

# “The Earth and its Resources are not a gift from our parents but a loan from our children”

## Year 7JB and 7JV – Interdisciplinary Unit 2006

### Planned by:

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## Title: Improving our Local Environment

**Year Level :** Year 7

**Duration:** approx 6 weeks

**Problem:** With the population increasing in the Maribyrnong Valley, there is increasing strain on the river and its local environment and resources. How can we improve the quality of the local environment over the next decade and beyond?

### Key Concepts:

Our actions affect the environment

Wants and needs

Life style choices

Sustaining a balanced eco system for the survival of species (Flora & Fauna)

### Skills:

|                     |                      |                      |                        |
|---------------------|----------------------|----------------------|------------------------|
| Analyse/Assess      | Explaining           | Questioning          | Transfer learning      |
| Articulate          | Listening            | Reading              | Viewing                |
| Comprehend          | Locating information | Recognising bias     | Visually representing  |
| Cooperating         | Making choices       | Reflecting           | Working independently  |
| Considering options | Observing            | Reporting            | Working to a time line |
| Consolidate         | Organising           | Responding to others |                        |
| Designing           | Performing           | work                 |                        |
| Elaborating         | Planning             | Summarise            |                        |
| Evaluate            |                      | Synthesise           |                        |

### Understandings:

- The flora and fauna in the local environment (Maribyrnong River Estuary) are linked to a complex web of relationships/food chain.
- There are fish, birds, insects, reptiles, crustaceans, marsupials, mammals and even microscopic creatures that can be found locally and rely on the estuary to survive
- An estuary is an important ecosystem within the total environment
- There are different types of wetlands
- Human activity and various cultures have had an affect on our local habitat
- Human activity/clearing of urban settings has caused degradation of the Maribyrnong Estuary there are things we can do to better care for our estuary

This integrated unit of work lends itself to all the dimensions across the various disciplines of the Victorian Essential Learning Standards. The key disciplines are English, Math, Science, Humanities and the Arts.

|                   | <b>English</b>  | <b>Maths</b>   | <b>Science</b>  | <b>The Arts</b>   |
|-------------------|---|--|---|---|
| <b>Dimensions</b> | <ul style="list-style-type: none"> <li>☉ Speaking &amp; Listening</li> <li>☉ Reading</li> <li>☉ Writing</li> </ul>                                | <ul style="list-style-type: none"> <li>☉ Number</li> <li>☉ Space</li> <li>☉ Measurement, Chance &amp; Data</li> <li>☉ Structure</li> <li>☉ Working Mathematically</li> </ul> | <ul style="list-style-type: none"> <li>☉ Science knowledge &amp; understanding</li> <li>☉ Science at Work</li> </ul>                          | <ul style="list-style-type: none"> <li>☉ Creating &amp; making</li> <li>☉ Exploring &amp; responding</li> </ul>   |
|                   | <b>History</b>  | <b>Geography</b>   | <b>Economics</b>  | <b>LOTE (Indigenous terms)</b>  |
|                   | <ul style="list-style-type: none"> <li>☉ Historical knowledge &amp; understanding</li> <li>☉ Historical reasoning &amp; interpretation</li> </ul> | <ul style="list-style-type: none"> <li>☉ Geographical knowledge &amp; understanding</li> <li>☉ Geospatial skills</li> </ul>  | <ul style="list-style-type: none"> <li>☉ Economic knowledge &amp; understanding</li> <li>☉ Economic reasoning &amp; interpretation</li> </ul> | <ul style="list-style-type: none"> <li>☉ Communicating in a LOTE</li> <li>☉ Intercultural knowledge &amp; language awareness</li> </ul>                             |
|                   | <b>Communication</b>  | <b>Design, Creativity &amp; Technology</b>   | <b>ICT</b>  | <b>Thinking</b>   |
|                   | <ul style="list-style-type: none"> <li>☉ Listening, viewing &amp; responding</li> <li>☉ Presenting</li> </ul>                                     | <ul style="list-style-type: none"> <li>☉ Investigating &amp; designing</li> <li>☉ Producing</li> <li>☉ Analysing &amp; evaluating</li> </ul>                                 | <ul style="list-style-type: none"> <li>☉ ICT for visual thinking</li> <li>☉ ICT for creating</li> <li>☉ ICT for communicating</li> </ul>      | <ul style="list-style-type: none"> <li>☉ Reasoning, processing &amp; enquiry</li> <li>☉ Creativity</li> <li>☉ Reflection, evaluation &amp; metacognition</li> </ul> |
|                   | <b>Health &amp; Physical Education</b>  | <b>Interpersonal development</b>   | <b>Personal Learning</b>  | <b>Civics &amp; Citizenship</b>   |
|                   | <ul style="list-style-type: none"> <li>☉ Movement &amp; physical activity</li> <li>☉ Health knowledge &amp; promotion</li> </ul>                  | <ul style="list-style-type: none"> <li>☉ Building social relationships</li> <li>☉ Working in teams</li> </ul>  | <ul style="list-style-type: none"> <li>☉ The Individual learner</li> <li>☉ Managing personal learning</li> </ul>                              | <ul style="list-style-type: none"> <li>☉ Civic knowledge &amp; understanding</li> <li>☉ Community engagement</li> </ul>   |

**Tuning In:**

- Students view slides of the local region to draw out their knowledge of the local area
- *MICups* (multiple intelligence survey), identifying students preferred learning styles
- Facilitate teamwork skills session. Develop a rubric for classroom behaviour.
- Ask students to list any questions they have about the topic and check that these are answered during the unit.
- A simple mind map/brainstorm encompassing their understandings is made and discussions about the direction of the project are made.
- Excursion to *Melbourne's Living Museum of the West* to explore the site
- View and record aspects of the museums "Pobblebonk" screen
- Tour of the museum's grounds guided by local expert (Peter Haffenden)
- *Y-chart* exercise: Use words, pictures or symbols to describe the grounds (Looks like..., Feels like..., Sounds like...)

| <u>Finding Out:</u>  | <u>Focus Questions</u>   | <u>Sorting Out</u>  | <u>Habits Of Mind:</u>  |
|--|--|---|---|
| <p>1. Students visit Maribyrnong wetlands. Take digital photos and observe the habitat and its inhabitants.</p> <p>Back in the classroom, use <i>Think-Pair-Share</i> strategy with a selection of environmental images (include images specific to Maribyrnong area). Discuss in more detail the current state of the local environment</p> | <p>What is a wetland?</p> <p>What are the features of the Maribyrnong wetlands?</p> <p>What kind of plants can be found in a wetland?</p> <p>What is the impact of human settlement on the local environment?</p> <p>What are the factors which contribute to the demise of local flora and fauna?</p> <p>What conditions are necessary for local flora and fauna to thrive in this environment?</p> <p>List ten examples of living and non living things in this environment, which of these naturally belong to the area?</p>  | <p>Front cover of student journal is designed on the unit focus. (<b>Improving our Local Environment</b>)</p> <p>Students complete a classroom activity specific to the Maribyrnong Estuary. Items for '<u>Found Items Pages</u>' (a collection of artefacts from various local media, photos to be annotated in their journal, cartoons, etc) are collected during the excursion as well as collecting ideas from home. These items highlight the diversity of ecosystems at <a href="#">Pobblebonk</a>.</p> <p>Think back over your learning using a PMI- Plus Minus Interesting chart to reflect on your work (sorting out the list of ten living and non living things) See Appendix- <i>PMI</i>.</p> | <p>Responding in wonderment and awe</p> <p>Persisting</p> <p>Questioning and posing problems</p> <p>Collecting information with all senses</p> <p>Applying past knowledge to new situations.</p> <p>Thinking interdependently</p> |
| <p>2. <u>SOSE</u><br/> <b>Orienteering Course to be conducted at the Living Museum of the West.</b><br/> <b>Historical Overview:</b> <i>Give the students a worksheet, and map of the Living Museum zone- all colour coded. They can then proceed with the Historical Orienteering Course</i></p>  | <p><u><b>LANDTRAIL.</b></u></p> <p>1. How many different stages of the path are there?<br/> What colours represent the different stages?</p> <p>2. What is the name of the garden? (For our purpose the answer is WURUNDJERI GARDEN)</p> <p>3. What does the mosaic depict?<br/> <i>(The dreamtime story about creation and fire.)</i></p> <p>4. What animals does the mosaic depict?</p> <p>5. What did Walter Hume patent?<br/> <i>(A method for making concrete pipes)</i></p> <p>6. <b>There is a concrete book in the colonial garden, find it and follow the instructions.</b></p> <p><u><b>WETLANDS.</b></u></p> <p>7. <b>Name the first names of the animals/insects displayed in the mosaic.</b><br/> M _ S Q _ _ T _<br/> L _ _ Y _ IRD<br/> D _ C _<br/> _ R _ G<br/> B _ TT _ RF _ _</p> <p>8. Describe what colour describes the wetland in front of the mosaic?</p> <p><b>Note: Look out for the tree trunk, and write down the message that appears.</b></p> <p><u><b>PIONEER WOMEN'S SHELTER.</b></u></p> <p>9. <b>Write down the name of the flower on the path, in front of the Women's Shelter, and illustrate it in your Group Sketch Book.</b></p> <p>10. <b>During what time was the meat preserving department in use? And why was it so important to Victoria?</b><br/> <i>1874-1888; As it provided a valuable export product, during which Victoria was in depression.</i></p> |   |   |

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|   | <p><b><u>BLUESTONE BUILDING.</u></b><br/> <b>11. Why did they boil down sheep carcasses?</b><br/> <i>P.7 of Industrial Heartland.</i></p> <p><b><u>TOP FACTORY</u></b><br/> <b>12. What kind of pipes did they make?</b><br/> <b>What type?</b><br/> <b>13. What did the Hume firm invent?</b><br/> <i>Centrifugally-spun steel reinforced concrete pipes.</i><br/> <i>Park History- website</i><br/> <b>14. Was Pipe maker’s Park a major factory?</b><br/> <i>Yes. It was the principle Australian factory.</i></p> |  |   |
| <p><b>3. <u>Literature</u></b></p> <p>Read “<i>Lester and Clyde</i>” J Reece.</p>   | <p>What problems did the humans bring to wetland?<br/> Why?<br/> Predict what problems our wetlands face?</p>   | <p>Based on the knowledge students have gained; discuss what action can be taken?</p>  | <p>Applying past knowledge to new situations.</p> <p>Questioning and posing problems.</p> <p>Thinking flexibly</p> <p>Thinking about thinking</p> <p>Listening with understanding empathy</p> <p>Managing impulsivity</p> <p>Persisting</p> |
| <p><b>4. <u>ENGLISH:</u></b></p> <p><i>All writing supported with evidence; e.g. photos, paintings, sketches etc.</i></p>           | <p><b><u>“Quote William Blake”</u></b></p> <ul style="list-style-type: none"> <li>• <b><u>Dialogue with a tree-</u></b> include a photograph/sketch etc of the chosen tree</li> <li>• <b><u>Imaginative Writing:</u></b> The Forest is telling a story over the last 10,000 years- what has changed- what was there what has gone...</li> </ul>   | <ul style="list-style-type: none"> <li>• <b><u>Descriptive Piece:</u></b></li> <li>a) <b><u>Adjectives and Nouns</u></b> <u>box-</u> students use the adjectives and nouns to describe the local habitat.</li> <li>b) <b><u>Postcards-</u></b> write to a friend/ relative what you have seen- keep in mind they have never been to the Living Museum before. Include a photo/sketch etc on the back of the postcard. (sample postcards available to model structure of a postcard)</li> </ul> | <p>Applying past knowledge to new situations.</p> <p>Questioning and posing problems.</p> <p>Thinking flexibly</p> <p>Creating, imagining, and innovating.</p>  |
| <p><b>5. <u>Investigate:</u></b> Human <i>uses</i> of the local habitat.<br/> (Boat cruise- see FCC staff member - Steve Croci)</p> | <p>How is the local area used? (parklands, bike tracks, fishing etc)<br/> How has the local area been used in the past, present and possibly in the future? (see FCC staff member-Peter Hardy)</p>  | <p>Students represent their understanding of the use of the local habitat in an annotated visual form. (Model, film, collage, cartoon, photos, drawings etc. – see and include info from Peter Hardy.)</p>   | <p>Thinking and communicating with clarity and precision<br/> Gathering data through all senses.</p> <p>Creating, imagining, and innovating.</p>  |
|   |   |  |   |

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| <p><b>6. Investigate:</b> Human <i>effects</i> on the local area.</p> <p>E.g. housing development, industrial pollutants, litter, increase of traffic, carbon dioxide emission.</p> <p>Area taken for the formation of the new residential estates.</p> <p>Data log- to test the quality of air and water, statistics on traffic, as well as water testing via data loggers.</p> <p>These would include the finding out of micro organisms and water quality.</p>   | <p>Students list questions they wish to answer, and then form groups to investigate a common interest.</p> <p>E.g.<br/>         What causes poor air and water quality?<br/>         What effect does the housing development have on Pobblebonk, and the local area?<br/>         How are the species being affected?<br/>         Is there pollution in the area? Are there parts which seem unhealthy? Does it smell?</p> | <p>Students can display statistics, record results of data loggers, which they can record in their journal then present- oral presentation, power point etc.</p>  | <p>Taking responsible risks.</p> <p>Remaining open to continuous learning</p> <p>Thinking interdependently</p> <p>Gathering data through all senses.</p> <p>Thinking and Communicating with clarity and precision</p> <p>Questioning and posing problems.</p> |
| <p><b>7. Art</b></p> <p>Using all the knowledge and data collected from your visits to the Maribyrnong estuary; create a naturalistic or abstract of the waterfront as it could be in 2030.</p>   | <p>What will the waterfront along the Maribyrnong look like in 2030?</p>   | <p><i>Complete your design as a draft in A3 Project Portfolio, and then present onto Canvas.</i></p> <p><b>Ideas:</b></p> <ul style="list-style-type: none"> <li>• Collage</li> <li>• Naturalism</li> <li>• Photography- Edited pictures using computer images</li> </ul> <p><i>Prepare artifact for Living Museum Showcase: Tuesday 15<sup>th</sup> August 2006.</i></p> <p><i>Invite parents and local media.</i></p> | <p>Gathering data through all senses.</p> <p>Creating, imagining, and innovating.</p> <p>Thinking flexibly</p> <p>Thinking about thinking</p>   |
| <p><b>Other :</b></p> <p>Exploring <a href="#">Pobblebonk</a>. Along the Maribyrnong River estuary lies a rich and diverse indigenous animal and plant life, which manages to survive within the boundaries of urban metropolitan Melbourne.</p> <p><b>Using the disciplines of MATHS/SCIENCE explore:</b></p> <p><b>Animals and or organisms found in the local habitat:</b></p> <ul style="list-style-type: none"> <li>• Black bream- southern</li> <li>• Eels</li> <li>• Fish</li> <li>• Turtles</li> </ul> <p><b>Land based animals:</b></p> <ul style="list-style-type: none"> <li>• White cockatoos</li> <li>• Tiger snake</li> <li>• Kangaroo</li> <li>• Echidna</li> </ul> <p><b>Water Quality:</b></p> <p><i>Students go down to the banks of the river/wetlands and take water samples.</i></p> <ul style="list-style-type: none"> <li>• Fill jars or use nets to see what can be found.</li> <li>• Give students more information of what we found.</li> <li>• Make sure school has microscopes.</li> </ul> <p><b>Maths Link:</b></p> <p>How many different leaves can you find? Graph and describe the types of leaves you have</p> |  |   |   |

|   |  |
|---|--|
| <p>found. What species are they? As a group collect at least 20 different leaves and place into A3 Project Book with annotations.</p> <p><b>Communication Link:</b></p> <p><b>Maths/Science:</b><br/> <i>Bringing Senses to Life!</i><br/>         Smell/Touch/Taste Activity around the garden/river.<br/>         -Fishermen like to throw Yabbies between the rocks.<br/>         -Move rocks and do not replace them<br/>         -Community not using footpaths, thus destroying plants/wildlife homes etc</p> |  |
| <p><b>Other Support Tasks</b><br/>         - See Appendix on resources: <i>“Windows on Literature”</i> (1992) Hawker Brownlow Education.</p>  |  |

**Going Further:**

Students have an option to choose their area of interest and use their preferred learning style to look deeper into an issue. There are independent tasks, as well as group work to choose from.

- The student Journal is used as a reflective tool to determine which areas they would like to explore in greater depth.
- Teams are negotiated by the whole class, there can not be two teams doing the same team task. See *Taking Action* section (below) for detail on each task.
- Facilitate team assistance in task planning and skill development before students begin in depth independent research.
- Students work in small teams to conduct independent investigations.
- Solutions and reflections are recorded in their Team Planning Folder.
- Journal Tasks are completed during this stage- Artistic, Logic and Communication Tasks.
- These discoveries inform the teams on the direction their team task will take. Brainstorming, Draft, Concepts, Ideas are all recorded for future assessment.

| <b>Taking Action:</b>  | <b>Interdisciplinary Planning</b> |  |             |                  |
|--|-----------------------------------|--|-------------|------------------|
| <i>“Think Globally, Act Locally”</i>   |                                   |  |             |                  |
| Students work in small teams to create a piece addressing environmental issues | <b>Communication:</b>             | <b>Design creativity and technology:</b> | <b>ICT:</b> | <b>Thinking:</b> |
| Create an advertising campaign   | ✓                                 | ✓  | ✓           | ✓                |
| Design a T-Shirt   |                                   | ✓  |             |                  |
| Produce a short film/documentary   | ✓                                 | ✓  | ✓           | ✓                |
| Photography  | ✓                                 | ✓  | ✓           |                  |
| Create a puppet show, and story.   | ✓                                 | ✓  |             | ✓                |
| Design demonstration banners.  | ✓                                 |  |             |                  |
| Create a website   |                                   | ✓  | ✓           |                  |
| Design an environmentally sound home – include 5 Star Rating                   | ✓                                 |  |             | ✓                |
| Arrange a meeting with local members of Parliament/ Maribyrnong Council.       | ✓                                 | ✓  | ✓           | ✓                |
| Create a collage or model  | ✓                                 | ✓  |             | ✓                |
| Arrange a guided tour of the wetlands- students can take their parents through | ✓                                 | ✓  |             | ✓                |
| Write a poem   | ✓                                 | ✓  |             | ✓                |
| Present a play or dance  | ✓                                 | ✓  |             | ✓                |
|  |                                   |  |             |                  |
|  |                                   |  |             |                  |
|  |                                   |  |             |                  |

**Reflection:**

- Ask students to reflect on their learning by completing sentence stems, such as:
  - *I really liked the way...*
  - *I wish I had...*
  - *I still need to work on...*
  - *This helped me understand...*
  - *I am most proud of...*
  - *This reminded me off...*
- What I know now that I didn't know before; Refer to page 109 "*Focus on Inquiry*"
- Present your chosen area of inquiry to the rest of the class, and showcase at the Living Museum.
- "*Activist Commitment Tree*" – each student adds a leaf to the tree to help the local area. E.g.: Not littering, use less water etc.
- Students reflect on their learning by creating a concept map, including the *Habits of Mind* that have been used, and with which activity.

**Supporting Resources and Materials:**

|                     |  |
|---------------------|--|
| Print Media         | <ul style="list-style-type: none"> <li>- Baker, J (1999), <i>Where the forest meets the sea</i>, Walker Books, London.</li> <li>- Baker, J (1991), <i>Window</i>, Julia MacRae Baker, J (1999), <i>Where the forest meets the sea</i>, Walker Books, London Books, London</li> <li>- Costa, A. &amp; Kallick, B. (2000) <i>Habits of Mind Developmental Series</i> Vol 1-4</li> <li>- Murdoch, K &amp; Wilson, J. (2005) <i>Learning Links- Strategic teaching for the learner centred classroom</i>.</li> <li>- Reece, J. (1987) <i>Lester and Clyde</i>, Ashton, New South Wales</li> <li>- Roberts, J. (1989) <i>The Man Who Planted Trees</i>. Collins Dove</li> <li>- Wilson, J &amp; Wing Jan, L. (2005) <i>Focus on Inquiry- A practical approach to integrated curriculum planning</i>.</li> </ul> |
| Realia              |  |
| Excursions/Visitors | <p>Melbourne's Living Museum of the West- Pipe-makers Park, Van Ness Avenue, Maribyrnong<br/>Ph:9318 3544<br/>PO Box 60 Highpoint City Vic 3032</p> <p>Peter Haffenden – Director Living Museum</p>  |
| Software            | John's Boxers ☺  |
| Internet Sites      | <a href="http://www.livingmuseum.org.au">www.livingmuseum.org.au</a><br><a href="http://rubistar.4teachers.org">http://rubistar.4teachers.org</a> (for creating assessment rubrics)  |
| Intranet Links      | <a href="http://intranet/default.aspx">http://intranet/default.aspx</a>  |
| Email Addresses     |  |
| Other               |  |

# PMI- chart

**+**

What were the **positive** things about my learning?

**-**

What were the 'minuses' or **negative** things about my learning? What would I like to improve or change?

**I**

What **ideas** does this give me for the future? What will I do next? How could I improve?