

Native Forests and Plantations of the South West of Western Australia

This teaching and learning pack promotes the topic of forests/plantations as one valuable thematic study to enable your students to move towards the attainment of the outcomes and core values of the Curriculum Council of Western Australia, *Curriculum Framework*, 1998, especially through Science, Society and Environment and Technology and Enterprise.

You do not need to be in the South West native forest environment to carry out this study. Much work can be done with trees and in bush on or close to the school site, with all precautions for such field work rigorously observed. Of course this is difficult for some school locations. For schools far removed from the South West of WA, the relevance of the native forests may seem remote, with the local environment providing many of the learning experiences to attain the *Curriculum Framework*, 1998 outcomes. However it is important that students also have some experience of environments far removed from their own. For example, students in Karratha can benefit by learning about the South West forests of WA.

The topic is relevant **P** to year 12.

More Specific Reasons for Using the Forests/Plantations Theme as Part of Your Teaching and Learning Program

Native forests are valued by societies such as ours for these reasons:

- 1 Trees are the lungs of the earth;
- 2 Forests are water catchment areas;
- 3 Forests contain a biodiversity of native flora and fauna that we want to conserve;
- 4 Forests are places humans like to experience for recreation and that sense of awe that comes from being a small creature amongst tall forest trees;
- 5 Forests are a source of food (for living creatures and plants), wood and medicinal products.

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Of the above, at least 1 and 5 apply also to tree plantations.

As societies the majority of humans have developed from hunters and gatherers to cultures based on the complex technologies of the twenty first century. The dependence on wood has diminished in relation to the discoveries of materials such as iron, steel, aluminium, plastics and concrete and the use of other means to protect from the elements, light the dark, keep the cold at bay and cook the food. Most of the so called 'developed countries' are well into the era of democratic debate about the balance to be achieved amongst the above-listed native forest values if they are to have ecologically sustainable native forest ecosystems. Generally these countries have learned to produce more food on the cleared farm land than their populations can consume and to have excess for export. Some are also in a position to put some of this cleared farm land back under trees in the form of monoculture or multiculture plantations of softwood and hardwood species, native and introduced. In so doing they are creating a situation where there is a decreasing need to harvest the native forests for timber products.

In what are rightly or wrongly called 'developing countries' some are still at the stage where the use of native forests to meet primary daily needs and to create export dollars is paramount. In some cases this means wholesale rapid removal of native forests, given the modern technologies that enable such destruction to proceed at a frightening pace. In other cases it means clearing native forests to produce sufficient land for agriculture to meet primary food needs. The remaining indigenous forest dwelling hunters and gatherers of the twenty first century are clinging precariously to their ancient lifestyles, seemingly against overwhelming odds.

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Prior to European settlement, some Aboriginal groups lived in the South West forests of Western Australia, making use of the rich stock of resources to sustain their hunting and gathering way of life. In the early stages of European settlement the new arrivals soon realised the value of the South West forest native hardwoods and began to utilise this resource. In those times 'wood' was a widely used commodity. The topics in this suggested thematic study range from pre-European settlement through to 2001. Of particular interest is the Regional Forest Agreement (RFA) process between the Commonwealth and State governments, especially from about 1997 through to August 2001. The nub of the RFA process was to bring the use of wood products from the native forests into sharp focus, with the key players being the Commonwealth and State governments, the commercial timber industry interests and various conservation lobby groups. The RFA for WA was signed in May 1999, but was subject to further adjustment by the Court state government and more recent continuing adjustment by the Gallop state government. **The outcome for the timber industry has been the necessity of making major restructuring decisions in terms of a reduced availability of native forest for harvesting. The Gallop government has agreed that native forest timber will still be available, but at much reduced levels.**

With the close relationship of human beings with the native forests of the South West as the focus, the opportunity exists for an exciting series of learning experiences for students relevant to the attainment of a wide variety of learning outcomes and core values across the P-12 year levels within the Curriculum Council of Western Australia, *Curriculum Framework*, 1998 and post compulsory courses. Following are sets of tabulated summaries of the relevance of the native forest/plantations theme. These summaries are intended to assist you in preparing appropriate teaching and learning for your students.

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Guidelines to Assist Your Planning for Teaching and Learning

Table 1.0:

- Provides a sequence or continuity of areas of knowledge and experience (in blue text) for the forests/plantation theme across the four phases of development of the *Curriculum Framework*, 1998. (The areas of knowledge under each learning area, within each phase, are not in a recommended order. They can be taught in the order deemed by you to be most effective.)
- Indicates the relevance of these areas of knowledge and experience to the attainment of the appropriate learning area outcomes of the *Curriculum Framework*, 1998;
- Indicates appropriate resources for the areas of knowledge. (Where possible resources have been chosen that already contain suggested activities for students.)

Please consult the [Forest Industries Federation \(WA\) web site \(www.fifwa.asn.au\)](http://www.fifwa.asn.au) under 'Schools' if you need assistance with finding any of the resources detailed in Table 1.0. For example, the **key reference**, *Forest Industries Federation (WA), Background Notes for Teachers on the Forest Industries of Western Australia*, August 2001. The web site also explains how to **make contact with a Forest Industries education consultant**.

Table 2.0 provides the direct links between the learning area outcomes identified in Table 1.0 and the overarching outcomes of the *Curriculum Framework*, 1998. This linking is further extended to the core values of the *Curriculum Framework*, 1998.

Tables 1.0 and 2.0 include the learning areas of Science, Society and Environment and Technology and Enterprise. For those teachers operating in a widely integrated learning environment other relevant learning areas are English, the Arts and possibly LOTE for Australian Aboriginal languages.

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TABLE 1.0
A Sequence of Forest/Plantation Topics Described across the Phases of Development of
the Curriculum Council of Western Australia, *Curriculum Framework, 1998*

[The *Curriculum Framework, 1998* learning area outcomes relevant to the topics are shown in bold face within square brackets.]

<p style="text-align: center;">Early Childhood Kindergarten to year 3</p>	<p style="text-align: center;">Middle Childhood Typically years 3 to 7</p>	<p style="text-align: center;">Early Adolescence Typically years 7 to 10</p>	<p style="text-align: center;">Late Adolescence/Young Adulthood Typically years 10 to 12</p>
<ul style="list-style-type: none"> • Where the native forests of the south west of WA are located in the general sense of family trips and how far it is to say Manjimup. Not a formal map type study. [Place and Space, #2, P252] <p>Resources:</p> <p>⇒A simple large map of WA showing locality of your students in relation to say the locality of Manjimup. Discussion about how we could travel to Manjimup and how long it would take. Utilise experiences of students who have been there.</p> <p>⇒Pictures such as on the Forrest Industries Colour Poster , <i>Western Australia's Growing Forests</i> , 1998 (Every WA school has two copies.)</p> <p>⇒Pictures from the CALM <i>Nature Base</i> web site under Plants and Animals and then Getting to Know WA's plants and animals (www.calm.wa.gov.au/plants_animals/five_by_five)</p>	<ul style="list-style-type: none"> • The concept of “native forest” and “plantation” [Natural and Social Systems, #6, p252]. <p>Resources:</p> <p>⇒Nicholls C, <i>Timber</i>, The Workboot Series, Kondinin Group, 1998, pp 14-17. (Can purchase this excellent reference by phoning 1800 677 761 – cost is \$18.95 plus postage.)</p> <p>⇒Pictures from the CALM <i>Nature Base</i> web site under Plants and Animals and then Getting to Know WA’s Plants and Animals – see the karri and jarrah slides and follow through to obtain more information from the ‘thumbnails’ (www.calm.wa.gov.au/plants_animals/five_by_five)</p> <ul style="list-style-type: none"> • Where the native forests and plantations of WA are located and why. [Place and Space, #2, P252] <p>Resources:</p> <p>⇒Use a recent <i>school atlas</i> – the WA maps showing natural vegetation, rainfall and soils. Show students (year 7) the juxtaposition of these factors that favour the growth of the large jarrah and karri trees.</p> <p>⇒Forest Industries Federation (WA), “Year 4 Resource Pack”, <i>Living With Our Forests</i>, 1997, pp19 & 19a and the “Year 7 Resource Pack”, p18. (Every WA primary school has copies of these Resource Packs.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p> <p>⇒Nicholls C, <i>Timber</i>, The Workboot Series, Kondinin Group, 1998, p17.</p>	<ul style="list-style-type: none"> • Review the reasons for the location of native forests and plantations of WA in terms of the juxtaposition of factors such as soils and climate. [Place and Space, #2 and Natural and Social Systems, #6, p252]. <p>Resources:</p> <p>⇒See CALM map, Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, section 6.0.</p> <p>⇒See Forest Industries Federation (WA), Notes on Plantations in W.A. (Refer to www.fifwa.asn.au)</p> <p>⇒Use a recent <i>school atlas</i> – the WA maps showing natural vegetation, rainfall and soils. Show students (year 7) the juxtaposition of the factors that favour the growth of the large jarrah and karri trees. Compare the CALM map of Forest Types as appended to the Background Notes for Teachers, 2001.</p> <p>⇒Forest Industries Federation (WA), “Support material for the Social Studies units: Earth & People; Australian Landscapes; World Environmental Issues”, <i>Living With Our Forests</i>, 1997, pp 4-10; 22-31. (Every WA secondary school has copies of this Resource Pack.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p>	<ul style="list-style-type: none"> • The state of the world’s native forests, e.g., acid rain effect; the tensions within developing countries to export native timbers to create revenue and yet to preserve the native forest ecologies; the pressures from developed countries for sustainable management of native forests. [Natural and Social Systems, #6, p252]. <p>Resources:</p> <p>⇒Forest Industries Federation (WA), “Support material for the Social Studies units:Earth & People; Australian Landscapes; World Environmental Issues”, <i>Living With Our Forests</i>, 1997, pp 72-79. (Every WA secondary school has copies of this Resource Pack.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p> <p>⇒Forest Industries Federation (WA), “Support material for the Year 11 Geography unit, Resource Studies”, <i>Living With Our Forests</i>, 1997, pp 82-90. (Every WA secondary school has copies of this Resource Pack.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p> <p>⇒Page 1 of this pdf download. <i>Table cont next page ></i></p>

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<p>Early Childhood Kindergarten to year 3</p>	<p>Middle Childhood Typically years 3 to 7</p>	<p>Early Adolescence Typically years 7 to 10</p>	<p>Late Adolescence/Young Adulthood Typically years 10 to 12</p>
		<ul style="list-style-type: none"> • WA’s native forests as part of the Australian and world natural vegetation regime. [Natural and Social Systems, #6, p252]. <p>Resources:</p> <p>⇒Use a recent school atlas to extend to world maps showing natural vegetation, rainfall, temperature, and soils. Extend the discussions on juxtaposition of factors resulting in the types and distribution of vegetation.</p> <p>⇒Forest Industries Federation (WA), “Support material for the Social Studies units:Earth & People; Australian Landscapes; World Environmental Issues”, <i>Living With Our Forests</i>, 1997, pp 4-10; 11-18; 33-43.</p> <p><i>Table cont next page ></i></p>	

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<p>Early Childhood Kindergarten to year 3</p>	<p>Middle Childhood Typically years 3 to 7</p>	<p>Early Adolescence Typically years 7 to 10</p>	<p>Late Adolescence/Young Adulthood Typically years 10 to 12</p>
<ul style="list-style-type: none"> An introduction to Aboriginal culture of the Bibbulmun people of the south west of WA. A story, pictorial, arts approach. [Time, Continuity & Change, #5 and Culture, #4, p252] <p>Resources:</p> <p>⇒Department of Conservation and Land Management, “A forest is a very busy place, for Kindergarten to Year Two”, <i>Forest Packs</i>, 1997, pp62-63.</p> <p>⇒Jacob Trevor K, <i>In The Beginning: A Perspective On Traditional Aboriginal Societies</i>, Ministry of Education Western Australia, 1991, pp 224-238 – See also many other sections of this work. This is mainly a teacher background reference at this stage of student development, however there are many pictures that could be used with the students.</p>	<ul style="list-style-type: none"> The Aborigines as hunters and gatherers in the native forests pre-European settlement. [Time, Continuity & Change, #5 and Culture, #4, p252] <p>Resources:</p> <p>⇒Jacob Trevor K, <i>In The Beginning: A Perspective On Traditional Aboriginal Societies</i>, Ministry of Education Western Australia, 1991, pp 224-238.</p> <p>⇒Forest Industries Federation (WA), “Year 7 Resource Pack”, <i>Living With Our Forests</i>, 1997, pp36-37. (Every WA primary school has copies of this Resource Pack.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p> <ul style="list-style-type: none"> At a fairly simple level the effects of European settlement on the lifestyle of the forest Aborigines and on the forest itself. [Time, Continuity & Change, #5 and Culture, #4, p252] <p>Resources:</p> <p>⇒“Growth of the Timber Industry” pp 69-71 and “The Spread of Farming” pp 76-81 in Western Australian Government, <i>Western Australia – An atlas of human endeavour, 1829 – 1979</i>, Produced for the Education Committee WAY ‘79 by the Education and Lands and Surveys Departments of Western Australia, Government Printer, 1979. (This commemorative Atlas should be in your school.)</p> <p>⇒Photographs of the history of the WA timber industry from the Forests Products Commission of WA web site: www.fpc.wa.gov.au</p>	<ul style="list-style-type: none"> More detailed studies of the effects of European settlement on the lifestyle of the forest Aborigines and on the forest itself. An industrial and agrarian culture interacts with the native forest ecologies including the Aboriginal forest dwellers. [Time, Continuity & Change, #5 and Culture, #4, p252] <p>Resources:</p> <p>⇒Jacob Trevor K, <i>In The Beginning: A Perspective On Traditional Aboriginal Societies</i>, Ministry of Education Western Australia, 1991, pp 224-238.</p> <p>⇒“Growth of the Timber Industry” pp 69-71 in Western Australian Government, <i>Western Australia – An atlas of human endeavour, 1829 – 1979</i>, Produced for the Education Committee WAY ‘79 by the Education and Lands and Surveys Departments of Western Australia, Government Printer, 1979.</p> <p>⇒Stannage, C T, <i>The People of Perth, A Social History of Western Australia’s Capital City</i>, Perth City Council, Perth, Western Australia, 1979, See the Index sections under Aborigines. (This reference gives a sense of the interactions between the settlers and the Aborigines.)</p> <p>⇒Forest Industries Federation (WA), “Support material for the Social Studies units:Earth & People; Australian Landscapes; World Environmental Issues”, <i>Living With Our Forests</i>, 1997, pp 44-52. [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p>	<ul style="list-style-type: none"> In more detail, as the twenty first century commences, the values of forests and plantations to: <ul style="list-style-type: none"> ⇒Societies such as ours; ⇒Contemporary hunters and gatherers of say the Amazon; ⇒To developing countries such as some of our northern neighbours. <p>[Time, Continuity & Change, #5 and Culture, #4 and Resources, #3, p252]</p> <p>Here there should be an entering into the complexities of argument for this and that position within WA, within countries and globally (WTO). For example, the lobby groups in the WA Regional Forest Agreement process (1999); the use of long cleared farm land to grow timber plantations and the rich nation versus poorer nation arguments.</p> <p>Resources:</p> <p>⇒Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, sections 2.1, 3.0 and 5.0 (p8).</p> <p><i>Table cont next page ></i></p>

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<p>Early Childhood Kindergarten to year 3</p>	<p>Middle Childhood Typically years 3 to 7</p>	<p>Early Adolescence Typically years 7 to 10</p>	<p>Late Adolescence/Young Adulthood Typically years 10 to 12</p>
		<ul style="list-style-type: none"> • The 1919 Forest Act in WA and its mandate of remaining crown land native forest being deemed State controlled forest or public forest. [Time, Continuity & Change, #5, p252] <p>Resources:</p> <p>⇒ “Growth of the Timber Industry” pp 69-71 – see Resources in the above section.</p> <p>⇒ Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, section 4.0.</p> <ul style="list-style-type: none"> • The National Forest Policy Statement signed in 1992 by the Federal, State and Territory governments. [Time, Continuity & Change, #5, p252] <p>Resources:</p> <p>⇒ Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, section 5.0 pp7-8.</p> <p><i>Table cont next page ></i></p>	

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<p>Early Childhood Kindergarten to year 3</p>	<p>Middle Childhood Typically years 3 to 7</p>	<p>Early Adolescence Typically years 7 to 10</p>	<p>Late Adolescence/Young Adulthood Typically years 10 to 12</p>
<ul style="list-style-type: none"> • An exploration of the wonders of the native flora and fauna of the forest. This at the level of the students having the experience without having to recall the knowledge in detail. [Life & Living, #8, p220] <p>Resources:</p> <p>⇒Department of Conservation and Land Management, “A forest is a very busy place, for Kindergarten to Year Two”, <i>Forest Packs</i>, 1997, many relevant sections containing learning experiences for students.</p> <p>⇒Pictures from the CALM <i>Nature Base</i> web site under Plants and Animals and then Getting to Know WA’s Plants and Animals – follow through to obtain more information from the ‘thumbnails’ (www.calm.wa.gov.au/plants_animals/five_by_five)</p> <p>⇒From the Bush Book series which is worth purchasing (from CALM or large bookshops at \$5.95 each) for the school Library:</p> <ul style="list-style-type: none"> •Johnson B and Thomson C, <i>Mammals of the South-West</i>, Department of Conservation and Land Management, 1996. •Wheeler J, <i>Common Trees of the South-West Forests</i>, Department of Conservation and Land Management, 1996. •Brown A, Keighery G and Thomson C, <i>Common Wildflowers of the South-West Forests</i>, Department of Conservation and Land Management, 1996. <p>Students can look at and discuss the pictures. They may spend some guided time identifying characteristics of say the Chuditch, the Woylie and the Banksias.</p>	<ul style="list-style-type: none"> • Learning about the value of the forests and plantations to the total environment, inclusive of humans as part of the environment. Understanding the natural systems of the native forest such as food chains. [Natural and Social Systems, #6, p252]. <p>Resources:</p> <p>⇒See the introductory section to this teaching and learning pack (pdf download) where the forest values are stated.</p> <p>⇒Forest Industries Federation (WA), “Year 4 Resource Pack”, <i>Living With Our Forests</i>, 1997, pp17 & 18. (Every WA school has copies of these Resource Packs.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p> <p>⇒Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, section 3.0.</p> <p>⇒Nicholls C, Timber, The Workboot Series, Kondinin Group, 1998, pp 57-63. (Can purchase this excellent reference by phoning 1800 677 761 – cost is \$18.95 plus postage.)</p> <p>Forest Industries Federation (WA), “Support material for lower school Science, unit 3.4, Ecology and unit 5.1, Biological field studies”, <i>Living With Our Forests</i>, 1997, pp 15-23. (Forest Industries consultants will send these pages on request.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p>	<ul style="list-style-type: none"> • More detailed studies of the “bio-diversity” of the native forest “ecosystems“. Part of this work is to practise some of the scientific processes for carrying out such studies. Also more focus on the impact of humans on these ecosystems. [Life & Living, #8; Investigating, #1 and Communicating Scientifically, #2, p220] <p>Resources:</p> <p>⇒Forest Industries Federation (WA), “Support material for lower school Science, unit 3.4, Ecology and unit 5.1, Biological field studies”, <i>Living With Our Forests</i>, 1997. (Contains much useful information and various suggested student activities. Secondary schools should have two copies.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p> <ul style="list-style-type: none"> • Detailed case study work on endangered flora and fauna species and associated recovery programs. [Life & Living, #8, p220] <p>Resources:</p> <p>⇒See the CALM <i>Nature Base</i> web site under Plants and Animals and then Getting to Know WA’s Plants and Animals – follow through to obtain more information from the ‘thumbnails’ (www.calm.wa.gov.au/plants_animals/five_by_five), especially the Numbat and the Dryandra State Forest references; -also see under Western Shield.</p> <p>CALM is preparing a pack that will enable detailed studies of endangered flora and fauna. The pack should be in schools in the second half of 2000.</p>	<ul style="list-style-type: none"> • These biodiversity studies can be extended especially taking opportunities to participate at sites such as the Dryandra State Forest Numbat program. [Life & Living, #8, p220] <p>Resources:</p> <p>⇒See the adjacent Early Adolescence column references to Dryandra.</p> <ul style="list-style-type: none"> • The role of scientists in managing the native forests and tree plantations of the south west of Western Australia. [Science in Daily Life, #3; Acting Responsibly, #4 and Science in Society, #5, p220]. <p>Resources:</p> <p>⇒Examples will emerge from studies of various of the other topics.</p> <p>⇒See the CALM <i>Nature Base</i> web site under Science Matters (www.calm.wa.gov.au/plants_animals/five_by_five).</p> <p><i>Table cont next page ></i></p>

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<p>Early Childhood Kindergarten to year 3</p>	<p>Middle Childhood Typically years 3 to 7</p>	<p>Early Adolescence Typically years 7 to 10</p>	<p>Late Adolescence/Young Adulthood Typically years 10 to 12</p>
	<ul style="list-style-type: none"> • More detailed studies of the native flora and fauna of the native forests to the extent of: <ul style="list-style-type: none"> ⇒ Their location and distribution pre- and post-European; ⇒ Species recognition and basic studies of taxonomic classification systems; ⇒ Some reasoning behind the need to and the desire to conserve native species; ⇒ A case study of the comeback of the Woylie. [Life & Living, #8, p220] <p>Resources</p> <ul style="list-style-type: none"> ⇒ From the adjacent Early Childhood column see the CALM Nature Base website and the three Bush Book publications. ⇒ Department of Conservation and Land Management. Western Shield Action Pack, 1996 (Can be obtained from CALM but is likely to be already in your school.) ⇒ Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, section 7.14. <p><i>Table cont next page ></i></p>		

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Early Childhood Kindergarten to year 3	Middle Childhood Typically years 3 to 7	Early Adolescence Typically years 7 to 10	Late Adolescence/Young Adulthood Typically years 10 to 12
	<ul style="list-style-type: none"> The concept of wood as a “natural resource” compared to person made resources. The concept of wood as a “renewable“ resource compared to “non-renewable” resources such as coal and oil. [Resources, #3, p252] The concept of “manufactured” goods such as fine furniture from timber. <p>Resources:</p> <p>⇒Forest Industries Federation (WA), “Year 4 Resource Pack”, <i>Living With Our Forests</i>, 1997, pp15-16. (Every WA primary school has copies of these Resource Packs.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p> <p>⇒Nicholls C, Timber, The Workboot Series, Kondinin Group, 1998, pp 54-55. (Can purchase this excellent reference by phoning 1800 677 761 – cost is \$18.95 plus postage.)</p> <p>⇒Forest Industries Federation (WA), “Support material for the Social Studies units:Earth & People; Australian Landscapes; World Environmental Issues”, <i>Living With Our Forests</i>, 1997, pp 53-59. (Forest Industries consultants will send these pages on request.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p>	<ul style="list-style-type: none"> A study of the native forest tree harvesting management programs of the late 1900s to 2001 and post 2003: <ul style="list-style-type: none"> ⇒The work of WA state government departments in managing the forests; ⇒The planning long term for timber harvesting of native forest trees and the work immediately prior to a decision as to whether logging can occur; ⇒Harvesting karri, marri and jarrah trees – the differing methods,e.g.,clearfelling, and the rationale behind them; ⇒Value adding as a conservation measure in converting the log into timber; ⇒Regrowing the forest after harvesting. ⇒Preserving the forest in conservation reserves. [Resources, #3, p252] <p>Resources:</p> <p>⇒Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, sections 4.0 – 8.0</p> <p>⇒Nicholls C, Timber, The Workboot Series, Kondinin Group, 1998, pp 20-25. (Can purchase this excellent reference by phoning 1800 677 761 – cost is \$18.95 plus postage.)</p> <p>⇒Forest Industries Federation (WA), “Support material for the Social Studies units:Earth & People; Australian Landscapes; World Environmental Issues”, <i>Living With Our Forests</i>, 1997, pp 53-59 & pp60-70. (Secondary schools have copies.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p>	<ul style="list-style-type: none"> Timber production and use as part of the Western Australian and Australian economy. Includes balance of payments problems with regard to the forest products of timber, wood chips for paper and paper pulp. Effects of the balance of payment situation on how to provide sufficient raw material from wood for Australia’s needs vis a vis exporting from countries who as yet do not have sustainable native forest industries. [Resources, #3, p252] <p>Resources:</p> <p>⇒Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, section 3.0.</p> <p>⇒Connell P and Yainshet A, “Western Australia: Measuring the economywide effects of RFAs”, Australian Forest Products Statistics, Australian Bureau of Agricultural and Resource Economics (ABARE), March quarter, 1999, pp1-8.</p> <p>⇒“Main Features”, Australian Forest Products Statistics, ABARE, March quarter, 2001, pp 1- 3: useful information on ‘balance of payments’.</p> <p>Contact a Forest Industries’ consultant for copies of the relevant pages containing the above ABARE articles.</p> <p><i>Table cont next page ></i></p>

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<p>Early Childhood Kindergarten to year 3</p>	<p>Middle Childhood Typically years 3 to 7</p>	<p>Early Adolescence Typically years 7 to 10</p>	<p>Late Adolescence/Young Adulthood Typically years 10 to 12</p>
	<ul style="list-style-type: none"> • The use of wood across the ages for primary needs such as tools, shelter, fuel, to create modes of transport such as wooden wheels, carts, ships and the effects of these technological advances. [Resources, #3, p252] <p>Resources: ⇒Nicholls C, Timber, The Workboot Series, Kondinin Group, 1998, pp 37-52. (Can purchase this excellent reference by phoning 1800 677 761 – cost is \$18.95 plus postage.)</p> <ul style="list-style-type: none"> • The contemporary competing resources such as concrete, steel, plastic, fibre glass and graphite. [Resources, #3, p252] <p>Resources: ⇒See 'Environmental Advantages', Forest Industries Federation (WA) web site: www.fifwa.asn.au</p>	<ul style="list-style-type: none"> • A study of the growth of softwood and hardwood tree plantations. [Resources, #3, p252] <p>Resources: ⇒Forest Industries Federation (WA) notes. 1999. ⇒Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, section 9.0 ⇒Nicholls C, Timber, The Workboot Series, Kondinin Group, 1998, pp 26-30. (Can purchase this excellent reference by phoning 1800 677 761 – cost is \$18.95 plus postage.)</p>	<ul style="list-style-type: none"> • Political and Legal Studies (Year 12) - E315 The Regional Forest Agreement (RFA) process 1998 through to the State government election in early 2001 is an excellent study of Pressure Groups. <p>Resources: ⇒Forest Industries Federation (WA), <i>Background Notes For Teachers on the Forest Industries of Western Australia</i>, August 2001, section 5.0, p8. ⇒Invite a Forest Industries consultant to speak to your senior students on lobby groups and the RFA process.</p> <ul style="list-style-type: none"> • The greenhouse gas equation and carbon credits through native and plantation forests. The Kyoto accord. <p><i>Table cont next page ></i></p>

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<p>Early Childhood Kindergarten to year 3</p>	<p>Middle Childhood Typically years 3 to 7</p>	<p>Early Adolescence Typically years 7 to 10</p>	<p>Late Adolescence/Young Adulthood Typically years 10 to 12</p>
	<ul style="list-style-type: none"> • Elementary explorations of the properties of various softwoods and hardwoods. [Materials, #2, p292] <p>Resources:</p> <p>⇒ Nicholls C, Timber, The Workboot Series, Kondinin Group, 1998, pp 12-13. (Can purchase this excellent reference by phoning 1800 677 761 – cost is \$18.95 plus postage.)</p> <p>⇒ See 'South West Timbers' from the Forests Products Commission of WA web site: www.fpc.wa.gov.au</p>	<ul style="list-style-type: none"> • Using wood to make and manufacture in a technological problem solving context. [Tech & Ent, #s1-7, p292] <p>Resources:</p> <p>⇒ See 'South West Timbers' from the Forests Products Commission of WA web site: www.fpc.wa.gov.au for the technical specifications of the various timbers.</p>	<ul style="list-style-type: none"> • Exploring wood as a raw material for fine furniture manufacturing. [Tech & Ent, #s1-7, p292] • The place of native and plantation timbers for major structural work in building. [Materials, #2, Systems, #4, p292] <p>Resources:</p> <p>⇒ Forest Industries Federation (WA), "Support material for the Year 11 Geography unit, Resource Studies", <i>Living With Our Forests</i>, 1997, pp 9-10. (Every WA secondary school has copies of this Resource Pack.) [Can identify this pack by seeing the cover page available in the Schools section of the Forest Industries Federation (WA) web site: www.fifwa.asn.au]</p> <p>⇒ See 'South West Timbers' from the Forests Products Commission of WA web site: www.fpc.wa.gov.au for the technical specifications of the various timbers.</p> <p><i>Table 2.0 commences next page ></i></p>

TABLE 2.0
Links between the learning area outcomes identified in Table 1.0 and the overarching outcomes
and core values of the Curriculum Framework, 1998

Learning Area Col 1	Learning Area Outcomes Col 2	Overarching Outcomes Directly Linked to the Learning Area Outcomes of Column #2 (Source, Curr Fwk, 1998, pp42-7) Col 3	Core Values (Incorporated in various of the outcomes of the Curriculum Framework, 1999) (Source, Curr Council,CD,Oct00) Col 4
Science	Investigating #1, p220 Communicating Scientifically, #2 , p220 Life & Living, #8, p220 Science in Daily Life, #3, p220 Acting Responsibly, #4, p220 Science in Society, #5, p220	#s 1, 2, 3, 4, 5, 6, 7 and 10 #s 1, 2, 3, 4, 6 and 7 #s 2,5, 7 and 11 #s 2, 3, 5, 6 and 7 #s 5 and 7 #s 3, 5, 7, 8 and 10	#s 1.3, 1.4, 1.5, 1.6, 1.7, 2.3, 2.4, 3.6, 5.2, 5.3, 5.4 No significant incorporation #s 5.3, 5.4 #s 1.2, 1.3 #s 2.3, 5.2, 5.3, 5.4 #s 1.4, 1.5, 1.6, 1.7, 2.3, 2.4
Society and Environment	Investigation, Communication and Participation, #1, p252 Place and Space, #2, P252 Natural and Social Systems, #6, p252 Time, Continuity and Change, #5, p252 Culture, #4, p252 Resources, #3, p252 Active Citizenship, #7, p252	#s 1, 2, 3, 4, 5, 6, 7, 8, 10 #s 5, 6, 7 and 8 #s 5, 7 and 8 # 8 #s 1, 4, 7, 8 and 9 #s 5, 6, 7 and 8 #s 5, 6, 7, 8, 9, 11	#s 1.4, 1.6, 1.7, 2.4, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6 #s 4.3, 5.1, 5.2, 5.3, 5.4 #s 4.1, 4.2, 4.5, 5.2, 5.3, 5.4 #s 1.4, 4.9, 5.1, 5.2, 5.3 #s 1.7, 4.3, 4.6, 4.7, 5.1 #s 4.7, 4.9, 5.2, 5.3, 5.4 #s 1.6, 1.7, 2.1, 2.2, 2.3, 2.5, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 4.4, 4.6, 4.7, 4.8, 4.9, 5.1, 5.2, 5.3, 5.4 <i>Table 2.0 cont next page ></i>

Cont...TABLE 2.0

Learning Area Col 1	Learning Area Outcomes Col 2	Overarching Outcomes Directly Linked to the Learning Area Outcomes of Column #2 (Source, Curr Fwk, 1998, pp42-7) Col 3	Core Values (Incorporated in various of the outcomes of the Curriculum Framework, 1999) (Source, Curr Council,CD,Oct00) Col 4
Technology and Enterprise	Technology Process #1, p292 Materials, #2 , p292 Information, #3, p292 Systems, #4, p292 Enterprise, #5, p292 Technology Skills, #6, p292 Technology in Society, #7, p292	#s 1, 2, 3, 4, 5, 6, 7, 10 #s 2, 4, 5, 6 and 7 #s 2, 3, 4, 5, and 7 #s 2, 4, 5, and 7 #s 2, 4, 5, 6 #s 2, 4, 5 #s 4, 6, 11	#s 1.3, 1.6, 2.5, 4.9, 5.2, 5.3, 5.4 #s 1.6, 2.3, 4.3, 4.5, 4.7, 4.8, 4.9, 5.2, 5.3, 5.4 #s 1.3, 1.6, 2.3, 2.5, 4.7, 4.9 #s 1.2, 1.3, 5.1, 5.2, 5.3, 5.4 #s 1.2, 1.3, 1.6, 2.5, 3.6, 4.5, 5.2, 5.3, 5.4 #s 1.1, 1.3, 2.1 #s 1.5, 1.6, 1.7, 2.3, 2.2, 4.3, 4.4, 4.7, 4.9, 5.3, 5.4 <i>Text cont next page column 1 ></i>

Schools using the Education Department of Western Australia, *Student Outcome Statements*, 1998

The *Student Outcome Statements* provide typical pathways of outcomes relevant to attainment, over the years P-10, of the outcomes and core values of the *Curriculum Framework*, 1998. While the *Student Outcome Statements* are a tool for monitoring student attainment and are not a syllabus, the pointers do provide hints as to the substance of the next teaching and learning units/segments/themes.

If you are using the *Student Outcome Statements*, 1998 continua you will know how they link directly to the *Curriculum Framework*, 1998 learning area outcomes. This direct relationship enables you to select from Table 1.0, topics relevant to attaining various of the *Student Outcome Statement* sub-strand level and strand level outcomes and, at the developmental level of your students, therefore the related *Curriculum Framework* learning area outcomes. This link can then be extended through Table 2.0 to the attainment of the related *Curriculum Framework* overarching outcomes and core values, also at the developmental level of your students.

It will be evident from the above explanation and Tables 1.0 and 2.0, that the learning areas of Science, Society and Environment and Technology and Enterprise are the focus. In an integrated across-learning-area segment/unit/theme of teaching and learning this does not preclude the attainment of outcomes in other learning areas. For example, there will always be opportunities in English.

The sub-strand level outcome ‘pointers’ in the “Society and Environment”, *Student Outcome Statements* are a sample only and they may not always include specific reference to the forest topics of Table 1.0. This does not preclude the use of the forest topics if we as professional teachers deem that those studies will move the students towards the attainment of the sub-strand level outcomes and their related strand level outcomes.

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In some instances the ‘pointers’ do however refer to forest topics. For example, for the sub-strands of the strand Place and Space in the learning area of Society and Environment PS 4.3 (p51). In R 3.1, p72 the pointers are concentrated on the notion of renewable and non-renewable resources with wood being the former and another pointer is focused on choices people make about the use of limited resources such as timber.

Again for the learning area Science, a reading of the sub-strand level outcomes and their pointers for the Strand Life and Living will reveal the relevance of the forest topics from Table 1.0.
