

AUSTRALIAN
ASSOCIATION FOR
ENVIRONMENTAL
EDUCATION INC.



Unit 10

Unit 10

Linking LandCare

Teachers Notes

Learning Objectives

Students will be able to:

- identify different landcare practices on farms;
- recognize the value of trees and understorey plants in providing a habitat for wildlife.
- recognize the importance of preserving trees and understorey plants.

Focus Question

- Why do some native animals need trees?
- What problems can result when vegetation is cleared?
- What alternatives do farmers have to traditional farming methods?

Learning Outcomes

As per the National Profiles

The Arts

- *Creating, Making and Presenting*
Exploring and developing ideas; Using skills, techniques and processes;
- *Presenting*

English

- *Speaking and Listening*
Texts; Contextual understanding; Linguistic structures and features; Strategies
- *Reading and Viewing*
Texts; Strategies

Studies of Society and Environment

- *Time, Continuity and Change*
Understanding the past; Time and change; Interpretations and perspectives
- *Place and Space*
Features of places; People and places; Care of places
- *Resources*
Use of resources; Management and enterprise
- *Natural and Social Systems*
Natural systems; Economic systems



Activities

Junior Primary - A Tree is My Home

Students produce a wall poster of animal life in a native tree.

Middle Primary - Trees are the Bees Knees

Students investigate how trees pump water from the ground. They consider the value of trees in the landscape.

Upper Primary - Decisions, Decisions

Students are given a supplementary diversification of income option. They research the industry and present their findings to the class. This is then presented on a mural.

Background Information

In the time it takes to click your fingers, somewhere in the world an area of tropical forest almost the size of two football fields is destroyed. Australia is not faring much better. Many farmers are now learning the benefits of planting vegetation in and around their properties. However, statistics from Environment Australia tell us that Australian farmers are clearing 500 000 hectares (ha) of land each year. Over a ten year period from 1983-1993, Queensland cleared 3 million ha, New South Wales 1.5 million ha, Northern Territory 162 800 ha, South Australia 116 300 ha, Tasmania 60 000 ha and Western Australia 260 802 ha. This does not include clearing for development, mining and forestry.

While many Landcare groups have been set up around the country to reduce the impact of land degradation, clearing is the most important environmental issue facing Australia today. Urgent action needs to be taken to address this problem. Already farmers are looking at alternative, sustainable means of producing an income which also helps to protect the land.

Native bushland and other planted vegetation act as giant sponges, slowing down runoff and absorbing and holding the water that recharges springs, streams and aquifers. Replanting shrubs and trees to regenerate forest areas is a priority. Forests are commonly known as the Earth's 'lungs'. Forests provide habitats for wildlife, nurseries for plants and are reserves for biological diversity. They also act as a noise buffer, absorb some air pollution and nourish the human spirit by providing us with beauty, peace and an abundance of nature.

Clearing land and reducing the number of trees, especially in dense forest areas, affects global climates. Generally, precipitation decreases and the climate in that area gets hotter and drier. In effect, we create deserts from forests. Forests also act as a defence to global warming and help remove carbon dioxide from the air, as well as making oxygen to sustain all living things.

Source: Australia State of the Environment 1996
Colingwood Publishing, Colingwood, Australia.



Activity Information

Junior Primary - A Tree is My Home

Materials

Activity Sheet 28
Information Sheet K



Activity

Purpose: to recognise that the tree provides shelter and food for many different animals.

1. An OHP can be used to throw up a large outline of the tree and its immediate surrounds onto a large piece of paper (fallen log, leaf litter, fallen bark, exposed roots). See Information Sheet K, or you may wish to create your own version, with the students' help.
2. Brainstorm with the class the many insects (and their larvae), reptiles (lizards, skinks, geckos), birds, frogs, mammals (possums, gliders, bats) that make their homes in trees, and find their food in trees. Some creatures will live in fallen logs or in the leaf litter, and some need holes in the tree trunk in which to nest.
3. Delegate each tree 'resident' to a student as it is discussed.
4. Students draw, colour and cut out their creature to be glued to the poster. Name tags can be added and for older children a short sentence can be written describing where the animal lives.

Middle Primary - Trees are the Bees Knees

Materials

Fresh celery stalks
600 mL or 1 L milk carton
blue food colouring
sharp kitchen knife
Activity Sheet 29



Activity

Purpose: to understand how plants absorb water.

1. Students trim off the bottom 20 mm of the celery stalk and dispose of it. Place the stalk into a carton, half filled with water which has been dyed a strong blue colour.
2. Leave the celery in the water for 24 hours, after which the celery stalk is removed. The blue water will have been absorbed by the celery stalk.
3. Once again trim off the bottom 20 mm and inspect the stalk for blue colouring.
4. Students record what they see.
5. Do the same a further 50 mm up the stalk and again into the branches of the stalk.
6. Direct the students to scrape the surface of the stalk and record what they see.
7. Lead the students to answer the discussion question on Activity Sheet 29.

*Upper Primary - Decisions, Decisions***Material**

Information Sheet L

Activity

Purpose: to recognise alternative farming techniques which support and promote Landcare.

1. Discuss traditional farming methods and their implications on the land (for example, hard hoofed animals, chemicals, superphosphate, land clearing, erosion, salinity).
2. Read to the class the scenarios of alternative diversification of income options which farmers could undertake in addition to their regular farming practices. Students may then select which one they would like to research either in pairs or small groups.
3. Discuss possible contacts who can provide information. Have a telephone book handy for numbers and addresses. The internet will also provide information.
4. Students research their selected option by contacting appropriate organisations. These may be government and/or non government organisations and community groups.
5. Students write a letter to one or more organisations to find out more about the selected industry.
6. Once enough information is collected, it is collated and presented verbally and visually, as displays.
7. Students paint a farm mural and the displays are attached to this.



Unit 10: Linking Landcare

Activity Sheet 28: A Tree is My Home

Name _____ Date _____

I am a _____

I live _____

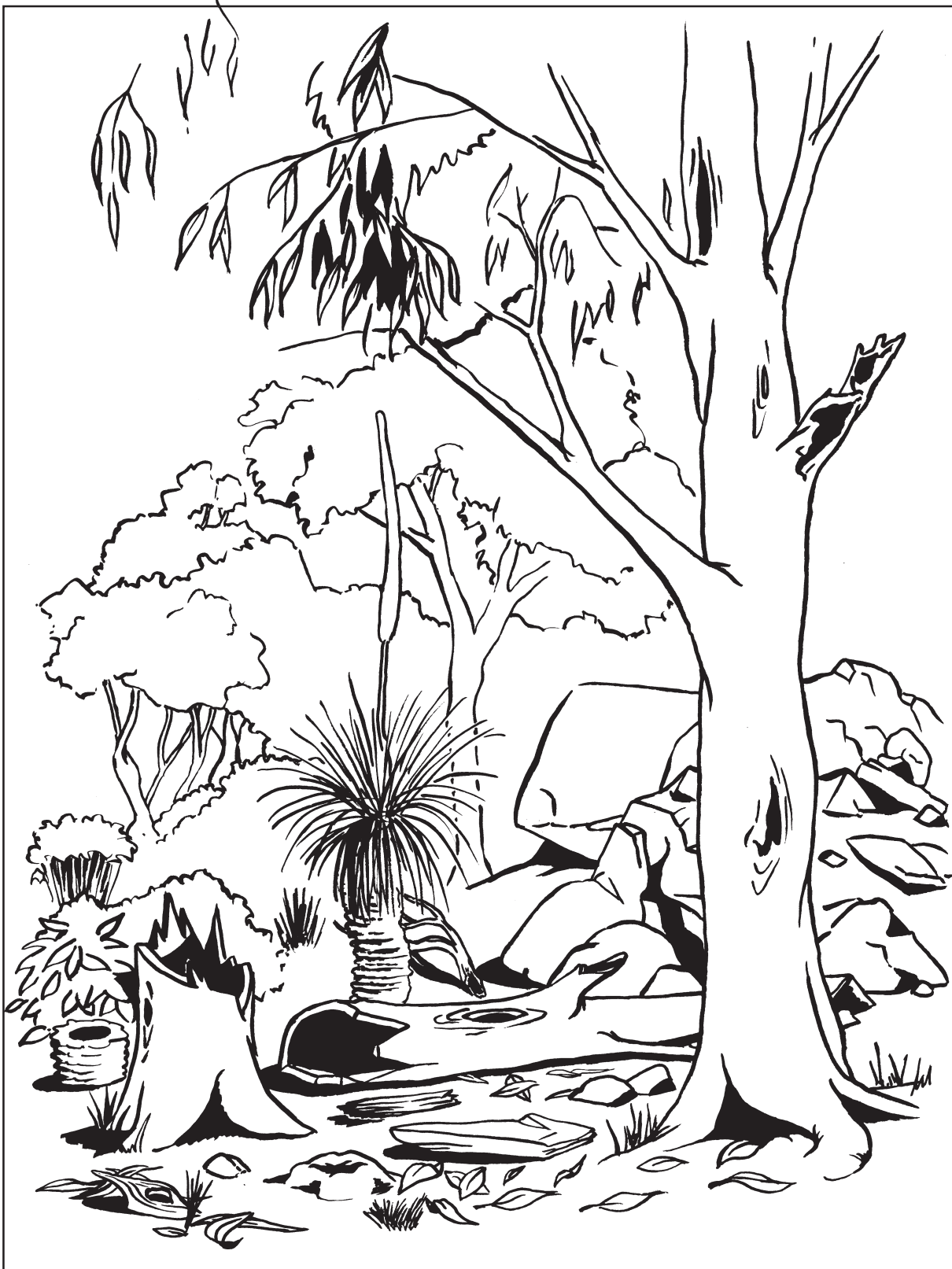
I look like _____

Trees are important to me because _____



Unit 10: Linking Landcare

Information Sheet K: A Tree is My Home



Unit 10: Linking Landcare

Activity Sheet 29: Trees are the Bees Knees

Name _____ Date _____

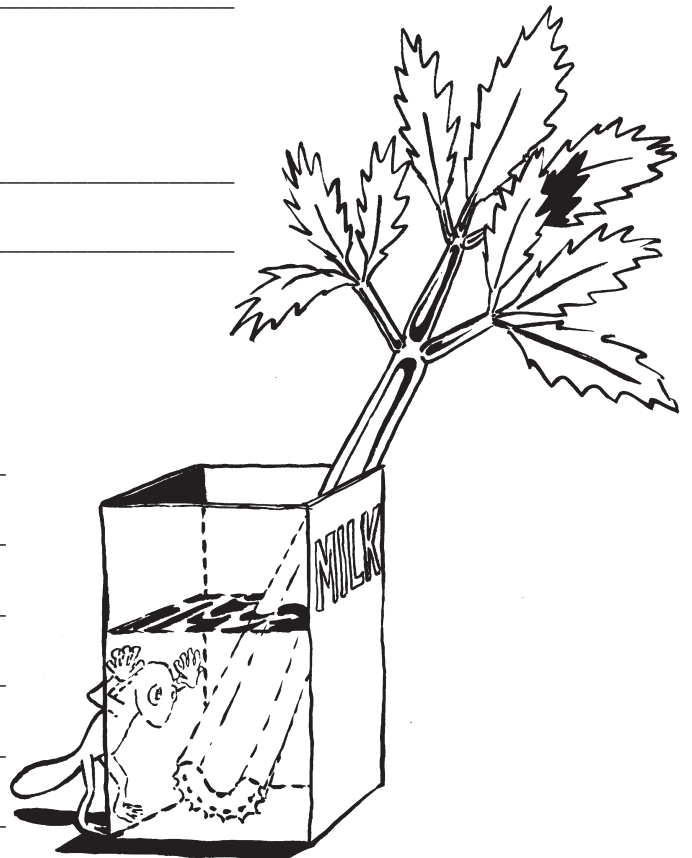
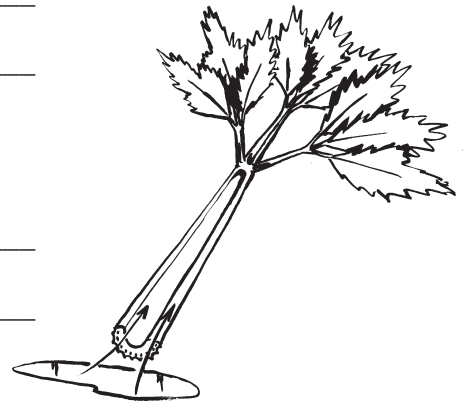
Celery stalk 20 mm cut
What did you see?

Celery stalk 50 mm cut
What did you see?

Cuts along celery stalk branches
What did you see?

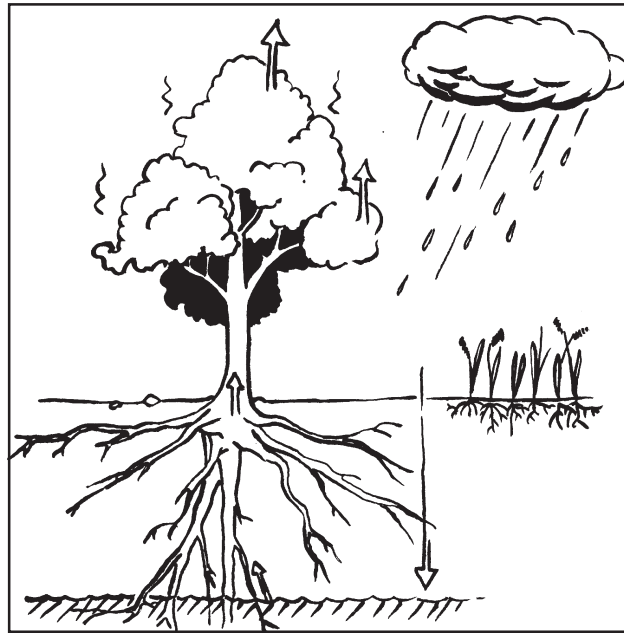
Surface scraped off celery stalk
What did you see?

From what you have observed, what
comments can you make about how
water moves through a plant?



The tree's root system pumps water from deep in the soil to be used throughout the tree. Trees use enormous amounts of water every day. If all the trees were cleared and replaced with crops and pastures, would more or less water be used from the ground?

Why do you think so?



If all the trees were cleared to make way for more crops and pastures what do you think might happen to the level of water underground - would it go down or go up towards the surface?

Explain why?

How might this movement in the underground water level be a real problem for the land?

How do trees help us?

What can we do to increase the number of trees in our environment?

Information Sheet L: Decisions, Decisions

Scenario

Chinganning farmers Linda and Timothy Norman have decided that to keep in front of the topsy-turvy market of wheat and sheep they must diversify. This means going into farming practices with which they are not familiar but are willing to learn.

There are so many options available that they will have to do their homework and begin researching different commercial enterprises. They would like to bring more wildlife back to their property and put more plants into the ground. They also have a small salt problem in one of their paddocks and are keen to know what they must do to fix the problem. Below are some of their possible options.

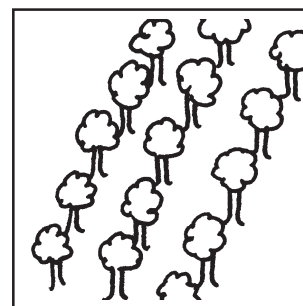
Possible ventures

1. Tree Farming

Thousands of trees are planted in rows, usually by a timber company, so that they can be chopped down for timber instead of using natural forest timber. The farmer takes a percentage of the profits when the trees are cut down. The trees will regrow after they are cut down.

Positives: animal habitat; supplies us with oxygen; absorbs carbon dioxide; protects native forests by providing an alternative timber supply; provides income

Negatives: takes quite a number of years before the first chopping so the farmers are without an income for many years; fire hazard; trees may not be local to the area; requires nutrients from the soil and can deplete the soil of particular nutrients; monoculture (same thing is planted over and over again)

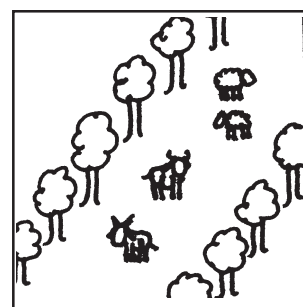


2. Agroforestry

Trees are planted in belts about 10 m wide across farming land and fenced off. Farmland between the belts allow stock to graze. Farmers use the trees as in a tree farm (see Tree Farming).

Positives: shelter and shade for stock; windbreak; commercial value

Negatives: loss of grazing land as stock may ring-bark and kill trees if there were no fences; fire hazard; cost of fencing; fences divide up paddocks making it difficult to drive stock and machinery

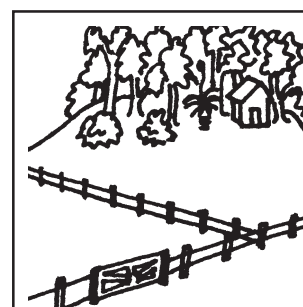


3. Remnant Bushland

The remaining bushland can be used for eco-tourism purposes. A camp site can be set up, bungalows built and walk trails made for people who want to get away into a bushland environment (only 10 per cent of remnant vegetation is left in the Shire).

Positives: preservation of bushland; public have access to bushland they may normally not have the chance to wander through; income

Negatives: clearing for buildings and pathways; building cost; human disturbances; liability in case someone gets injured; is tourism viable? will people come?

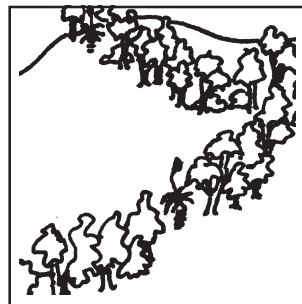


4. Bush Corridors

Planting local native trees and understorey plants as buffers along the fences, creeks and around dams to join up remnant pieces of vegetation.

Positives: wind break; animal corridor; beauty; attract insect predators to lower crop pests

Negatives: no income; fire hazard; loss of grazing land; cost of fencing and plants

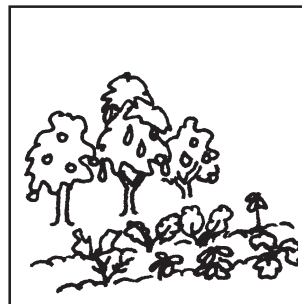


5. Organic Garden and Orchard

Creating a fruit/nut orchard or vegetable garden without the use of chemicals and artificial fertilisers.

Positives: not using chemicals is better for health; income, good quality food, reduced food bill.

Negatives: transport/cooling costs; labour intensive; establishment costs; water supply; non-native so seeds can blow away and grow wild in places where they should not be

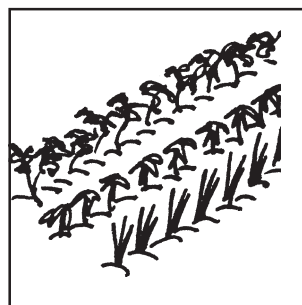


6. Herb Farming

Herbs are very popular and the markets are increasing. Herbs are used in medicines, oils, vinegars and beauty products.

Positives: not heavy work; income, herbs for health

Negatives: transport costs; labour intensive at picking time; establishment costs; water supply; non-native so seeds can blow away and grow in places where they should not be

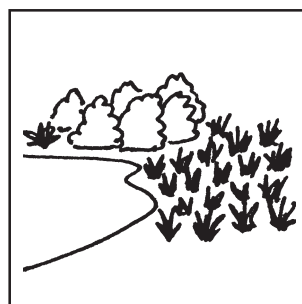


7. Salt Rehabilitation

A cleared area of land has turned salty because the trees are no longer there to keep the water table low. The water has risen and with it the salt. To stop the spread, salt resistant trees can be planted around the edge to help stop the water table rising. Salt tolerant shrubs can be planted in the salt areas to provide fodder for stock.

Positives: stop salt spreading; shade, shelter and food for stock; save valuable farmland; indirect income as stock will be able to graze on the shrubs; sets a good example to others

Negatives: cost of fences and plants, time and labour costs,

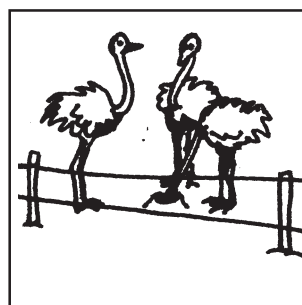


8. Ostrich Farming

Ostriches are a relatively new industry and provide meat, oil and feathers. They are a delicacy in many restaurants.

Positives: soft-footed; can run many animals in a small area; income

Negatives: products are expensive to buy, therefore there is a select market; cost of high fencing; competition; transport costs; ostriches are not Australian native birds

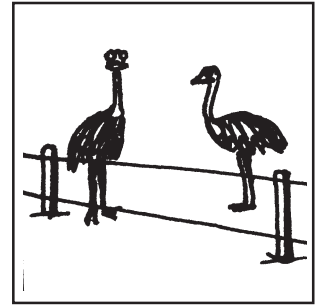


9. Emu Farming

Emus provide meat, oil and feathers. They are a delicacy in many restaurants.

Positives: soft-footed; can run many animals in a small area; income; native animal used to Australian climate.

Negatives: not an 'everyday' meat, therefore it is a select market; competition; need strong fencing; transport costs

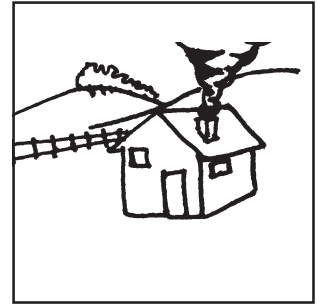


10. Farmstay

People want to go on holidays to places they haven't been before or places that they enjoy. Farms have become very popular with visitors staying at the farmhouse or in private accommodation on the farm.

Positives: possibly little investment; open the hours you chose; companionship; income

Negatives: advertising costs; having strangers around; having to be 'nice' all the time; liability in case someone gets injured



11. Bush Tucker

Many Australian native plants are now being used for a variety of food purposes. For example, the bush tomato is used to make chutney; wattle seed is made into flour and biscuits and as a flavouring in ice cream; Lily Pili is eaten as a fruit and made into jam.

Positives: native plant used to climatic and soil conditions, gourmet market, not much competition, low environmental impact

Negatives: not a large market, need to educate people's tastebuds



12. Free Range Farming

Most chickens are raised in battery farms and others in barns. These chickens do not have sunlight or fresh air. Many pigs are also raised in an indoor shed and are unable to express natural behaviour. Free range farming allows such animals to live a more natural life out in the open air. The meat and eggs from these animals are sold as free range.

Positives: not much competition, good lifestyle for animals

Negatives: small market, compaction of land



