

PŪTAIAO: Taumata 4

Ngā Ariā Matua

KŌRERO WHAKAMĀRAMA

Teaching Pūtaiao and Science, involves teaching both scientific concepts, and scientific skills. Pūtaiao also involves exploring scientific concepts from a Māori worldview – ngā tautake pūtaiao me ngā kōrero o mua.

Ariā matua: Taumata 4

This resource provides an overview of the key concepts at Level 4 specifically relating to Te Ao Tūroa with Pūtaiao (Te Marautanga o Aotearoa) and the Living World strand of Science (New Zealand Curriculum). The Level 4 key concepts are:

TMOA		NZC	
Te Rauropi	<i>He mauri tō ngā mea katoa. He whakapapa tō ngā mea katoa.</i>	Life Processes	<i>Common life processes in all living things occur in different ways. All living things can be grouped and classified.</i>
Te Taiao	<i>He whanaungatanga tō ngā mea katoa.</i>	Ecology Evolution	<i>All living things adapt to changes in the environment and evolve.</i>
Papatūānuku	<i>Ko Papatūānuku e takoto ake nei. Ko Rūaumoko tana pēpi. Ka moe a Tāne i a Hine-tū-pari-maunga ka puta ko Parawhenuamea. E kore a Parawhenuamea e haere ki te kore a Rakahore.</i>	Planet Earth & Beyond	<i>Water, air, rocks and soil, and life forms are the Earth's resources. The water cycle affects climate, landforms, and life.</i>
Ranginui	<i>Ko Ranginui e tū iho nei. Ko ngā whetū aorangi hei kākahu mōna.</i>	Astronomical systems	<i>The solar system has different parts and covers vast distances.</i>
Ngā Tautake Pūtaiao me ngā Kōrero o Mua	<i>He kōrero tuku iho tō te ākonga.</i>	Philosophy and history of science	<i>Different cultures have different worldviews of the universe.</i>





Ngā Pūkenga Pūtaiao

There are six scientific skills that need to be covered in your teaching and learning programme:

- Observing
- Classifying
- Measuring
- Predicting
- Inferring
- Communicating

The six scientific skills unpack the three generic aspects of science:

- Ngā Momo Tūhuratanga Pūtaiao | Science Investigations
- Te Reo Matatini o te Pūtaiao | Science Literacy
- Te Whakamahinga o te Pūtaiao | Uses of Science

Ngā Rauemi

In the tables below, each key concept is presented with a range of online student and teacher resources that support the teaching of these scientific skills in context.

In planning your Level 4 teaching and learning Pūtaiao and/or Science programme, these resources are also useful:

- [Key Science Capabilities](#)
- [How to write evidence](#)
- [Level 4 skills](#)



TE RAUROPI (Taumata 4)			
KEY CONCEPTS	KEY SCIENTIFIC SKILLS	KEY TEACHER RESOURCES	KEY AKONGA RESOURCES
<p>Te Rauropi</p> <p><i>He mauri tō ngā mea katoa.</i></p> <p>Life Processes</p> <p><i>Common life processes in all living things occur in different ways.</i></p>	Observation	1. Characteristics of Living Things 2. Kōura 3. Māori Carving of Insects and Arthropods	1. Living or Non-Living 2. Rocky Shore Te Takutai 3. Observations Skills Test for Kids (You Tube 3:39) 4. Citizen Science Investigations for Students At Home or School 5. Observation Activities for Students 6. Ahi Pepe: Te Pepe The Moth 7. Ahi Pepe: What Does the Moth Eat? 8. Ahi Pepe: Pollination Whakaaiai
	Classification	4. Living or Non -living 5. Birds Beaks and Feet	9. Living or Non-Living 10. Bird Beaks and Feet
	Measure	6. Marine m2 7. Measuring the Ocean	11. Marine M2 12. Measuring the Ocean
	Predict	8. Can Crab Larvae Hear Sounds?	13. Making Science Prediction Templates
	Infer	9. Food webs 10. Kōura	14. Inference and Observation with Practice Questions (Youtube 4:36)
	Communicate	11. Soil animals 12. The World of Ferns 13. Constructing Diagrams of Food Webs 14. Te Āhua o te Kōura 15. HUE – Māra Kai (Ahorangi Nick Roskrug) 16. Māori Carving of Insects and Arthropods	15. Constructing Diagrams of Food Webs 16. How to Draw Labelled Science Diagrams





TE RAUROPI (Taumata 4)			
KEY CONCEPTS	KEY SCIENTIFIC SKILLS	KEY TEACHER RESOURCES	KEY AKONGA RESOURCES
<p>Whakapapa <i>He whakapapa tō ngā mea katoa.</i></p> <p>Evolution <i>All living things can be grouped and classified.</i></p>	Observation	<ol style="list-style-type: none"> Tiwaiwaka - He Kaupapa Tiaki i a Papatūānuku (Rob McGowan) Ngā Momo Taewa Te Ao Hurihuri (Reo Māori) Spot the Difference Birds (Kaiako) Te Kohinga Harakeke o Aotearoa - National NZ Flax Collection He Pepeke 	<ol style="list-style-type: none"> Learning to See (Ākonga Activity) Grouping Rocky Shore Animals (Level 2) To be modified for L4 Citizen Science Investigations for Students at Home or School Ahi Pepe: How to Read Prints from Tracking Tunnels.
	Classification	<ol style="list-style-type: none"> Whakapapa of Trees Bird Beaks and Feet Māori Carving of Insects and Arthropods 	<ol style="list-style-type: none"> Bird Beaks and Feet Ahi Pepe: Kā Manu o Rēhua
	Measure	<ol style="list-style-type: none"> Marine M2 Measuring the Ocean 	<ol style="list-style-type: none"> Marine M2 Measuring the Ocean Ahi Pepe: Ahakoa Taku Iti
	Predict	<ol style="list-style-type: none"> Can Crab Larvae Hear Sounds? (Kaiako) Making Predictions - The Sun Revisiting Predictions - The Sun 	<ol style="list-style-type: none"> Predict What Will Happen Activities
	Infer	<ol style="list-style-type: none"> Food Webs (Kaiako) 	<ol style="list-style-type: none"> Observation or Inference with Practice Questions (Youtube 4:36)
	Communicate	<ol style="list-style-type: none"> Soil Animals (Kaiako) The World of Ferns (Kaiako) Māori Carving Of Insects and Arthropods 	<ol style="list-style-type: none"> Citizen Science Investigations for Students At Home or School





TE TAIAO (Taumata 4)			
KEY CONCEPTS	KEY SCIENTIFIC SKILLS	KEY TEACHER RESOURCES	KEY ĀKONGA RESOURCES
<p>Te Taiao</p> <p><i>He whanaungatanga tō ngā mea katoa.</i></p> <p>Ecology</p> <p><i>All living things adapt to changes in the environment and evolve.</i></p>	Observation	1. Te Ao Hurihuri (reo Māori)	1. Whio (Blue Duck) Adaptations 2. Ahi Pepe: Kei Hea Au? Where Am I? 3. Ahi Pepe: Who Eats the Moth? 4. Ahi Pepe: How to Read Prints from Tracking Tunnels
	Classification	2. Native Bird Adaptations	5. Animal and Plant Adaptations 6. Whio Feathers 7. Which Duck is Which? 8. Classifying Bird Adaptations
	Communicate	3. Māori Carving of Insects and Arthropods	9. Whio Habitats and Conservation





PAPATŪĀNUKU (Taumata 4)			
KEY CONCEPTS	KEY SCIENTIFIC SKILLS	KEY TEACHER RESOURCES	KEY ĀKONGA RESOURCES
<p>Papatūānuku</p> <p><i>Ko Papatūānuku e takoto ake. Ko Rūaumoko tana pēpi.</i></p> <p>Earth Systems</p> <p><i>Water, air, rocks and soil, and life forms are the Earth's resources.</i></p>	<p>Observation</p> <p>Classification</p> <p>Measure</p> <p>Predict</p> <p>Infer</p> <p>Communicate</p>	<ol style="list-style-type: none"> 1. GNS Kupu Pūtaiao 2. Pounamu - Ngāi Tahu 3. Ngāi Tahu Pounamu 4. Volcanoes - Teacher Resources 5. Hurihanga Wai - Kia Kaha Te Reo Māori 	<ol style="list-style-type: none"> 1. Volcanoes Self Guided Trail 2. Volcanoes - Student Resources 3. Hurihanga Wai - Kia Kaha te Reo Māori
<p>Papatūānuku</p> <p><i>Ka moe a Tāne i a Hinetū-pari-maunga ka puta ko Parawhenuamea. E kore a Parawhenuamea e haere ki te kore a Rakahore.</i></p> <p>Interacting systems</p> <p><i>The water cycle affects climate, landforms, and life.</i></p>	<p>Observation</p> <p>Classification</p> <p>Measure</p> <p>Predict</p> <p>Infer</p> <p>Communicate</p>	<ol style="list-style-type: none"> 6. Te Mana o Te Wai - Kia Kaha te Reo Māori 7. Ngā Momo Wai 8. Hurihanga Wai - Kia Kaha te Reo Māori 9. Interpreting Weather Data 10. Hurihanga Wai (he rauemi reo Māori) 11. Rangi - Weather and Climate Lessons for Teachers (NIWA) 	<ol style="list-style-type: none"> 4. Te Mana o Te Wai - Kia Kaha te Reo Māori 5. Ngā Momo Wai 6. Hurihanga Wai - Kia Kaha Te Reo Māori 7. Interpreting Weather Data





RANGINUI (Taumata 4)			
KEY CONCEPTS	KEY SCIENTIFIC SKILLS	KEY TEACHER RESOURCES	KEY ĀKONGA RESOURCES
<p>Ranginui</p> <p><i>Ko Ranginui e tū iho nei. Ko ngā whetū aorangi hei kakahū mōna.</i></p> <p>Astronomical systems</p> <p><i>The solar system has different parts and covers vast distances.</i></p>	<p>Observation</p> <p>Classification</p> <p>Measure</p> <p>Predict</p> <p>Infer</p> <p>Communicate</p>	<ol style="list-style-type: none"> 1. Te Iwa o Matariki 2. Living by the Stars (Dr Rangī Mātāmua) 3. Matariki TKI Teacher Notes 4. Ngā Pō o te Marama 5. What is Matariki 	<ol style="list-style-type: none"> 1. Te Iwa o Matariki 2. Living by the Stars (Dr Rangī Mātāmua) 3. Ngā Pō o te Marama





NGĀ TAUTAKE PŪTAIAO ME NGĀ KŌRERO O MUA			
KEY CONCEPTS	KEY SCIENTIFIC SKILLS	KEY TEACHER RESOURCES	KEY ĀKONGA RESOURCES
<p><i>He kōrero tuku iho tō te ākonga.</i></p> <p><i>Different cultures have different world views of the universe.</i></p>	<p>Observation</p> <p>Classification</p> <p>Measure</p> <p>Predict</p> <p>Infer</p> <p>Communicate</p>	<ol style="list-style-type: none"> 1. Restoring Mauri 2. Identifying Cultural Indicators 3. Te Tohu Kai Māori 4. Living by the Stars (Dr Rangi Mātāmua) 5. Te Iwa o Matariki 6. Te Irikura: Te Hue (he rauemi reo rua) 7. Te Irikura: Taonga Pūoro (he rauemi reo rua) 8. Whakataukī 9. He Whakataukī anō 10. What is Matariki? 11. Te Hue - Māra Kai with Dr Nick Roskrige (Youtube 29:52) 12. Māori Carving of Insects and Arthropods 13. Get Involved in Local Restoration Projects 	<ol style="list-style-type: none"> 1. Mapping the Future 2. Māori Carving of Insects and Arthropods 3. Ngā Tohu o Te Taiao (Niwa) 4. Ahi Pepe: Whakataukī 5. Ahi Pepe: Kā Manu o Rēhua. 6. Ahi Pepe: Why Study Moths?

