

Growing Resilience in our Community - The Story of our Brush-tailed Rock-wallaby Outline of School Education Program - Stage 3

Hi, I am Juliet Dingle - an Environmental Scientist who has worked with the National Parks and Wildlife Service (NPWS) for over ten years in School Education and Threatened Species Conservation roles.

The *Friends of the Brush-tailed Rock-wallaby* community group has been raising funds and awareness to help NPWS save the local iconic species for over 20 years. The group has received significant national acclaim, for instance, they one of three finalists in the *Community Award* category for the United Nations Association of Australia 2015 World Environment Day Awards.

The Friends of the Brush-tailed Rock-wallaby recently launched a documentary 'On the edge', viewable on our website: rockwallaby.org.au. They have also received a three year NSW Government Environmental Trust grant for promoting community awareness and action towards the conservation of biodiversity and the local endangered rock-wallaby. This is where you come in ...

My first-hand experience on the recovery program has granted me the opportunity to develop and implement the primary and secondary school education components.

We all know that shaping a sustainable future starts now ... and is the responsibility of everyone. Thankfully, sustainability is now a significant cross-curriculum objective of the National Syllabus.

Here is a brief explanation of my new program including the relevance to Stage 3 of the NSW Curriculum:

The aim of this education program is to develop students' respect for biodiversity and appreciation of the role of science and technology in continually building our understanding of the complex world we live in. Scientific research can be difficult to communicate, yet it is crucial that students are able to make meaningful links between everyday life and the application of scientific expertise.

The desired outcome is to inspire students to take an interest in local, national and global biodiversity conservation, to continually expand and communicate their knowledge, and to engage in ethical decision-making and consumption.

Balancing our *needs and wants* of today with our *needs and wants* of tomorrow is the big dilemma that humans face. Science and technology can find solutions to conserving and managing sustainable ecosystems. Science literacy encourages students to use evidence and reason to become informed, reflective citizens.

Students will learn about a real local example of how scientists are answering questions and finding out about phenomena in the natural world. They will be exposed to ecological experimental design and constraints and the importance of scientific evidence in decision-making and problem-solving. They will identify the strengths and limitations of a threatened species recovery program.

The enrichment incorporates an online multimedia presentation accompanied by a selection of creative group activities designed to reinforce the KLAs. Students will explore how human activity causes biodiversity loss and consider the repercussions for society and global systems. They will develop their understanding of the diversity of living things, including plants, animals and microorganisms, and investigate behavioural and structural adaptations of the Brush-tailed Rock-wallaby for its survival and reproduction in a niche habitat.

A fun, hands-on outdoor activity investigating sand pads, remote cameras and/or radio-tracking will integrate the students' understanding of, and skills in, applying the processes of Working Scientifically and Working Technologically. This fieldwork component can be undertaken at school or in a nearby reserve.

Compared to other scientific disciplines, our knowledge of the Living World is infantile. As scientific research gradually increases our understanding of the interconnectedness of the Natural Environment, the values of society, industry and government sway. Peoples' perceptions and priorities change. This in turn influences

the focus of scientific research and technological development. Unfortunately, much of the current technological trends are actively disconnecting young people from nature. How can we protect biodiversity, and life as we know it, if we do not know it or care?

As you would be aware, the aim of the *Science Years K–6 Syllabus* is to:

- *foster students' sense of wonder and expand their natural curiosity about the world around them in order to develop their understanding of, interest in, and enthusiasm for science and technology*
- *develop students' competence and creativity in applying the processes of Working Scientifically and Working Technologically to appreciate and understand the Natural Environment and Made Environment*
- *enhance students' confidence in making evidence-based decisions about the influences of science and technology in their lives*
- *enable students to confidently respond to needs and opportunities when designing solutions relevant to science and technology in their lives.*

This enrichment program targets numerous outcomes developed for Stage 3 for the NSW Science and Technology Syllabus: Including, a student:

- *demonstrates a willingness to engage responsibly with local, national and global issues relevant to their lives, and to shaping sustainable futures (ST3-2VA)*
- *investigates by posing questions, including testable questions, making predictions and gathering raw data to draw evidenced-based conclusions and develop explanations (ST3-4WS)*
- *develops informed attitudes about the current and future use and influence of science and technology based on reason (ST3-3VA)*
- *describes how structural features and other adaptations of living things help them to survive in their environment (ST3-10LW)*
- *describes some physical conditions of the environment and how these affect the growth and survival of living things (ST3-11LW)*
- *describes how social influences impact on the design and use of information and communication systems (ST3-15I)*

This program also links in with the following NSW Stage 3 HSIE outcomes, including, the student:

- *demonstrates an understanding of the interconnectedness between Australia and global environments and how individuals and groups can act in an ecologically responsible manner (Environments - Patterns of Place and Location ENS3.5)*
- *explains how various beliefs and practices influence the ways in which people interact with, change and value their environment (Environments - Relationships with Places ENS3.6)*
- *describes how Australian people, systems and communities are globally interconnected and recognises global responsibilities (Social systems and structures - Resource Systems SSS3.7)*

In the interest of cross-curriculum learning I have developed creative group work to accompany the interactive presentations and fieldwork.

For the group exercise, students will collaboratively create one of the following productions:

- a rap song about the benefits of biodiversity to human society,
- a community poster encouraging the management of feral animals and weeds,
- a music video about biodiversity,
- a partly-scripted puppet show from the perspective of local threatened animals.

Each group will perform or present their creative item for the class. Filming can also be arranged and a link to the class video can be posted on the School or the Friends of the Brush-tailed Rock-wallaby website. Kangaroo Valley Stage 3 Class of 2014 really enjoyed watching their puppet show on YouTube (unlisted).

This group work will incorporate some Stage 3 English Syllabus outcomes. Students will be encouraged to brainstorm and then accurately communicate ideas to others. The threatened species puppet show group will highlight solutions to biodiversity loss, the rap group will revisit the importance of biodiversity through factual oral text and the poster group will employ persuasive devices to convince people to act together as a community to save a local species from extinction. In each case, a student *composes, edits and presents well-structured and coherent texts EN3-2A*. These different styles of communication will emphasise *how*

language is used to achieve a widening range of purposes for a widening range of audiences and contexts EN3-3A.

In addition, my online multimedia presentation will give the students an opportunity to *use an integrated range of skills, strategies and knowledge to read, view and comprehend a wide range of texts in different media and technologies EN3-3A.* The program will expose students to different point of view and explore stereotyping. The students could be asked to demonstrate appropriate online sourcing of information by researching a fact about biodiversity to share with the class. For homework, I will ask the students to collect simple raw data to test a relevant hypothesis - We will “change something, measure something and keep everything else the same!”

This enrichment program comes at absolutely NO cost to the school. However, it is only on offer to a limited number of schools.

To honour the *Friends* obligation to the NSW Government Environmental Trust, I ask that your school publish a short article (and maybe a photo) about the program experience in the school newsletter.

In the spirit of adaptation (and to provide further measurable outcomes to the Environmental Trust), students and teachers will be asked to provide some honest feedback on the education program.

The only resources required by the school are some valuable class time, teacher assistance with facilitating the group work, internet and projector/ smart board access for the presentation.

I envisage the enrichment program will be tailored to satisfy the individual requirements of each school and extend over a few days, for up to two hours per day.

I look forward to discussing a potential partnership between the *Friends of the Brush-tailed Rock wallaby* and your class.

The moral of my story is: *Working together, science and communities can find innovative solutions for a sustainable future.*

I will propose to the students the following hypothesis: *People will be more likely to protect biodiversity if they understand why it is important.* We will “change something, measure something and keep everything else the same!” The students’ testable question can be: *Does the attitude towards biodiversity of my friend/parent/guardian change after they learn more about it?*

I will ask the students to interview a fellow student or parent/ guardian and record the answers to the same three questions *before and after* their test subject learns more about biodiversity. The learning experience could be my class multi-media presentations, watching a video performance of the class group work, or a family conversation over the dinner table.

The three interview questions asked of the test subject both *before and after* the learning experience are:

1. What does biodiversity mean to you?
2. What does biodiversity do to help you?
3. What would you do to help biodiversity?

The class can then rank each test subjects’ before/after change in responses as either:

- A. no change
- B. more knowledge about importance of biodiversity, but no change in willingness to protect it
- C. more knowledge about importance of biodiversity, and greater willingness to protect it

We can then measure the total response. The prediction for the testable question is that more responses will be ranked as C than the sum of A and B. From the classes raw data we can draw evidenced-based conclusions and develop explanations.

