



# Deep Blue

## ACTIVITY GUIDE

NEW ZEALAND EDITION

Year 1 - Year 4

## Acknowledgments

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This curriculum resource has been adapted to the New Zealand Curriculum by Sow the Seed and supported by Rabobank.

The curriculum-linked resource is designed to introduce young people to the production of foods and fibres in New Zealand.

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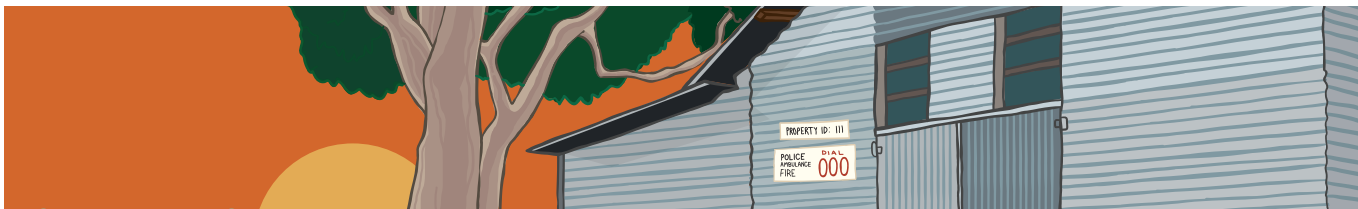
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# New Zealand Curriculum Connections

## Level 1

### Science

#### **Nature of Science**

Students will:

#### **Understanding about science**

- Appreciate that scientists ask questions about our world that lead to investigations and that open-mindedness is important because there may be more than one explanation.

#### **Investigating in science**

- Extend their experiences and personal explanations of the natural world through exploration, play, asking questions, and discussing simple models.

#### **Communicating in science**

- Build their language and develop their understanding of the many ways the natural world can be represented.

#### **Participating and contributing**

- Explore and act on issues and questions that link their science learning to their daily living.

### **Living World**

Students will:

#### **Life processes**

- Recognise that all living things have certain requirements so they can stay alive.

#### **Ecology**

- Recognise that living things are suited to their particular habitat.

### English

#### **Listening, Reading and Viewing**

#### **Processes and strategies**

Students will:

- Acquire and begin to use sources of information, processes, and strategies to identify, form, and express ideas.

#### **Purposes and audiences**

Recognise that texts are shaped for different purposes and audiences by:

- Identifying the purposes of simple texts;
- Evaluating the usefulness of simple texts.

#### **Ideas**

Recognise and identify ideas within and across texts by:

- Understanding that personal experience can influence the meaning gained from texts;
- Making meaning of texts by identifying ideas in some texts.

#### **Language Features**

Recognise and begin to understand how language features are used for effect within and across texts by

- Beginning to recognise that oral, written and visual language features can be used for effect
- Recognising some topic specific words.
- Showing some knowledge of text conventions, such as: capital letters, full stops, and word order and simple symbols.

#### **Structure**

Recognise and begin to understand text structures, by:

- Understanding that the words, sentences and images contribute to text meaning;
- Recognising some text forms and some differences between them.

#### **Speaking, Writing and Presenting**

#### **Processes and strategies**

Students will:

Acquire and begin to use sources of information, processes and strategies to identify, form and express ideas.

#### **Purposes and audiences**

Recognise how to shape texts for a purpose and an audience, by:

- Constructing texts that demonstrate some awareness of purpose and audience through the choice of content, language and text form;
- Expecting the texts they create to be understood, responded to and appreciated by others;
- Developing and conveying personal voice where appropriate.

#### **Ideas**

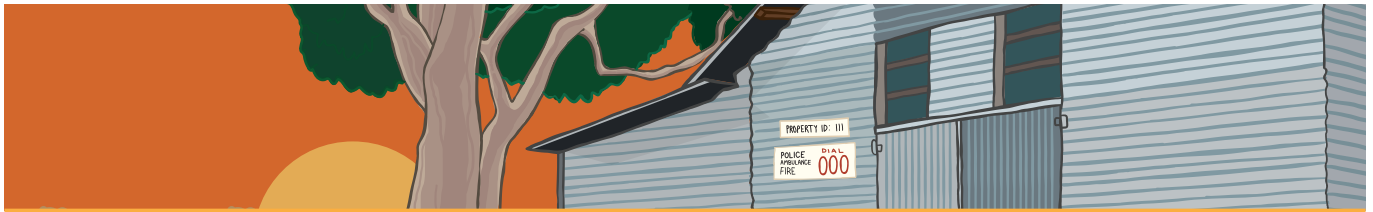
Form and express ideas on a range of topics, by:

- Forming and expressing simple ideas and information;
- Beginning to support ideas with some detail.

#### **Language features**

Use language features, showing some recognition of their effects, by:

- Using some oral, written and visual language features to create meaning and effect;
- Using a range of high-frequency, topic-specific and personal-content words to create meaning;
- Beginning to use some strategies to self-correct and monitor spelling;
- Beginning to gain control of text conventions, such as: capital letters and full stops; some basic grammatical conventions; volume, clarity, and tone; and simple symbols.



## Structure

Organise texts, using simple structures, by:

- Using knowledge of word and sentence order to communicate meaning in simple texts;
- Beginning to sequence ideas and information;
- Using simple sentences with some variation in beginnings;
- Attempting compound and complex sentences.

## Mathematics

In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to:

### Number and Algebra

#### Number strategies

- Use a range of counting, grouping, and equal-sharing strategies with whole numbers and fractions.

#### Number Knowledge

- Know the forward and backward counting sequences of whole numbers to 100.

#### Equations and expressions

- Communicate and explain counting, grouping and equal-sharing strategies, using words, numbers, and pictures.

### Geometry and Measurement

#### Measurement

- Order and compare objects by length, area, volume and capacity, weight (mass), turn (angle), temperature and time by direct comparison and/or counting whole numbers of units.

## Level 2

## Science

### Nature of Science

Students will:

#### Understanding about science

- Appreciate that scientists ask questions about our world that lead to investigations and that open-mindedness is important because there may be more than one explanation.

#### Investigating in science

- Extend their experiences and personal explanations of the natural world through exploration, play, asking questions, and discussing simple models.

#### Communicating in science

- Build their language and develop their understanding of the many ways the natural world can be represented.

#### Participating and contributing

- Explore and act on issues and questions that link their science learning to their daily living.

## Living World

Students will:

### Life processes

- Recognise that all living things have certain requirements so they can stay alive.

### Ecology

- Recognise that living things are suited to their particular habitat.

### Evolution

- Recognise that there are lots of different living things in the world and that they can be grouped in different ways.

## English

### Listening, Reading and Viewing

#### Processes and strategies

Students will:

- Select and use sources of information, processes and strategies with some confidence to identify, form and express ideas, by:

#### Purposes and audiences

Show some understanding of how texts are shaped for different purposes and audiences, by:

- Recognising how texts are constructed for different purposes, audiences and situations;
- Understanding that texts are created from a particular point of view;
- Evaluating the reliability and usefulness of texts with some confidence.

#### Ideas

Show some understanding of ideas within, across and beyond texts, by:

- Using their personal experience and world and literacy knowledge to make meaning from texts;
- Making meaning of increasingly complex texts by identifying main ideas;
- Making and supporting inferences from texts with some independence.

#### Language features

Show some understanding of how language features are used for effect within and across texts, by:

- Recognising that oral, written and visual language features can be used for effect;
- Using a large and increasing bank of high-frequency, topic-specific, and personal-content words to make meaning;
- Showing an increasing knowledge of the conventions of text.

#### Structure

Show some understanding of text structures, by:

- Understanding that the order and organisation of words, sentences, paragraphs and images contribute to text meaning;
- Recognising an increasing range of text forms and differences between them.





## Speaking, Writing and Presenting

### **Processes and strategies**

Students will:

- Select and use sources of information, processes, and strategies with some confidence to identify, form and express ideas.

### **Purposes and audiences**

Show some understanding of how to shape texts for different purposes and audiences, by:

- Constructing texts that demonstrate a growing awareness of audience and purpose through appropriate choice of content, language and text form;
- Expecting the texts they create to be understood, responded to, and appreciated by others;
- Developing and conveying personal voice where appropriate.

### **Ideas**

Select, form, and express ideas on a range of topics, by:

- Forming and expressing ideas and information with reasonable clarity, often drawing on personal experience and knowledge;
- Beginning to add or delete details and comments, showing some selectivity in the process.

### **Language features**

Use language features appropriately, showing some understanding of their effects, by:

- Using oral, written and visual language features to create meaning and effect;
- Using a large and increasing bank of high-frequency, topic-specific, and personal-content words to create meaning;
- Writing legibly and with increasing fluency when creating texts;
- Gaining increasing control of text conventions, including some grammatical conventions.

### **Structure**

Organise texts, using a range of structures, by:

- Using knowledge of word and sentence order to communicate meaning when creating text;
- Organising and sequencing ideas and information with some confidence;
- Beginning to use a variety of sentence structures, beginnings, and lengths.

## **Mathematics**

In a range of meaningful contexts, students will be engaged in thinking mathematically and statistically. They will solve problems and model situations that require them to:

### **Number and Algebra**

#### **Number strategies**

- use simple additive strategies with whole numbers and fractions.

#### **Number Knowledge**

- Know forward and backward counting sequences with whole numbers to at least 1000.
- Know how many ones, tens and hundreds are in whole number to at least 1000.

#### **Equations and expressions**

- Communicate and interpret simple additive strategies, using words, diagrams and symbols.

### **Geometry and Measurement**

#### **Measurement**

- Create and use appropriate units and devices to measure length, area, volume and capacity, weight (mass), turn (angle), temperature, and time.
- Partition and/or combine like measures and communicate them, using numbers and units.

# Sustainable Fishing

## Overview

Students will fish for crayfish, otherwise known as Southern Rock Lobster, measuring their catch to assess if it is the correct size for keeping and consuming.

## Background information for students:

The ocean creates climates, absorbs carbon dioxide, laps on beach shorelines and covers 2/3s of the Earth's total surface area! The ocean is also home to many marine creatures including crayfish. Crayfish are large marine crustaceans, highly prized as seafood and can be found in most coastal areas around New Zealand, the Chatham Islands and Australia.

In order for marine life such as crayfish to be available for future generations, all fisheries in New Zealand are managed for sustainability. This means there are strict requirements in place including seasonal closures, minimum size requirements and a ban on catching breeding females. Data has been kept and enables scientists to predict catches accurately and ensure that controls are adequate to maintain sustainable levels.

## Fun facts!



Crayfish are sometimes called Southern Rock Lobster



They can regrow legs and antennae that are lost



Their long antennae are used for navigation, self-defence and communication



They can live for more than 20 years and grow to weigh 5kg!

The essential question:

How can we ensure the crayfish that we catch in the ocean is the correct size?

**A suggested learning process:**

Watch the George the Farmer 'Deep Blue' video [https://www.youtube.com/watch?v=X\\_rvia4AxJc](https://www.youtube.com/watch?v=X_rvia4AxJc) and ask students the series of comprehension questions.

Undertake the science activities that are demonstrated in the video, George the Farmer 'Deep Blue' including drawing an ocean habitat and making an ocean in a jar. Share students work with parents via the Seesaw app or similar.

**Activity: Go Fish!**

Print the supplied crayfish illustrations in various sizes on the following pages. Paste on to card and attach a magnet to each. Create an improvised fishing rod by tying a string on to a stick or piece of ply wood and attach another magnet to the end of the string. Place all of the varying sizes of crayfish on the carpet, give a fishing rod to each student and ask everyone to sit around the 'ocean'. You're ready to go fishing!

As the students 'fish', remind them about fishing sustainably. What are the strict sizes allowed for fishing crayfish to ensure we have sustainable fisheries in the future? Have each student measure their crayfish to determine if it is kept for consuming or needs to be replaced into the ocean. Record the results on the white board.

**Comprehension questions:**

Watch "A Dive Down Under with George the Farmer" on YouTube to learn about crayfish and watch A Guide to Catching Crayfish <https://youtu.be/E95neB4yWUo>

In New Zealand, we measure the crayfish different to Australia. We measure the tail width in a straight line, between the tips of the two large (primary) spines on the second segment of the tail. The minimum measurement for males is 54mm and the minimum measurement for females is 60mm. If you are not sure what sex the crayfish is, use the 60mm measurement.

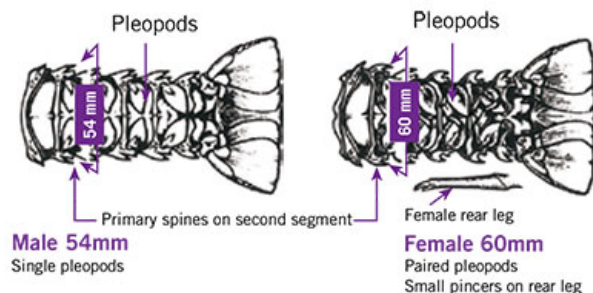
**You can determine sex by these characteristics:**

**FEMALES HAVE:**

- Small pincers on the rear pair of legs
- Pleopods (see diagram) which are in paired form on the underside of their tails
- Pleopods which have a feathery appearance ("hairs"), which they use to look after their eggs

**MALES HAVE:**

- Pleopods (see diagram) in single form on the underside of their tails.



**Have the students answer the following questions:**

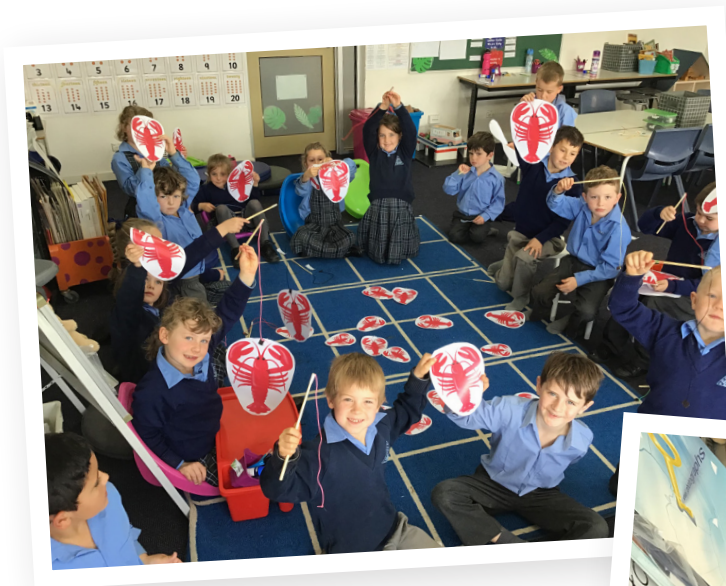
- Where can crayfish be found in New Zealand?
- What length do crayfish need to be when caught?
- What does sustainability mean?
- What does habitat mean?
- What can be found in a crayfish's habitat?
- How many eggs do female crayfish lay each year?
- What do fisherman record on their iPads?
- Where is the information recorded sent?
- What does density mean?
- What happens when two liquids have different densities?
- What is the top of a wave and the bottom of a wave called?
- How can you tell a female crayfish from a male crayfish?



## ACTIVITY

The Go Fish! activity was inspired by teacher Sue Denholm of St John's Lutheran School, Eudunda, who created this activity for her Foundation/Year 1 class after watching George the Farmer 'Deep Blue'.

**"As you know primary schools celebrate Science Week each year in August and our class used your resource to complement the theme 'The Deep Blue'. We are a rural, farming community and our students LOVE George the Farmer. Our students know lots about farming practices on the land but not really so much about our oceans. Your resource helped us explore the ocean and learn about catching crayfish."**



## ACTIVITY

### The minimum legal sizes for crayfish in New Zealand are:

- The minimum measurement for males is 54mm
- The minimum measurement for females is 60mm.

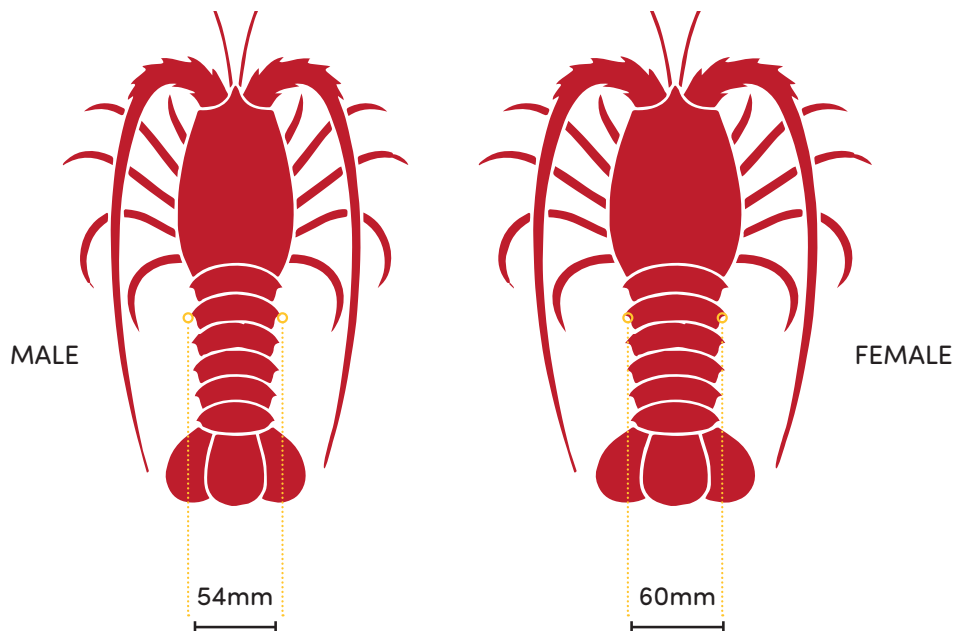
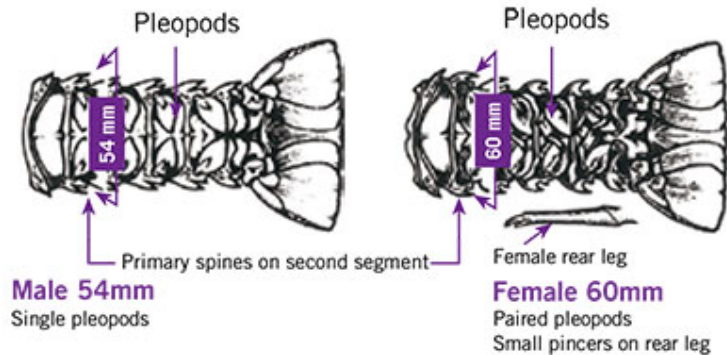
Crayfish in New Zealand must be measured by the tail width in a straight line, between the tips of the two large (primary) spines on the second segment of the tail.

Place your measuring stick on tip of the spine on the second segment of the tail and measure across to the opposite tip of the spine.

The measurement needs to be larger than 54mm for males and 60mm for females.

#### You are not allowed to harvest

- female crayfish "in berry" carrying external eggs
- soft shell crayfish (crayfish that has shed its skin)
- unmeasurable crayfish (like if its tail is damaged) or
- undersized crayfish.



This is the type of measuring stick you need to measure the crayfish.

