

Save Our Swamps

Blue Mountains Swamps

Stage 2 HSIE / Science Unit **Investigating Biodiversity**

ENS2.5 Patterns of place and location
ENS2.6 Relationships with places



The Blue Mountains Swamps are unique to the Blue Mountains. The flora and fauna are found nowhere else in the same variety in one location. The swamps have a major natural purpose in filtering water as it passes down the mountains landscape into the drinking catchment. They also preserve water for use by plants and animals in times of drought.

Whilst it is valuable for students to understand the global relevance of Antarctica and rainforests, looking at the important part swamps play in our local environment is paramount to the preservation of the swamps. Through their knowledge and understanding students have the power to help the local community look after the swamps. Having access to a unique, local environment also creates interest and enthusiasm amongst students.

Robert Tomlins
Warrimoo Public School
2008

Investigating biodiversity

Organise a variety of library books on biodiversity and the environment for students to refer to, e.g. *Australia's Environment*, 2002, by Greg Pyers, published by Echidna Books.

Develop student's background knowledge on biodiversity by explaining and discussing different aspects of biodiversity as they arise during the teaching and learning activities throughout the unit. Biodiversity information is available on the Australian Museum web site at: <http://www.amonline.net.au/biodiversity/what/index.htm> this includes a wide range of fact sheets. The *Environment Australia* web site <http://www.ea.gov.au/biodiversity/> also provides excellent information.

Students will investigate the biodiversity of the school and/or nearby area. Students will conduct some environmental surveys to collect a range of information on the environment, counting and categorising this information to develop an understanding of the immediate environment and its relative health. This data can be included in the schools environmental audit. From the surveys the positive and negative aspects of the immediate environment can be identified, suggestions can be made on fixing problems and enhancing positive aspects of the immediate environment. Some of these suggestions can be acted on in the *schools environmental education plan* (SEMP). These activities provide a biannual evaluation and comparison of aspects of the biodiversity of the school environment. Students can plan improvements to the school environment using the *Landscape images*, available at the end of this unit. The web site One Environment: <http://www.abc.net.au/civics/environment/default.htm> provides an explanation of biodiversity that is suitable for use with students. This section of work can be enhanced with teaching and learning activities on aspects of the outcomes *built environments, living things and earth and its surroundings* in Science and Technology.

Stage 2

Environments

ENS2.5 *Patterns of place and location*

Describes places in the local area and other parts of Australia and explains their significance.

ENS2.6 *Relationships with places*

Describes people's interactions with environments and identifies responsible ways of interacting with environments.

Activities

GOALS

Students will:

- *explain what a swamp is and identify a swamp.*
- *locate swamps on maps of the Blue Mountains.*
- *explain the roll of swamps in the Blue Mountains environment.*
- *explain the meaning of biodiversity and its importance in the local environment.*
- *identify elements of biodiversity in the Blue Mountains Swamps.*
- *understand the importance of swamps in the ecology of the Blue Mountains.*
- *explain the impact that the built environment has had on the ecology of Blue Mountains Swamps.*
- *put forward ideas to reduce the impact of the built environment on the local swamps and to preserve and improve their biodiversity.*

FOCUS QUESTION:

Why do we need to preserve the Blue Mountains Swamps?

CONTRIBUTING QUESTIONS:

- What is biodiversity?
- Why is biodiversity necessary?
- What is a swamp?
- Where can we find swamps?
- What are the elements of biodiversity of the local swamps?
- Why are swamps important to the local environment and to man?
- What impact has the built environment had on swamps?
- How can we reduce that impact to preserve and improve the swamps?
- How can we plan for future with the swamps in mind?

Indicators

ENS2.6

- *identifies issues about the care of places in the environment*
- *identifies issues about the biodiversity of the local swamps*
- *actively participates in an environmental audit of a swamp*
- *contributes ideas to group, explaining and justifying suggestions*
- *suggests and explains ideas to improve the biodiversity of a selected local area*
- *develops an understanding of the purpose and value of different sorts of vegetation*
- *actively participates in collecting data on the biodiversity of the school grounds*
- *develops ideas to be included in an environmental management plan*

ACTIVITIES:

UNIT OF STUDY: Blue Mountains Hanging Swamps						
Multiple Intelligences	Bloom's Taxonomy: Six thinking levels					
	Knowing	Understanding	Applying	Analysing	Creating	Evaluating
<p>Verbal I enjoy reading, writing and speaking</p>	<p>Make up a 'Find a Word' using the names of the swamp flora and fauna.</p> <p>H</p>	<p>Find a definition of "Biodiversity". Write a paragraph explaining the 'biodiversity of the Blue Mountains swamps'.</p> <p>W</p>	<p>Read "Lester and Clyde". Rewrite the story as a narrative that takes place in a Blue Mountains Swamp. Use a local animal as the central character(s).</p> <p>W</p>	<p>Read 'SWAMPCARE'. Make a 'T chart' about its good and bad features in terms of its appeal to people.</p> <p>G</p>	<p>Create the narration for your pod cast. Use the information you've collected. Organise information into like sections.</p> <p>SG</p>	<p>How is a swamp like a friend? Write a poem in answer.</p> <p>I</p>
<p>Mathematical I enjoy working with numbers, science and technology.</p>	<p>What are the scientific names of each of the swamp creatures you've found?</p> <p>G</p>	<p>Create a time line of the changes that have taken place in the built environment of the Blue Mountains since it's crossing by white settlers.</p> <p>W</p>	<p>Do an environmental audit of the school environment. Set out your results on a table.</p> <p>SG</p>	<p>Make a list of the plants found in a local garden. Recommend which plants should be replaced and by which native species.</p> <p>H</p>	<p>Create a design for a T-shirt telling about the swamps, the problems or how to help preserve them.</p> <p>G</p>	<p>How much dirt and silt is washed from our roofs? Design a test to evaluate.</p> <p>H</p>
<p>Visual I enjoy painting, drawing and visualising</p>	<p>Draw the GIANT DRAGONFLY using pencil.</p> <p>W</p>	<p>Create a flow chart of water flow from run off showing the services provided by the swamps.</p> <p>G</p>	<p>Imagine the hanging swamps were totally destroyed. Paint a picture of what the local rivers and creeks would be like.</p> <p>W</p>	<p>Redesign the 'SWAMPCARE' (factsheet 7) using your T-chart as a starting point.</p> <p>G</p>	<p>Create a sculpture of the Giant Dragonfly using wire. OR use recycled material to create your sculpture.</p> <p>W</p>	<p>How can being clean be a threat to our local environment? Draw a cartoon.</p> <p>G</p>
<p>Kinaesthetic I enjoy doing hands-on activities</p>	<p>Play 'Twenty questions' using the names of the plants and animals of the hanging swamps.</p> <p>G</p>	<p>Role-play an interview with one of the people who care for the swamps. Film the interview.</p> <p>SG</p>	<p>Design a questionnaire for students from other classes about how their homes are designed.</p> <p>G</p>	<p>Take photos of the local built environment. Make a 'Y chart' examining the positives, negatives and interesting characteristics of the structure(s).</p> <p>WI</p>	<p>Take photos and add captions to suggest how the school could Help Address Threats to Swamps.</p> <p>G</p>	<p>How are people like a disease to the natural environment? Make a short skit to demonstrate.</p> <p>G</p>

Musical I enjoy making and listening to music	Find and learn a song about a frog, a lizard, a snake or a bird. H	Listen to some songs from other students and other songs about conservation. List them. G	Select music for your pod cast. H	Listen to the sounds of frogs, birds and insects. Draw patterns to represent their different sounds. G	Using musical instruments at hand and your sound patterns, create a musical time line or a musical story of animal sounds. Perhaps you could also incorporate the sounds of human intervention. G	Record your music to <u>Garage band</u> . Make changes to improve it using the effects of <u>Garage Band</u> . Decide whether you will use it in your pod cast. SG
Intrapersonal I enjoy working by myself	Research the facts about the Hanging Swamps and make dot points. WI	Find and copy a map showing where the hanging swamps are located in the Blue Mountains. I	Write a brief environmental management plan for the future of the swamps. WI	Make a ‘mind-map’ of the problems and benefits associated with the Blue Mountains swamps. Perhaps you could use <u>Inspiration</u> to publish it? I	Create an abstract design or painting based on the ‘Flora of the Blue Mountain Swamps’. WI	Did you know about the hanging swamps before we studied them? How can we spread the message about saving the swamps? Make a plan. WI
Interpersonal I enjoy working with others.	In groups of two or three, using the materials and information you have collected in the above activities create a pod cast telling about the Hanging Swamps of the Blue Mountains. Explain their importance and give examples of how we as a community can help save the swamps. SG					

ORGANISATION

Activities will be completed as a whole class, group, small group of two or three or individually. Others will be planned as homework tasks.

W – whole class activity

I – individual response to task

G – completed as a group

SG – to be completed as a pair or group of three

H – homework task

ASSESSMENT

Tasks will be assessed against the requirement for that task. The podcast will be assessed according to rubric that will require demonstrated technology outcomes as well as inclusions from each of the necessary activities. Students will also be assessed on their capabilities in contributing as a group and as an independent worker.

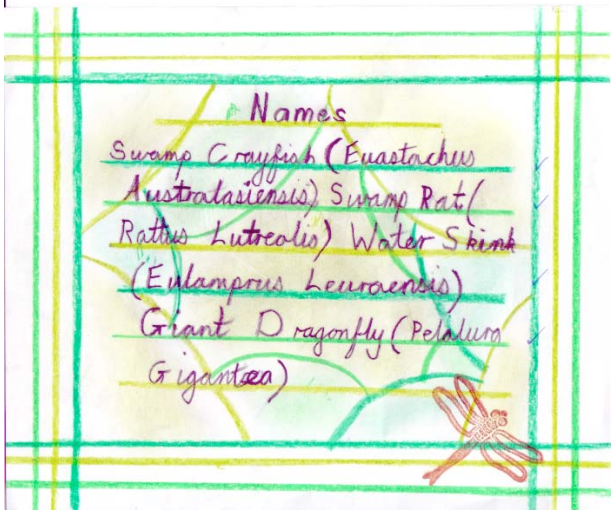
Sample Program Procedure

Students will:

1. Research the scientific names of each of the swamp creatures they've found.
2. Research the facts about the Hanging Swamps and make dot points.
3. Play 'Twenty questions' using the names of the plants and animals of the hanging swamps.
4. Make up a 'Find a Word' using the names of the swamp flora and fauna.
5. Draw the GIANT DRAGONFLY using pencil.
6. Create a sculpture of the Giant Dragonfly using wire. OR use recycled material to create your sculpture.
7. Find a map showing where the hanging swamps are located in the Blue Mountains.
8. Experience an excursion to identify a Blue Mountains hanging swamp and to study its flora and fauna.
9. Create an abstract design or painting based on the 'Flora of the Blue Mountain Swamps'.
10. Find a definition of "Biodiversity". Write a paragraph explaining the 'biodiversity of the Blue Mountains swamps'.
11. Find and learn a song about a frog, a lizard, a snake or a bird.
12. Listen to some songs from other students and other songs about conservation. List them.
13. Listen to the sounds of frogs, birds and insects. Draw patterns to represent their different sounds.
14. Using musical instruments at hand and their sound patterns, create a musical time line or a musical story of animal sounds. Perhaps you could also incorporate the sounds of human intervention.
15. Role-play an interview with one of the people who care for the swamps. Film the interview.
16. Read 'SWAMPCARE' (the text produced by the BMCC). Make a 'T chart' about its good and bad features in terms of its appeal to people.
17. Redesign the 'SWAMPCARE' (factsheet 7) using their T-chart as a starting point
18. Create a flow chart of water flow from run off showing the services provided by the swamps.
19. Imagine the hanging swamps were totally destroyed. Paint a picture of what the local rivers and creeks would be like.
20. Write a poem in answer to "How is a swamp like a friend?"
21. Read "Lester and Clyde". Rewrite the story as a narrative that takes place in a Blue Mountains Swamp. Use a local animal as the central character(s).

22. Design a questionnaire for students from other classes about how their homes are designed.
23. Take photos of the local built environment. Make a 'Y chart' examining the positives, negatives and interesting characteristics of the structure(s).
24. Create a time line of the changes that have taken place in the built environment of the Blue Mountains since it's crossing by white settlers.
25. Design a test to evaluate how much dirt and silt is washed from our roofs?
26. Do an environmental audit of the school environment. Set out results on a table.
27. Make a list of the plants found in a local garden. Recommend which plants should be replaced and by which native species.
28. Make a 'mind-map' of the problems and benefits associated with the Blue Mountains swamps. Perhaps you could use Inspiration to publish it?
29. Consider the questions: What did you know about the hanging swamps before we studied them? How can we spread the message about saving the swamps? Write a list of the ways we could spread the message of the importance of the swamps to the community?
30. Take photos and add captions to suggest how the school could **Help Address Threats to Swamps**.
31. Create a design for a T-shirt telling about the swamps, the problems or how to help preserve them.
32. How can being clean be a threat to our local environment? Draw a cartoon.
33. Write a brief environmental management plan for the future of the swamps.
34. In groups of two or three, using the materials and information they have collected in the above activities create a pod cast telling about the Hanging Swamps of the Blue Mountains. Explain their importance and give examples of how we as a community can help save the swamps.

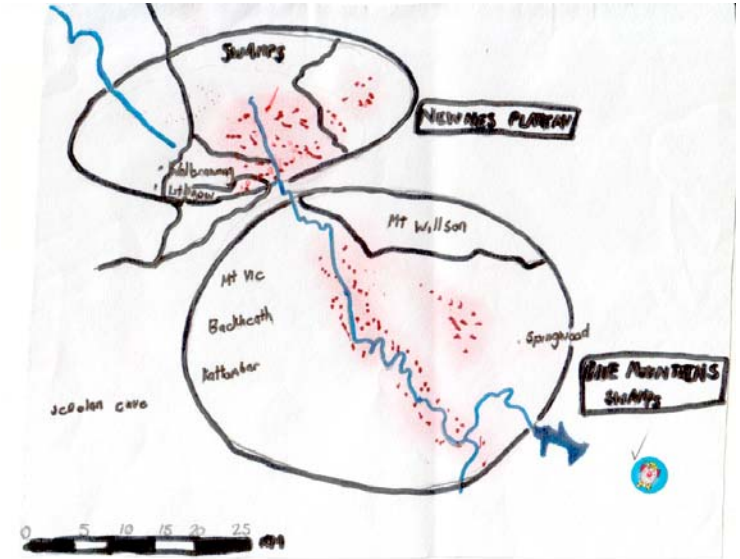
Student Work Samples



1. Scientific Names



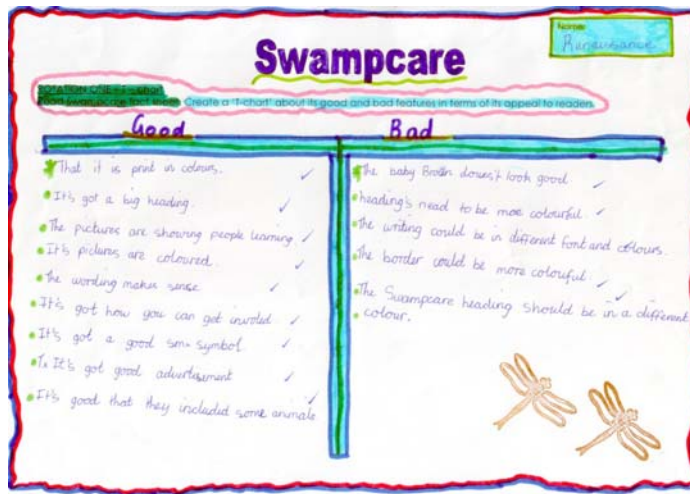
6. Dragon Fly Art



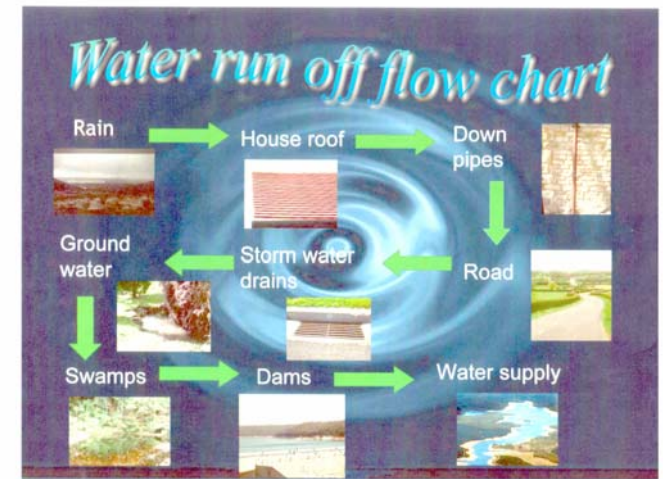
7. Map of Swamps



9. Abstract Design



17. Swampcare T-chart



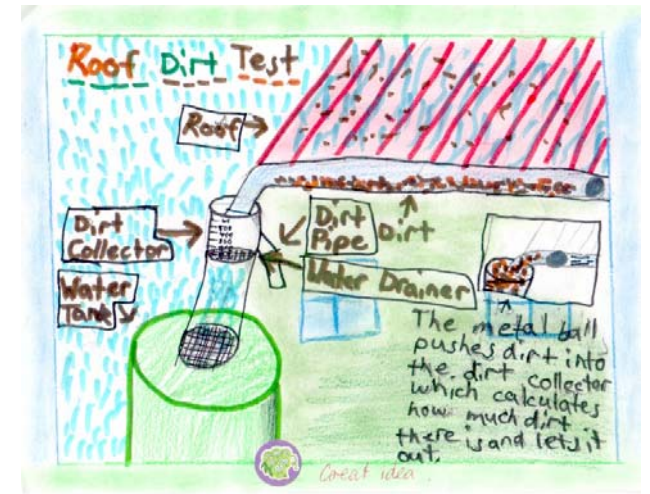
18. Flowchart of water run off

SWAMPS as friends
 helpful
 acts like a sponge
 muddy, stinky, insect infested
 as muddy as when it's rained.
 decomposing retaining mixing
 clean

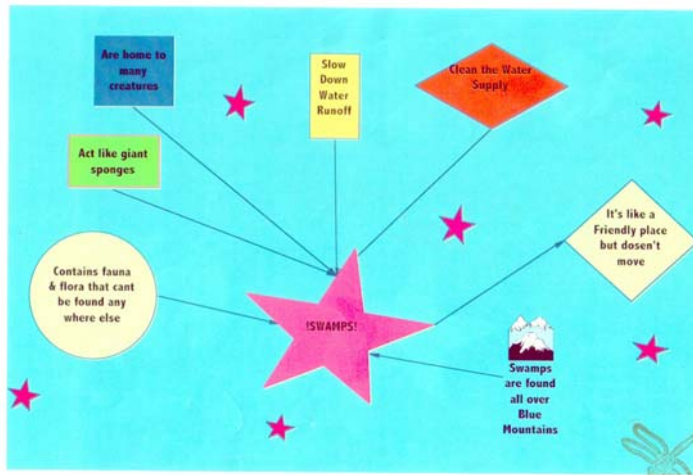
20. Swamp poem

Tink + bell
 One day in a local blue Mountain swamp, Tink + bell were resting on their favourite rock.
 When all of a sudden Giant humans were stopping around.
 They had to fly as they could. All the way to ...to another swamp.
 The first place they stop, is a purple swamp, and then a giant quilly like frog.
 So they decided that they would go to the swamp down the road but when they got there it was
 Tink + bell
 all day they decide to fly real fast. Then they come to the perfect place. except the big dog but then they here "heng"
 "THIS IS THE PERFECT Home"
 Then theres a giant - potty cat but then another giant takes him away.
 Tink + Bell lived Happily ever after.

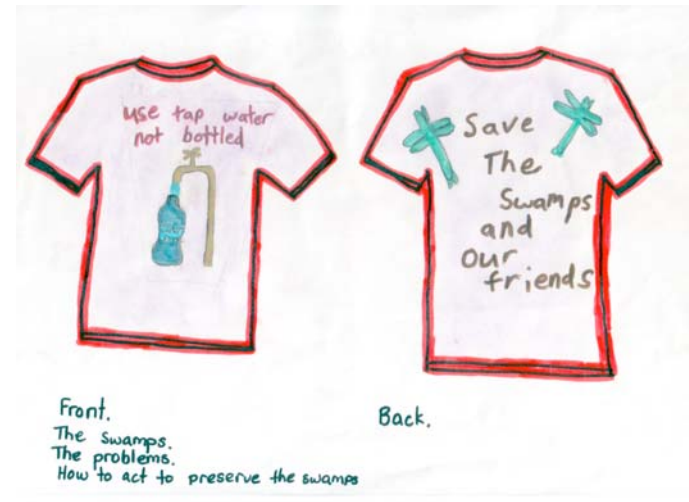
21. Lester and Clyde writing



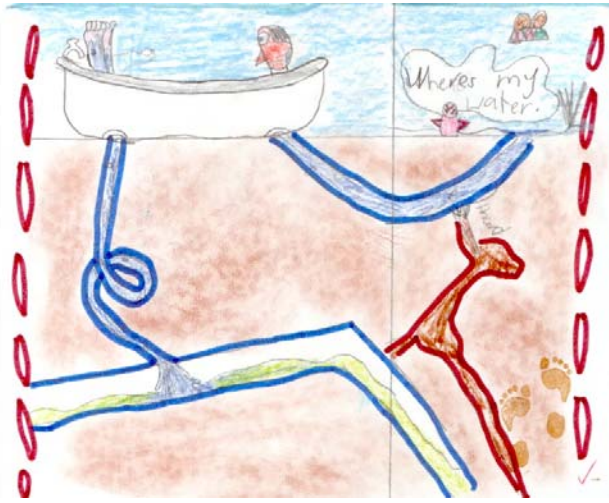
25. Test for dirt on roof



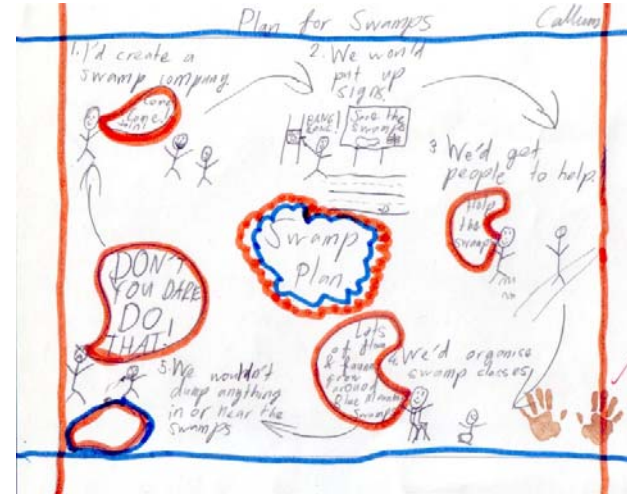
28. Mind map of swamp problems



31. Swamp T shirt



32. Cartoon



33. Environmental plan

Blue Mountain Swamps

Include each dot point in a sentence of your own to create a summary of the facts.

What are Blue Mountain swamps?

How do Blue Mountain Swamps form?

What is role of a swamp in the landscape?

Where do the swamps occur?

Name:

Swampcare

ROTATION ONE - T - chart

Read Swampcare fact sheet. Create a 'T-chart' about its good and bad features in terms of its appeal to readers.

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Swamp Care Activity - Rotation 1.

Activity One	Activity Two	Activity Three	Activity Four	Activity Five
<p>What are the scientific names of each of the swamp creatures you've found?</p> <p>List them with their common names.</p>	<p>Play 'Twenty questions' using the names of the plants and animals of the hanging swamps.</p> <p>Prepare by reading about them and trying to remember the facts.</p>	<p>Read 'SWAMPCARE'. Make a 'T chart' about its good and bad features in terms of its appeal to people.</p>	<p>Create an abstract design or painting based on the 'Flora of the Blue Mountain'.</p>	<p>Find the Blue Mountains Council website about the Blue Mountain Swamps. Create a folder and copy photos of swamp flora and fauna to it.</p>

Swamp Care Activity - Rotation 2.

Activity One	Activity Two	Activity Three	Activity Four	Activity Five
<p>Find the definition of the word Biodiversity. Write a paragraph explaining the 'biodiversity' of the Blue Mountains swamps.</p>	<p>How is a swamp like a friend? Write a poem in answer.</p> <p>Rules:</p> <p>Line 1 – adjective</p> <p>Line 2- adverbial clause</p> <p>Line-3- a descriptive sentence.</p> <p>Line 4- A simile</p> <p>Line 5 – 3 action words</p> <p>Line 6- an adjective</p>	<p>Create a design for a T-shirt telling about the swamps, the problems or how to help preserve them.</p>	<p>Create a flow chart of water flow from run off showing the services provided by the swamps.</p>	<p>Find and copy a map showing where the hanging swamps are located in the Blue Mountains.</p>

Swamp Care Activity - Rotation 3.

Activity One	Activity Two	Activity Three	Activity Four	Activity Five
Listen to some songs from other students and other songs about conservation. List them.	Do an environmental audit of the school environment. Set out your results on a table.	Do an environmental audit of the school environment. Set out your results on a table.	How much dirt and silt is washed from our roofs? Design a test to evaluate.	Computer 'catch up' time. Also time to catch up on any other unfinished tasks so far.

Swamp Care Activity - Rotation 4.

Activity One	Activity Two	Activity Three	Activity Four	Activity Five
Read "Lester and Clyde". Rewrite the story as a narrative that takes place in a Blue Mountains Swamp. Use a local animal as the central character(s).	Do an environmental audit of the playground surfaces of the school environment. Make changes on a map of the school that would help the environment.	Make a 'mind-map' of the problems and benefits associated with the Blue Mountains swamps. Perhaps you could use <u>Inspiration</u> to publish it? I	Using the sounds of frogs, birds and insects draw patterns to represent their different sounds.	How can being clean be a threat to our local environment? Draw a cartoon.

Swamp Care Activity - Rotation 5.

Activity One	Activity Two	Activity Three	Activity Four	Activity Five
<p>a) Create the narration for your pod cast. Use the information you've collected. Organise information into like sections.</p> <p>b) Record your music to <u>Garage band</u>. Make changes to improve it using the effects of <u>Garage Band</u>. Decide whether you will use it in your pod cast.</p>	<p>Imagine the hanging swamps were totally destroyed. Paint a picture of what the local rivers and creeks would be like.</p>	<p>Design a questionnaire for students from other classes about how their homes are designed.</p>	<p>Using musical instruments at hand and your sound patterns, create a musical time line or a musical story of animal sounds. Perhaps you could also incorporate the sound s of human intervention.</p>	<p>Did you know about the hanging swamps before we studied them? How can we spread the message about saving the swamps? Make a plan.</p>

Environmental Swamp Care Plan

Devise an environmental plan to take care of the Blue Mountains swamps.

Next Year -2011

The year after -2012

Three years time – 2013

Four years time – 2014

Five years – 2015

Name:

UNIT OF STUDY: Blue Mountains Hanging Swamps

Multiple Intelligences	Bloom's Taxonomy: Six thinking levels					
	Knowing	Understanding	Applying	Analysing	Creating	Evaluating
<p>Verbal I enjoy reading, writing and speaking</p>	Make up a 'Find a Word" using the names of the swamp flora and fauna.	Find a definition of "Biodiversity". Write a paragraph explaining the 'biodiversity of the Blue Mountains swamps'.	Read "Lester and Clyde". Rewrite the story as a narrative that takes place in a Blue Mountains Swamp. Use a local animal as the central character(s).	Read 'SWAMPCARE'. Make a 'T chart' about its good and bad features in terms of its appeal to people.	Create the narration for your pod cast. Use the information you've collected. Organise information into like sections.	How is a swamp like a friend? Write a poem in answer.
<p>Mathematical I enjoy working with numbers, science and technology.</p>	What are the scientific names of each of the swamp creatures you've found?	Create a time line of the changes that have taken place in the built environment of the Blue Mountains since it's crossing by white settlers.	Do an environmental audit of the school environment. Set out your results on a table.	Make a list of the plants found in a local garden. Recommend which plants should be replaced and by which native species.	Create a design for a T-shirt telling about the swamps, the problems or how to help preserve them.	How much dirt and silt is washed from our roofs? Design a test to evaluate.
<p>Visual I enjoy painting, drawing and visualising</p>	Draw the GIANT DRAGONFLY using pencil.	Create a flow chart of water flow from run off showing the services provided by the swamps.	Imagine the hanging swamps were totally destroyed. Paint a picture of what the local rivers and creeks would be like.	Redesign the 'SWAMPCARE' (factsheet 7) using your T-chart as a starting point.	Create a sculpture of the Giant Dragonfly using wire. OR use recycled material to create your sculpture.	How can being clean be a threat to our local environment? Draw a cartoon.
<p>Kinaesthetic I enjoy doing hands-on activities</p>	Play 'Twenty questions' using the names of the plants and animals of the hanging swamps.	Role-play an interview with one of the people who care for the swamps. Film the interview.	Design a questionnaire for students from other classes about how their homes are designed.	Take photos of the local built environment. Make a 'Y chart' examining the positives, negatives and interesting characteristics of the structure(s).	Take photos and add captions to suggest how the school could Help Address Threats to Swamps.	How are people like a disease to the natural environment? Make a short skit to demonstrate.

<p>Musical I enjoy making and listening to music</p>	<p>Find and learn a song about a frog, a lizard, a snake or a bird.</p>	<p>Listen to some songs from other students and other songs about conservation. List them.</p>	<p>Select music for your pod cast.</p>	<p>Listen to the sounds of frogs, birds and insects. Draw patterns to represent their different sounds.</p>	<p>Using musical instruments at hand and your sound patterns, create a musical time line or a musical story of animal sounds. Perhaps you could also incorporate the sound s of human intervention.</p>	<p>Record your music to <u>Garage band</u>. Make changes to improve it using the effects of <u>Garage Band</u>. Decide whether you will use it in your pod cast.</p>
<p>Intrapersonal I enjoy working by myself</p>	<p>Research the facts about the Hanging Swamps and make dot points.</p>	<p>Find a map showing where the hanging swamps are located in the Blue Mountains.</p>	<p>Write a brief environmental management plan for the future of the swamps.</p>	<p>Make a ‘mind-map’ of the problems and benefits associated with the Blue Mountains swamps. Perhaps you could use <u>Inspiration</u> to publish it?</p>	<p>Create an abstract design or painting based on the ‘Flora of the Blue Mountain Swamps’.</p>	<p>What if we weren’t studying the Blue Mountains Swamps? Would you have known about the plight of the swamps? How can we as a community spread the message of the importance of the swamps? Write a list.</p>
<p>Interpersonal I enjoy working with others using computer technology</p>	<p>In groups of two or three, using the materials and information you have collected in the above activities create a pod cast telling about the Hanging Swamps of the Blue Mountains. Explain their importance and give examples of how we as a community can help save the swamps.</p>					