap-Up
Conclude the lesson by asking:
"Can healthy farming and healthy ecosystems exist together?"
Guide students to recognise that productive agriculture and environmental stewardship are complementary goals. By working with natural systems, farmers can restore soil health, improve biodiversity, enhance water cycles and create more resilient landscapes for future generations.

Explain that the final lesson will bring together everything students have learned throughout the unit as they explore their own role as future environmental stewards and develop a vision for protecting and regenerating Australia's landscapes.



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Lesson 9

Becoming Landscape Stewards

As a consumer, you can be a landscape steward!



Lesson Overview
Throughout this unit, students have explored Australia's plant ecosystems, investigated the relationships between living and non-living components of the environment, examined biodiversity, habitat, ecological interactions and regenerative agriculture, and discovered how healthy landscapes support both people and nature.

In this final lesson, students bring together their knowledge and apply it to real-world environmental challenges. Through collaborative planning, reflection and action, students investigate how individuals, schools and communities can contribute to restoring and protecting Australia's landscapes for future generations.

Learning Intentions

Students will:
- Synthesise their understanding of healthy ecosystems and landscape restoration
- Evaluate practical actions that contribute to environmental stewardship
- Design and communicate solutions to local environmental challenges
- Recognise the importance of collaboration in caring for Australia's landscapes
- Reflect on their role as informed and responsible environmental citizens.

Materials Required

- Field journals
- Clipboards
- Grassy Box Woodland species identification cards
- Maps or aerial photographs of local vegetation
- Quadrats
- Measuring tapes
- Magnifying glasses
- Restoration case study sheets
- Coloured pencils.

Teacher Preparation

Display key learning resources from the unit, including the Regenerative Agriculture Principles Poster and the How to Build a Regenerative Farm Activity Poster.

Provide students with access to their field journals and previous investigations so they can reflect on their learning throughout the unit.
Prepare large sheets of paper for collaborative planning activities.

Teacher Notes

This lesson provides an opportunity to celebrate student learning and reinforce the connection between ecological knowledge and real-world action.

Encourage students to reflect on the growth of their scientific understanding across the unit and recognise that environmental stewardship is a lifelong responsibility. Where possible, connect students with local environmental initiatives, Landcare projects or community restoration activities so they can continue applying their learning beyond the classroom.

Aboriginal Perspective

Language: Winangay-la-nha - loving, knowing, thinking, learning and understanding.

Kamilaroi/Gomeroi Perspective
For Aboriginal peoples, caring for Country is both a responsibility and a way of life. Healthy landscapes support healthy communities, and every generation has a role in protecting the land, water, plants and animals for those who follow.

Discuss how students can continue this shared responsibility by respecting Country, learning from Traditional Ecological Knowledge and making informed environmental decisions in their own lives.

Discussion / Yarning Circle: Think back over the whole unit. What responsibilities do people have to the landscapes they live in and depend upon? Share one informed action that individuals, schools, landholders or communities could take to help leave healthier Country for future generations.

Contributed by: TRLA

Assessment

Students demonstrate their learning by:
- Contributing to collaborative discussions
- Synthesising concepts from across the unit
- Developing a landscape stewardship action plan
- Presenting evidence-based solutions to environmental challenges
- Completing a personal stewardship reflection.

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Lesson 9

Becoming Landscape Stewards

Introduction
Begin by asking students: "What does it mean to be a steward of the land?"
Encourage students to reflect on how their understanding of ecosystems has developed throughout the unit.
Discuss the idea that caring for the environment is a shared responsibility involving individuals, communities, farmers, scientists, Traditional Custodians and organisations such as Landcare.

Teaching and Learning

Activity 1
Looking Back

Working in small groups, students revisit each lesson completed throughout the unit.
Students identify the most important learning from:

- Australia's plant ecosystems
- living and non-living components
- nutrient and water cycles
- habitats
- adaptations
- ecological relationships
- Grassy Box Woodlands
- regenerative agriculture.

Groups create a visual concept map demonstrating how these ideas are connected.

Activity 2
Oxley Park Woodland Discovery Excursion
Suggested duration: 4-5 hours

Special resource: Work by Phil Spark and North West Local Land Services

Excursion Overview
This end-of-unit excursion takes students out of the classroom and into a living woodland ecosystem at Oxley Park Reserve. Students apply the knowledge and field skills developed throughout the unit to investigate a real Grassy Box Woodland landscape.

Rather than simply identifying species, students will learn to read the landscape. Moving through different parts of the reserve, they will investigate woodland structure, native vegetation, habitat features, biodiversity, soil and groundcover, animal evidence, weeds, landscape change and regeneration.

Students will use observations, field data and photographs to consider one central question:
What can this landscape tell us about its past, its health today, and how we should care for it into the future?

DOWNLOAD
1: Teacher guide to Oxley Park Special Place Visiting Site

2: Teacher guide to Oxley Park, Special Place Background Document


Source: Phil Spark (Ecologist)

Lesson Wrap-Up
Conclude the lesson by asking: "What kind of landscape do we want future generations to inherit?"
Encourage students to recognise that every positive action no matter how small contributes to healthier ecosystems. Reinforce that scientific understanding, thoughtful land management, community collaboration and respect for Country all play an important role in restoring and protecting Australia's unique landscapes.

Celebrate the completion of the unit by revisiting the key inquiry question:
"Even in urban settings, how can we work with nature to create healthy, resilient landscapes for the future?"
Invite students to share one action they will take to become a landscape steward.

Reflection

Students complete the statement:
"The most important thing I have learned about Australia's landscapes and our Grassy-Box Woodlands is..."
Invite students to share how their thinking has changed since the beginning of the unit.

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Lesson 9

Becoming Landscape Stewards

Teaching and Learning

Activity 3
Our Landscape Challenge

Present students with a local environmental challenge.

Examples may include:
- declining biodiversity
- invasive weeds
- habitat fragmentation
- soil erosion
- degraded waterways
- loss of native vegetation

Working collaboratively, students investigate possible solutions using evidence gathered throughout the unit.
Encourage students to consider ecological, social and agricultural perspectives.

Activity 4
Designing a Landscape Stewardship Action Plan

Working in teams, students design a practical action plan for improving a local landscape.
Their plan may include:
- planting native vegetation
- creating wildlife habitat
- protecting waterways
- improving soil health
- reducing erosion
- increasing biodiversity
- supporting pollinators
- educating the community
- participating in Landcare activities.

Students present their proposals to the class, explaining how their actions would contribute to healthier ecosystems and more resilient landscapes.

Activity 5
My Stewardship Pledge

Individually, students reflect on what they have learned throughout the unit.

Each student writes a personal stewardship pledge beginning with: "I can help care for Australia's landscapes by..."

Encourage students to identify realistic actions they can take at home, at school or within their local community.

Students may choose to display their pledges in the classroom as a reminder of their commitment to caring for the environment.

Lesson Wrap-Up
Conclude the lesson by asking: "What kind of landscape do we want future generations to inherit?"
Encourage students to recognise that every positive action no matter how small contributes to healthier ecosystems. Reinforce that scientific understanding, thoughtful land management, community collaboration and respect for Country all play an important role in restoring and protecting Australia's unique landscapes.

Celebrate the completion of the unit by revisiting the key inquiry question:
"How can we work with nature to create healthy, resilient landscapes for the future?"
Invite students to share one action they will take to become a landscape steward.

Reflection

Students complete the statement: *"The most important thing I have learned about Australia's landscapes is..."*
Invite students to share how their thinking has changed since the beginning of the unit.

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Unit Reflection

At the completion of the unit, students reflect on their learning journey and consider how their understanding of Australia's plant ecosystems has developed. They are encouraged to identify the connections between healthy soils, biodiversity, water, plants, animals and people, and to recognise the important role that science, Traditional Ecological Knowledge, agriculture and community action all play in caring for Country.

Students should leave the unit with an appreciation that healthy landscapes are created through collaboration, informed decision-making and long-term stewardship. By understanding the interconnected relationships between soil, water, plants, animals and people, students are empowered to become active environmental stewards who contribute positively to the future of Australia's unique landscapes.

Assessment Overview

Assessment throughout this unit is designed to support student learning by providing regular opportunities for observation, feedback and reflection.

Students demonstrate their understanding through practical investigations, collaborative learning experiences, fieldwork, discussions and scientific inquiry.

Assessment focuses on students' ability to apply ecological knowledge, analyse environmental relationships and communicate evidence-based solutions to authentic environmental challenges.

Formative Assessment

Formative assessment occurs continuously throughout the unit and includes:

- Teacher observations during field investigations and practical activities
- Student participation in class discussions and collaborative learning
- Field journal observations, sketches and scientific recordings
- Completion of ecosystem investigations and habitat assessments
- Interpretation of the Regenerative Agriculture Principles Poster
- Participation in the How to Build a Regenerative Farm design activity
- Questioning and reflective discussions throughout each lesson
- Peer feedback during collaborative investigations and presentations.

Summative Assessment

Students demonstrate their understanding through a range of authentic learning experiences, including:

- Completion of field journal investigations
- Ecosystem and habitat assessments
- Ecological relationship and food web activities
- Grassy Box Woodland investigations
- Regenerative farm design using the How to Build a Regenerative Farm Activity Poster
- Collaborative Landscape Stewardship Action Plan
- Personal stewardship reflection completed in Lesson 9.

Teachers may choose to use these learning experiences individually or collectively as evidence of student achievement throughout the unit.

Skills Assessed

Throughout this unit, students develop and demonstrate their ability to:

- Observe and investigate natural environments
- Identify and classify living and non-living components of ecosystems
- Collect, record and interpret scientific data
- Communicate scientific ideas using appropriate terminology
- Analyse ecological relationships and environmental challenges
- Evaluate evidence to support conclusions
- Apply scientific understanding to real-world environmental issues
- Work collaboratively to solve problems
- Design practical solutions that promote sustainable landscape management
- Reflect on their role as informed environmental stewards.

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Growing the Next Generation of Environmental Stewards

Australia's landscapes are among the most diverse and remarkable on Earth. From towering eucalypt forests and endangered Grassy Box Woodlands to grasslands, wetlands and arid shrublands, every ecosystem tells a story of resilience, adaptation and connection.

Through this unit, students have explored the intricate relationships between soil, water, plants, animals and people. They have discovered that healthy ecosystems rely upon biodiversity, ecological balance and thoughtful stewardship, and that every action whether planting a native tree, protecting habitat or improving soil health can contribute to a healthier environment.

By encouraging curiosity, scientific inquiry and respect for Country, we help develop the next generation of environmental stewards, community leaders, scientists, educators, farmers and land managers.

Together, we can create landscapes that are healthy, resilient and thriving for generations to come

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