

# General themes for *Connected 2 2010: Working with Nature*

*Connected 2 2010* presents a range of school projects that focus on the environment and sustainability.

“Hukanui EnviroSchool: Ten Years On” revisits Hukanui School to report on its progress as it celebrates ten years of active participation in the enviroschool movement. Some of the school’s projects were outlined in *Connected 3 2002*, and this article shows how they have grown and developed over the years. It also tracks the building of The Living Room, an eco-classroom designed and managed by the students of the school – a huge project where the students focused on sustainability, recycling materials, and a waste management plan.

“The Man in the Outside Office” introduces Jack Mace, a DOC ecologist, and the work he does monitoring the health of native forests. In this article, Jack explains what drew him to a job in the outdoors and the skills he uses to protect and restore native plant and animal life.

“Moturoa Students: They Grow and Share the Very Rare” tells the story of how the students at Moturoa School grew six seeds of the one remaining *Scandia rosifolia* plant in the New Plymouth area. By propagating the resulting plants, they have been able to help replant it along the Taranaki coastline from where it had once disappeared.

“Plants That Heal” outlines the work of students in three small Northland schools. They use their practical and research skills to grow, gather, and use plants that are part of traditional Māori healing practices. Some of the products they make raise funds that are used to protect the bush from pests.

“Gardens with Edge” follows the students of Riverview School as they make walled vegetable gardens at their school. They measure the plots, mix the concrete, plaster the walls, fill the plots with soil, and then plant them. The strawberry plot is a particular favourite!

## Key ideas

### Science

Nature of Science

- Scientists observe and describe the world around them thoroughly.
- Scientists ask questions when they see patterns and anomalies in natural phenomena.
- Scientists look for answers to their questions by designing investigations that gather evidence.
- Scientists find ways to apply their ideas to help in real-life situations.
- Many indigenous cultures hold traditional knowledge that has been gained from centuries of investigation, trial, and error.

## Living World

- Living things need materials to grow, energy to live, and shelter to protect from heat or cold, wind, drying out, and predators. They get all this from their environment.
- Plants and animals are adapted to the environment they live in. Their bodies and behaviours fit the conditions they live in.
- Many New Zealand plants and animals are adapted to living without mammalian predators and don't have the behaviours or bodies to cope with them.
- When people introduced possums, rats, and stoats to New Zealand, many native species became threatened or even extinct.
- Threatened species can respond well (begin to breed, increase their numbers, and spread over larger areas of land) if people manage them scientifically.
- There are many types of animals in New Zealand and many different ways to group them, for example, predators and prey, herbivores and carnivores, plants and animals.
- Scientists often group similar animals and plants into families (which are related or have a shared whakapapa). This science is called taxonomy.
- Common animal groups are mammals, birds, reptiles, insects, spiders, and worms.
- Common plant groups are flowering plants (including many trees), cone-trees, ferns, and mosses.
- Scientists give each different kind of plant and animal its own scientific name, which has two parts, its genus and species (like a surname and given name).
- Many native (indigenous) plants are only found in New Zealand, and scientists call these endemic. Sometimes they have unique and useful chemicals in their leaves or bark.
- When people get sick, some of their life processes are disturbed. These can sometimes be helped by taking different medicines. Some medicinal chemicals are found in parts of our native plants.

## Planet Earth and Beyond

- Natural features (physical environment) around the school, such as soils, shelter, shade, and moisture, can be described.
- Many natural features act as resources for plants and animals.
- People's activities can affect natural features and resources used by other organisms in our biological community.

## Physical World

- Energy comes in many forms, one of which is electrical energy.
- Electrical energy can be converted into other useful forms such as light and heat.
- If electrical appliances are turned off or unplugged, they do not use electrical energy.

- To produce (generate) electrical energy, people need to use another energy source, such as falling water (hydro), wind, geothermal heat, or burning coal, oil or gas.

#### Material World

- We use a range of different materials (chemicals) every day because they have properties we find useful, for example, steel is strong and able to be shaped.
- Some plants contain substances that are beneficial to humans.
- The fact that plant chemicals are natural does not mean that they are safe. Many plants are toxic to humans, and so the extraction and application of plant extracts must be carried out only under expert guidance.

### Technology

- Technological outcomes influence society and the natural world.
- Societal and environmental issues influence what people decide to make, how they undertake planning, their selection of resources, and how they make and test outcomes.
- A brief describes the physical and functional attributes of a technological outcome that allow it to address a particular need or opportunity.
- Planning for technological practice involves identifying and recording the key stages and resources required to produce an outcome. Often plans need to be reviewed to take account of current progress and changes that are needed.
- Materials are selected based on their performance properties and their suitability for use in the production of the outcome.
- The final outcome is evaluated against the key attributes it should have to determine how well it meets the need or opportunity.
- The materials used in technological products are selected because of their specific performance properties and how they can be manipulated (cut, shaped, and joined).
- Materials can be described by their performance properties. These properties can be measured subjectively and objectively.
- Properties that are subjectively measured are measured according to people's perceptions of how they look, taste, feel, smell, or sound.
- Properties that can be measured against a standard or comparative scale are objectively measured. These are properties such as hardness, ultraviolet resistance, transparency, or colour.
- The properties of all the materials used in a product combine to make the product both technically feasible and socially acceptable.

## Mathematics

- Objects have positions in space relative to each other. These positions can be described using mathematical language.
- Maps, plans, and co-ordinates represent the relative position of objects.
- Rates and proportions (the amount of one thing in relation to another) appear frequently in real contexts.
- Profit is income minus costs.
- The amount of input material (ingredients) required changes in proportion to the amount of product.
- Tables organise data and can help make calculations easier.
- Objects can have many different shapes, perimeters, areas, and volumes.
- We can use standard or non-standard measuring devices and units to measure objects.
- The dimensions of objects play an important part in designing things such as gardens and buildings.

### ***Connected* - the reading standards and the literacy learning progressions**

Your students are working towards the reading standards for the end of year 4 [year 5] or [year 6].

By the end of year 4 [5] [6], students will read, respond to, and think critically about texts in order to meet the reading demands of the New Zealand curriculum at level 2 [towards level 3] [at level 3]. Students will locate and evaluate [and integrate] information and ideas within [and across a small range of] texts appropriate to this level as they generate and answer questions to meet specific learning purposes across the curriculum.

Reading standard, end of year 4 [5] [6]

The texts in *Connected 2 2010: Working with Nature* provide opportunities for students to:

- meet purposes for reading by employing specific comprehension strategies, such as:
  - locating and summarising main ideas
  - drawing on several related items of information in order to infer ideas and information that are not directly stated in the text
  - making and justifying inferences
  - evaluating and integrating ideas and information across a small range of texts

- find and learn the meanings of unknown vocabulary by using strategies such as applying their knowledge of how words work or seeking explanations in the text or in the illustrations
- recognise the features and purposes of some common text types and use this knowledge to navigate and understand texts
- identify the specific language features and structures of many common continuous and non-continuous text types
- interpret illustrations, photographs, text boxes, diagrams, maps, charts, and graphs.

From the Literacy Learning Progressions, end of years 4 and 6

