get growing!

National Tree Day®

ENVIRONMENTAL EDUCATION KIT

National Tree Day is organised by Planet Ark in partnership with Toyota Prius

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The 'Get Growing!': Environmental Education Kit has been produced by Planet Ark in partnership with the Australian Association for Environmental Education as an education and learning resource for teachers and students participating in Schools Tree Day and National Tree Day. *

This resource has been designed to increase the environmental, educational and community development outcomes of mass plantings of locally indigenous plant species and bush regeneration in benefiting Australian ecosystems, thereby satisfying the Aim of the National Tree Day project.**

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'Get Growing!' Environmental Education Kit

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* National Tree Day 2008 is organised by Planet Ark in partnership with Toyota and the AMP Foundation.

** For more information on the Vision, Aim and Objectives of National Tree Day, please go to: treeday.planetark.org.

*** The Australian Association for Environmental Education (AAEE) is the premier, national, professional association for those who identify themselves as working in the fields of environment or sustainability education.

**** The National Tree Day Environmental Advisory Committee was set up to provide technical and specialist advice to enhance the environmental and social outcomes of the National Tree Day project. Member organisations include: Trees For Life, the Australian Association of Bush Regenerators, Greening Australia, Landcare Australia, the Australian Local Government Association and Education for Sustainability.
For more information on the NTDEAC, please go to treeday.planetark.org.

TEACHERS NOTES

UNIT OBJECTIVES

After completing this unit students will:

- Know the best places to plant native plant communities in their local area
- Understand which native plants need protection in their local area
- Understand that some trees have iconic status because of their historic significance, age, and the roles they played in the past
- Know that some native plants are threatened, or have become extinct, in Australia

HELPFUL TERMS AND DESCRIPTORS (SEE GLOSSARY FOR DEFINITIONS)

- Aspect and Site
- Bush Tucker
- Conservation
- Iconic Trees
- Local Provenance
- Native Plants
- Propagation
- Bush Tucker

FOCUS QUESTIONS

1. (Stage 1) What is growing in our school grounds? OR (Stage 2 and 3) Where is the best place to put native plants in our local area and which ones should we plant?
2. Which plants should we conserve in our local area?
3. How and why should we conserve native trees and plants?
4. Why are some trees so well known?
5. Which native plants are threatened, or have become extinct, in Australia?

OTHER RESOURCES AND WEBSITES SUPPORTING THIS UNIT

Throughout this resource you are encouraged to be in contact with your local Bushcare, Coastcare, Landcare, National Parks or council representative. They have invaluable knowledge that will ensure your projects create the best living environment for local species. It may be a good idea to read through the entire unit and make a list of questions or key points where local expertise will be required, in order to make the best use of their and your time.

GENERAL INFORMATION ON AUSTRALIAN PLANTS

http://asgap.org.au/
http://www.anbg.gov.au
http://www.greeningaustralia.org.au/resources/resources
http://www.landcareonline.com/page.asp?pID=43
http://www.gullivermedia.com.au/eco.html

INFORMATION ON ORGANISING A PLANTING ACTIVITY AT YOUR SCHOOL

http://treeday.planetark.org/teachers

BUSH TUCKER

http://www.teachers.ash.org.au/bushtucker/

ANIMAL LIFE IN TREES

http://www.gould.org.au/wildlifecams/videos.asp

CREATIVE WORKS

POEMS:
Bellbirds by Henry Kendall; Flying Squirrels by Banjo Patterson

BOOKS:
Where the Forest Meets the Sea by Jeannie Baker

SONGS:
Home Among the Gum Trees and Rip Rip Woodchip by John Williamson

PAINTINGS:
The Pioneers by Frederick McCubbin; Sherbrooke Forest by Tom Roberts

BACKGROUND INFORMATION

When looking to plant the right type of native trees, shrubs or grasses for your local area, it is always good to find out what the original vegetation of the area was like. This is because these original plant communities have the best chance of survival. They have long adapted to the soil and local climate conditions and will help to restore the natural character of an area, as well as providing food and shelter for endemic animals. These plants also play a supporting role for a variety of native insects and fauna and by replanting these species we help ensure they survive in preference to becoming threatened or extinct.

A healthy community garden begins with careful planning. Talk to your local council, Bushcare, Landcare or National Parks officer about which species are appropriate for your neighbourhood. Your trees should be properly placed to avoid collisions with power lines and buildings. With a little research and a simple layout, you can also produce a landscape that will cool homes and public places in summer, and provide shelter from the winter winds, meaning that your plants will make your environment not only attractive, but help make your community buildings more sustainable.

A proper vegetation plan takes each tree, shrub, ground cover or any other plant into consideration:

Height - Will the tree or plant bump into anything when it is fully grown? Is it too close to buildings or other structures? Will the roots cause a problem?

Canopy spread - How wide will the tree grow? How far apart do you need to plant them to provide room for healthy growth? Check the spread of the species before you plant it.

What is the nature of the plant? - Will it lose its leaves or bark at any time of the year and, if so, will this cause a problem for gutters and drains? Consider that some Australian plants are more likely to lose their leaves in summer (e.g. some eucalypts).

Form or shape - A columnar tree will grow in less space. Round and V-Shaped species provide the most shade. Make a note of where north is and the passage of the sun throughout the day at different times of the year to see where shade may be needed.

Growth rate - How long will it take for your tree to reach its full height? Slow growing species typically live longer than fast growing species. Many Australian shrubs like acacias, grow quickly and die after a relatively short time making way for larger trees. Have a long-term strategy for plant life and replacement where necessary.

Soil, sun, and moisture – How much of each of these do your chosen plants need? Consider the extremes of climate over time in Australia, including the incidence of drought and floods.

Fruit and flowers – Be aware that some trees shed fruit or flowers that can become messy or slippery (however this is mainly a consideration for exotic plants like jacaranda).

What insect and fauna community is the vegetation likely to attract and/or support? Do you want to attract certain birds or butterflies, or perhaps provide a food source for insects so the frogs in your garden pond also have a ready food source?

Some trees bring fond memories of the past or have become part of our history. The **Wollemi Pine** grew during the dinosaur age and was thought to be extinct, but was found in a canyon within a National Park north-west of Sydney. It has become famous and botanists have now propagated it for thousands to enjoy throughout the world. The Wollemi Pine is available for ornamental and educational purposes as well as for use in contained garden plantings.

The Gloucester Tree is probably Western Australia's most famous karri tree. This 60-metre-high giant towers above the forest surrounding Pemberton, and was one of eight lookout trees built between 1937 and 1952 in the karri forest as a practical response to one of the most serious threats to forest communities in the South-West: fire.

The **Aleppo Pine** (Pinus halepensis), otherwise known as the **Lone Pine,** has been planted at the Australian War Memorial in Canberra accompanied by the following inscription:

"After the capture of the Lone Pine ridge in Gallipoli (6 August 1915), an Australian Soldier who had taken part in the attack, in which his brother was killed, found a cone on one of the branches used by the Turks as overhead cover for their trenches, and sent it to his mother. From the seed shed by it she raised the tree, which she presented to be planted in the War Memorial grounds in honour of her own and others' sons who fell at Lone Pine."

Your tree planting activity may also recognise some historic event or well known person in your community.

STAGE 3

FOCUS QUESTION 1: WHERE IS THE BEST PLACE TO PUT NATIVE PLANTS IN OUR LOCAL AREA AND WHICH ONES SHOULD WE PLANT?

Greening our school

Materials

Four copies of a map or aerial photo of the school grounds (could be from Google Earth, a capture map, or you could take your class on a walk around the grounds and draw a rough aerial map based on their observations). It should include all buildings, driveways, playing fields and garden areas, etc.

ACTIVITY

Explain to the class that in order to learn which native plants should be planted in your school grounds, and to determine where the best place to plant would be, they are going to investigate and draw up a vegetation plan for the school.

Split the class into four groups and give each group a copy of the aerial map. To begin, each group should place a transparent 1cm grid overlay on top of their map and calculate the percentage of sealed, vegetated, grassed, and built areas contained within the school grounds. As a percentage of total space, how much of the school ground could be potential planting sites?

Each group should then specifically list the areas of the school that would be suitable for revegetation.

Groups should then consider which plants would be best suited for planting in each site, keeping in mind design, climate, soil type, proximity to buildings, the amount of shade or sunlight required, how high the plants will grow, whether they can withstand dry spells, and whether their roots will be a problem for underground pipes. Aim for a balance of ground covers, shrubs and trees. Students can research which native plants will be most appropriate for their site by consulting with local bush regeneration officers, looking up library resources, or by visiting Internet sites such as http://www.sgaonline.org.au/plants.html.

Each group should then report back to the class with their findings and recommendations for the school, including a summary of why they chose the sites and plants they did and the purpose of the revegetated area (their reasons may be biological, aesthetic, providing a practical purpose e.g. shade for lunch areas, reducing traffic noise, as a teaching learning centre for reading or science, or for a bush tucker garden).

FOCUS QUESTION 2: WHICH PLANTS SHOULD WE CONSERVE IN OUR LOCAL AREA?

Growing for the future

Materials

Reports from Focus Question 1 above

Library and Internet resources

Seed propagation equipment (planter trays, soil, seeds)

ACTIVITY

Explain to students that there are very good reasons for keeping local native plants in their area. Since 1788 when colonial settlers first came to Australia, native plants have been removed or out-competed by exotic plants. Native plants are an important food source for our local fauna and they are unique because they are perfectly suited to the local environment. This means they will thrive in local rainfall patterns and soil. Native plants also provide habitat, shelter and food for our wildlife, enhance wildlife corridors and contribute to the distinctive local character of an area.

Make a list of the native plants you identified as most suitable for your school grounds in Focus Question 1.

Allocate each plant to a different group of students, and instruct each group to spend time researching their plants characteristics, how to grow it from seed, and where seeds can be obtained (could be from a local native or community nursery, or a state forest or National Park).

Information should be written up on poster board, with drawings to accompany their findings. These can be displayed around the classroom.

Contact the seed providers discovered and obtain seeds for each of the plants suitable for your school. As a class, propagate and raise them at the school (in a shade house if you have one) for future planting efforts.

For more information on propagation, visit http://home.vicnet.net.au/~schools/pdfs/modules/s4fmod3.pdf.

FOCUS QUESTION 3: HOW AND WHY SHOULD WE CONSERVE NATIVE TREES AND PLANTS?

Plants that inspire

Materials

A selection of 3 or 4 creative pieces about trees and the bush (see Teacher's Notes for suggested resources)

Activity Sheet 3.6

ACTIVITY

Explain to students that native trees and plants provide us with many gifts - not only shade, clean air and beauty to our landscapes; they also provide inspiration for poets, musicians, writers and all types of artists.

Present a selection of creative pieces to the class (from the list in the Teacher's Notes, or your own favourites).

As you discuss each one (through song, recital or observation), ask students to consider what they think the meaning or moral behind the piece is, and what can be learned from the artists' message.

Let students know that they are now going to get their own opportunity to be inspired by native plants. Teach the students how to write a haiku poem (3 lines long, the first line contains five syllables, the second has seven, and the last has five), then take them into the school grounds to study a plant or landscape on which to base their poem.

Once their poems are written, bring them back into the classroom to write them up neatly on Activity Sheet 3.6.

For additional discussion, ask students to consider the following quote by William Blake (1757-1827); "The tree which moves some to tears of joy is, in the eye of others, only a green thing which stands in the way. As a man is, so he sees". How are trees seen as a thing of beauty? Are trees a living object of beauty or merely an object that stands in the way of development?

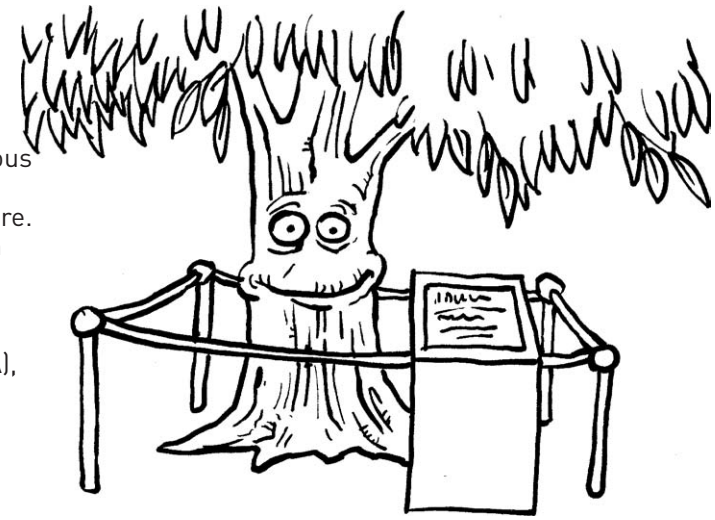
FOCUS QUESTION 4: WHY ARE SOME TREES SO WELL KNOWN?

Going down in history

Materials

Library and Internet resources

Collection of historic photos of your local area



ACTIVITY

Introduce students to the idea that some trees are famous locally, nationally or even internationally because they represent a significant event, person, discovery or culture. You could list some of the famous Australian trees such as the Tree of Knowledge (QLD and NT), the Lone Pine (ACT), the Wollemi Pine (NSW), the Bicentenary Tree (WA), the Coolabah Tree (QLD), the Burke and Wills Dig Tree (QLD), the Grandis (NSW), the Gloucester Tree (WA), or Aboriginal Scarred, Marked or Corroboree Trees at various locations around the country.

Divide students into 5 groups and allocate each group a different iconic tree to research. Each group should report on how their tree became well known, the history of the tree and what makes it significant and to whom (is it famous internationally? In Australia? In your state or region?). Their research should be presented on a poster with pictures for display.

As a class, discuss if there are any famous or iconic trees or plants in your local area. Why are they well known? What is their history? Looking through historic photos may reveal how trees have grown over time, or have remained constant despite the changes that have occurred in their environment over the years.

FOCUS QUESTION 5: WHICH NATIVE PLANTS ARE THREATENED, OR HAVE BECOME EXTINCT, IN AUSTRALIA?

Becoming a plant protector

Materials

A list of plant species under threat in your state (visit http://www.environment.gov.au/biodiversity/threatened/publications/plants.html)

Library and Internet resources
Activity Sheet 3.7

ACTIVITY

Explain to students that since Captain Cook visited Australia in 1770, hundreds of species have become extinct in Australia, including at least 50 bird and mammal species and more than 50 plant species.

When native plants become extinct, some of our native animals may also become threatened because they may depend on that plant for food and shelter. Biologists have now listed all those plants and animals known to be at risk of extinction in Australia. These are called threatened species. The list includes 19 species of fish, 15 frogs, 14 reptiles, 46 birds, 36 mammals and 513 plants.

There are two main threats to plant and animal species in Australia:

Loss of habitat – this may result from climate change, activities of humans, or natural events

The introduction of alien or exotic species - which prey on and compete with native species for food and habitat

Extinction of species is a big problem because a certain level of **biodiversity** (biological diversity) is necessary to keep our ecosystems healthy. This is because each species performs a different function in its ecosystem. Some species help pollinate plants and therefore help them to reproduce, some recycle nutrients, and some maintain soil fertility. One species may be a source of food for another, or may help keep another's population in check.

Each student should select a threatened native plant species to research and should prepare a presentation (PowerPoint may be used) which addresses the following:

The ecosystem their species lives in.

The function of their species in the food chain. Which animals and insects are dependent on their species? Why is it important for biodiversity?

What is causing the extinction of the species and putting it in danger of disappearing?

What could be (or is being) done to protect this species for future generations?

Students can use Activity Sheet 3.7 to help them compile their research.

Activity Sheet 3.6 – Stage 3:
Plants that inspire

Name: _____ Date: _____

Write your haiku poem neatly in the circle below, then decorate and draw in the rest of the box, around the outside the circle.

My Haiku Poem

_____

_____

_____

Activity Sheet 3.7 – Stage 3:
Becoming a native plant protector

Name: _____ Date: _____

The threatened plant species I have chosen to research is _____

_____

The ecosystem it lives in is _____

_____

_____

The animals and insects that rely on my threatened species are

_____

_____

They rely on it because _____

_____

_____

This plant species is threatened because _____

_____

_____

_____

I think we can conserve this special plant species by _____

_____

_____

_____

Here is a picture of my threatened native species:

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Unit 3 - Feedback and Evaluation Form

This resource has been developed to help students get the most out of their National Tree Day and/or Schools Tree Day event, and to provide learning experiences that enable them to grow into environmental custodians.

In order to improve this resource in the future, we would greatly appreciate your feedback.

Once completed, please fax this form to **02 4757 8980** or post to

Planet Ark Environmental Foundation, PO Box 4, Wentworth Falls, NSW 2782

Please answer the following questions:

Teacher Name: _____

School Name: _____

Grade/Class: _____

Which state do you teach in? _____

In which Local Government Area is your school? _____

Which stage of lessons did you implement? _____

Which focus questions did you implement? _____

Did your class participate in Schools Tree Day? Yes No

If so, on what date? _____

How did you hear about this resource? _____

Please remark on the following statements on the scale provided:

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I feel the lessons were effective in teaching their stated aims	1	2	3	4	5
I feel the class was engaged by the unit content	1	2	3	4	5
I feel the lessons were appropriate for their age and level of understanding	1	2	3	4	5
I found this unit useful for incorporating environmental education into my lesson planning	1	2	3	4	5
I feel this unit helped to increase my class' knowledge about the benefits of creating healthy native plant communities	1	2	3	4	5
I feel my class is now better equipped to be environmental custodians as a result of this unit	1	2	3	4	5
(If applicable) I feel this unit gave good educational support to our Schools Tree Day event	1	2	3	4	5

Which lesson(s) did you find were the most effective?

Which lesson(s) did you think were ineffective or inappropriate?

Was there anything about the document layout that you found frustrating?

How would you like to see this unit changed or improved for the future?

Are there any other comments, feedback or suggestions you would like to make?

Are you happy for us to contact you for further feedback? If so, please provide a contact number:

Thank you for taking the time to fill in this evaluation form.

Your feedback will ensure that we can produce the best possible resources to support the valuable work you are doing in educating our children, the future leaders of our world.