

Whitebait Connection Teacher Handbook

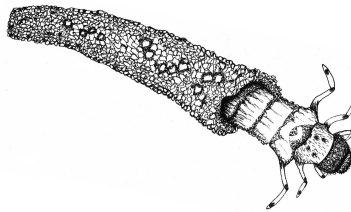
Years 5-8

Levels 3-4 of the NZ Curriculum



www.whitebaitconnection.co.nz





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Section One

1.1 Welcome

Kia ora and welcome to the Whitebait Connection's learning programme. We look forward to you joining us for a journey of discovery about freshwater in your local environment.

This handbook is designed to help you and your students understand the Whitebait Connection programme so we can make the most of the time we have together and work in a collaborative way to enhance freshwater in your community.

Whitebait Connection

Whitebait Connection is an action-based, environmental education programme for schools and communities, focussing on the health of our streams, rivers and wetlands.

The full Whitebait Connection (WBC) programme is a term-long inquiry and includes several sessions supported by your WBC Coordinator. Teachers then enhance these rich learning experiences with their own classroom planning. For further information about the Whitebait Connection (WBC), our team and resources, see <http://whitebaitconnection.co.nz>

The Whitebait Connection Coordinator delivers 4 of the 6 sessions and the classroom teacher supports the programme by teaching sessions one and three and assisting students to plan and carry out their freshwater actions. For details see pages 3-4.

Whitebait Connection's key learning concepts

- Values of fresh water
- Interconnections and cycles of the environment
- Ecology and biodiversity
- Threats to the freshwater environment
- Responsibility for action and kaitiakitanga

Our approach

Our approach is **collaborative** and our team of coordinators are here to help you and your students to learn about and act for our freshwater environment.

Mountains to Sea Conservation Trust

Whitebait Connection's umbrella organisation is The Mountains to Sea Conservation Trust, see: <https://www.mountaintosea.org.nz>

*Whakamana te maunga, Whakamana te wai, He mauri o ngā tangata, Ngā mea katoa he pai
If we look after the water from the mountains to sea, it will look after us. it is our life force.*



Kim Jones, (left): Poutokomanawa/Co-Director, Freshwater Lead and Samara Nicholas (right): MNZMPoutokomanawa/Co-director, Marine Lead, Mountains to Sea Conservation Trust.

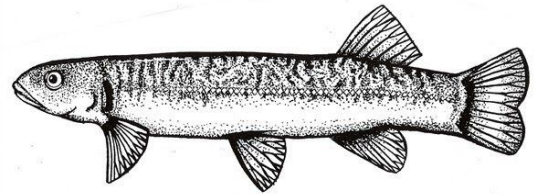


1.2. Aims/objectives of the WBC programme

Values and attitudes

Students (and their communities):

- Care about whitebait/native fish and are motivated to help them
- Feel a sense of connection to local waterway/s
- Value clean fresh water as a precious resource



Skills and experiences

Students:

- Can carry out water quality testing on a local waterway
- Experience their local waterway/s and living things; strengthening their connections to them

Learning and inquiry

Students:

- Learn about their local waterway/s and living things through a learning inquiry
- Understand whitebait need healthy habitats and access from mountains to sea to complete their life cycle

Working towards Kaitiakitanga

Students and their communities:

- Find out about local freshwater issues and develop a sense of responsibility and self belief to want to help with these issues
- To be inspired/encouraged to carry out an action to help local waterway/s and streams

(These can be demonstrated through our values continuum, the learning inquiry, observing students, the photo-story, learning activities and when a school carries out an action).

Example continuum:

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5



1.3. Whitebait Connection Programme Structure

Inquiry stage	Details of session	Responsibility	Key outcomes
Before inquiry: Teacher and WBC Coordinator planning meeting (1 hour)		WBC Coordinator and teacher	<ul style="list-style-type: none"> ★ WBC coordinator and teacher plan the WBC programme, school agreement and forms. ★ Identify sites for field trips, set dates.

1. Session One: Making Connections: Starting a Freshwater Inquiry (Teacher led)

1	Inquiry stage: Making connections	<ul style="list-style-type: none"> ● Introduce topic, form connections. ● Introduce inquiry process. ● Outline and share existing knowledge/understandings. ● Length of session: 1-1.5 hours. 	Teacher and students	<ul style="list-style-type: none"> ★ Bus stop activity. ★ Students complete KWHLs. ★ Share KWHLs with WBC Coordinator.
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2. Strengthening connections: Introducing the Whitebait Connection (Facilitated)

2	Inquiry stage: Strengthening connections	WBC programme introduction <ul style="list-style-type: none"> ● Introducing programme, coordinators and people involved. ● Present 'big picture' key concepts, cementing connections with local freshwater. ● Length of session: 1-1.5 hours 	WBC Coordinator	<ul style="list-style-type: none"> ★ Students view the introductory slideshow and are introduced to key concepts. ★ Students connect to the local environment. ★ Values continuum.
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3. Dive in and ask: Forming an inquiry question (Teacher led)

3	Inquiry stage: Dive in and ask	<ul style="list-style-type: none"> ● Developing and forming 'the big' inquiry questions. ● Focus & support questions. 	Teacher and students	<ul style="list-style-type: none"> ★ Students complete big questions inquiry plan/s in groups or as a whole class.
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4. Diving Deeper: Planning for field trip session (Facilitated)

Inquiry stage		Details of session	Responsibility	Key outcomes
4	Inquiry stage: Diving deeper	<ul style="list-style-type: none"> Identifying and developing skills of research: e.g. observation Planning the field trip. Identify people and agency resources. Length of session: 1-1.5 hours 	WBC Coordinator	<ul style="list-style-type: none"> ★ Using inquiry plan/s to decide focus for visit. ★ Decide how data will be gathered and recorded. ★ Timeline of next steps.

5. Field trip/s (Facilitated)

5	Inquiry stage: Explore and discover	<p>WBC Field Trip/s</p> <ul style="list-style-type: none"> Experiencing fresh water through the field trip. Carrying out investigations on freshwater health. Length of session: 3-4 hours 	WBC Coordinator	<ul style="list-style-type: none"> ★ Researching to answer big questions. ★ Recording and gathering data.
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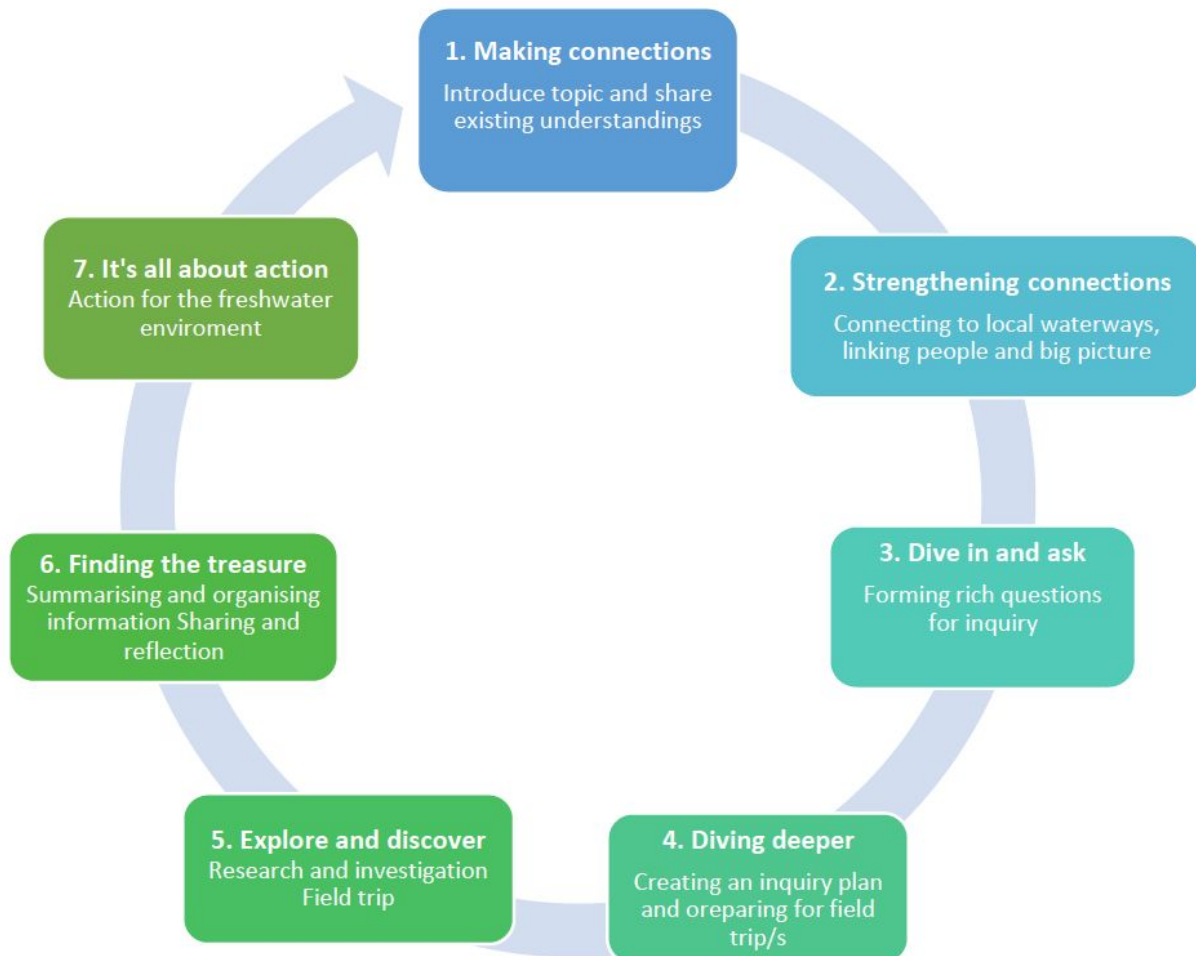
6. Finding the treasure: Follow-up classroom session (Facilitated)

6	Inquiry stage: Finding the treasure	<ul style="list-style-type: none"> Summarising new knowledge. Sharing the knowledge gained. Review and reflection on the inquiry. Leading into action. Length of session: 1-1.5 hours 	WBC Coordinator	<ul style="list-style-type: none"> ★ Complete reflection and values continuum. ★ Students share knowledge with the school community.
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7. Collaborative planning and carrying out action

7	Inquiry stage: It's all about action	<ul style="list-style-type: none"> Students plan and carry out actions for the freshwater environments based on knowledge gained in earlier stages. The timing of this phase is flexible and can be from a few sessions to a long-term commitment. 	Everyone	<ul style="list-style-type: none"> ★ Students complete an action plan and then carry out their action. ★ Share knowledge and action with the wider community.
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1.4. WBC Inquiry cycle



Use this cycle as a guide for the WBC programme. Each learning session described in section two is a stage in the inquiry cycle.

Please note: The inquiry cycle is flexible, and steps can be done in any order which suits your students. Reflection and reviewing are part of each stage. Use your school inquiry cycle as an alternative, if desired.



Section Two

2.1. Details of learning sessions

Teachers: Please pay close attention to orange text, as it relates to teacher considerations and requests.

Links to Google Docs/Slides are view only and teachers can make a copy to share with others.

Teacher and WBC Coordinator planning meeting	
Attendance required	WBC Coordinators, Classroom teachers who will be involved
<p>Overview</p> <p>This meeting is for the WBC Coordinator to meet the teachers involved (or at least the lead teacher) to organise the details of the programme and go through the associated paperwork and responsibilities.</p>	
<p>During the planning meeting we will:</p> <ul style="list-style-type: none"> • Discuss the classroom sessions we can deliver during the programme and adjust according to student needs and interests. • Go through the School/WBC delivery agreement and the responsibilities of both parties. We will leave this with you to read and sign with senior management and BOT if necessary. • Identify potential freshwater sites for field trips. • Set dates for classroom sessions and field trips. 	
<p>After the planning meeting the WBC Coordinator will send you the updated:</p> <ul style="list-style-type: none"> • Itinerary document (Your Coordinator will provide this) • Risk Assessment Form (RAF) • Student permission form example template 	
<p>Teachers: Please ensure the following actions are completed <u>before the start of the WBC programme</u>:</p> <ul style="list-style-type: none"> • Sign and return a copy of the School/WBC agreement. • Review the Itinerary with your School Dates and Details for the field trips and class sessions. Contact your WBC Coordinator as soon as possible if there are any concerns. • Review the Site Specific Risk Assessment Forms (RAFS) for the field trips. Your Coordinator will supply a specific RAF for your site. Ensure senior management have been consulted and make these available for students' parents if requested. • Send out a Student permission form for students' guardians and ensure these are collected before the field trips commence. The school may choose to use the WBC template or their own forms. WBC does not need a copy of the permission forms. • Identify potential volunteers, parents and community members to ensure we have a 1:4 ratio for Years 0-9, 1:6 ratio for Years 10-13, for maintaining our safety/supervision requirements. • We also aim to involve the community as much as possible and parents are welcome to both class and field sessions. • Review the programme outline and the resources available to support your classroom programme. 	

Inquiry Stage One: Making Connections (Teacher led)

Starting a Freshwater Inquiry

Facilitated by

Teacher

Overview

During this session, the classroom teacher introduces the topic and establishes the students' prior knowledge and wonderings. The prior knowledge and wonderings are communicated to the WBC Coordinators who use it to plan the next stage.

Key concepts

- Fresh water is a precious taonga (treasure)
- Water moves in a cycle
- Working together to share ideas and prior knowledge about freshwater and streams

Curriculum links

Achievement Objectives

Science: Levels 3 and 4

Nature of Science: Investigating in Science
Planet Earth and Beyond: Earth systems, Interacting systems.



Learning Intentions

Students are learning to:

- explain the importance of fresh water and the water cycle
- share prior knowledge about fresh water and streams through a [KWHL](#)
- apply the WBC inquiry process.

We suggest teachers will develop their own success criteria in collaboration with students.

Example Success Criteria

Students can:

- participate in the WBC programme and start a learning journey about fresh water
- record their ideas about fresh water and streams through the KWHL, learning journal and bus stop activities.

Suggested details of session

Key concepts and timing	Details	Resources and Links
<p>Introduce the topic of fresh water and streams</p> <p>(Approximately 5-10 minutes)</p>	<ul style="list-style-type: none"> ● Share ideas about why fresh water is important. ● How much is fresh? activity demonstration of the scarcity of clean, fresh water on the planet. 	<p>How Much Is Fresh.docx</p>

Introductory slideshow/ bus stop activity (10 minutes)	<ul style="list-style-type: none"> View the slideshow or use images as a bus stop activity. This slideshow includes 15 slides of images about fresh water, streams and living things. Discuss the importance of fresh water and streams for living things such as native fish and people. 	Bus stop activity slideshow 2020
Sharing prior knowledge and the inquiry cycle (10 minutes)	<ul style="list-style-type: none"> Brainstorm students' knowledge about Aotearoa's freshwater life. Students can complete a KWHL Chart (what we know, what we want to know, how we will learn, what we learnt), to show their prior knowledge and thinking. View the WBC inquiry cycle (see page 5) and explain the learning process for the programme. This process will be used to guide our Whitebait Connection learning journey. 	WBC KWHL Chart WBC inquiry cycle .pdf
Fresh water and the water cycle (10 minutes)	<ul style="list-style-type: none"> Explore the water cycle using the resources below. 	Learning about the water cycle
Other resources		
Student WBC learning journal	Activity booklet (printable) where students can record their learning through the WBC programme.	https://drive.google.com/file/d/111PTsdMd_acO-Z0MRVkaJKwPATybDd5U/view?usp=sharing
Additional Years 5-8 activities for supporting your inquiry/ WBC	This list of resources grouped in context can add value to your inquiry and provide student-friendly additional research material.	Additional Y5-8 teaching resources to support WBC programme
Water cycle resources		
Science Learning Hub's water cycle interactive	Interactive digital resource which includes information and video content for students about the water cycle	Learning about the water cycle
GW Water cycle poster: water in the catchment	Poster of the water cycle	http://www.gw.govt.nz/assets/Get-Involved/Take-Action/WGNDocs-598701-v1-TAFW-PosterWaterintheCatchment.PDF



Inquiry Stage Two: Strengthening connections

Introducing The Whitebait Connection

Facilitated by

WBC Coordinator

Overview

This session introduces the Whitebait Connection programme, coordinator and 'big picture' key concepts.

Key concepts

- Programme outline and purpose
- We have five native whitebait species who rely on healthy freshwater habitats
- Freshwater habitats include wetlands, rivers, streams and lakes
- Environmental changes and threats to freshwater life include: deforestation, pest fish, pest plants, sedimentation and pollution.

Curriculum links

Achievement Objectives

Science: Levels 3 and 4

Nature of Science: Investigating in Science

Planet Earth and Beyond: Earth systems

Living World: Ecology

Learning intentions

Students *are learning to*:

- recognise the five whitebait species and understand that these are our precious native fish
- investigate freshwater habitats and their importance for native animals
- understand that streams and freshwater environments can be affected by human impacts

Resources Needed:

Teachers: please ensure the following are available for our presentation on the scheduled date:

- Projector and screen or television for displaying presentation
- Whiteboard or large white paper with markers for recording ideas
- Internet access (if available).

Example Success Criteria

Students *can*:

- participate in hands on activities to learn about whitebait and life cycles
- reflect on their knowledge of freshwater issues through the interactive games/activities
- connect with their local streams and waterways through the catchment walk and/or slideshow

Suggested details of session

Key concepts and timing	Details	Resources and Links Bold ➡: to be provided by WBC Coordinator
Introducing the Whitebait Connection programme (Approximately 5 minutes)	<ul style="list-style-type: none"> ● WBC Coordinator explains the WBC programme outline and purpose. ● Revise learning from last session about the water cycle and Aotearoa's 	Student KWHLs from last session WBC KWHL Chart

	<p>freshwater life. If available refer to student prior knowledge from KWHLs.</p>	
<p>Slideshow presentation (Approximately 10 minutes)</p>	<ul style="list-style-type: none"> Students are introduced to the key concepts through the <i>WBC Introduction Slideshow</i>. The slideshow includes learning about catchments, whitebait and freshwater fish, invertebrates, the freshwater highway, habitats, life cycles, human impacts and environmental changes which can affect freshwater life. 	<p>MASTER WBC Intro presentation Yr 5 plus (New Branding) FINAL.pptx ➡</p>
<p>Values continuum activity</p>	<ul style="list-style-type: none"> Identify initial values and attitudes of students through the values continuum activity. Record positions through photos or notes. 	<p>Values continuum 2 ➡</p>
<p>EITHER: The Whitebait Wriggle <i>Interactive game about threats/issues for fresh water</i> (Approximately 10 minutes)</p>	<ul style="list-style-type: none"> Discussion of why freshwater animals need healthy habitats and introduction to threats and issues for fresh water. Possible interactive game such as 'The Whitebait Wriggle' to introduce life cycles of freshwater fish, threats and solutions. 	<p>The Whitebait Wriggle.pdf ➡</p>
<p>OR Who dirtied the water? <i>Interactive hands-on activity</i> (Approximately 10 minutes)</p>	<ul style="list-style-type: none"> Exploring the history of the area, past Māori and European settlement and issues for fresh water through the 'Who dirtied the water' or inviting local speakers to share their knowledge. 	<p>Who dirtied the water.pdf ➡</p>
<p>The five whitebait species jigsaw and Īnanga life cycle jigsaw (Approximately 5-10 minutes)</p>	<ul style="list-style-type: none"> As you play the interactive games, half of the student group could complete the <i>NISP: The five whitebait species and Īnanga life cycle jigsaws</i> and half could do the game/activity at a time. 	<p>TW-NISP-2C_jigsaw_v2.pdf ➡</p> <p>Īnanga life cycle jigsaw ➡</p>
<p>Extra activities (Approximately 10 minutes)</p>	<ul style="list-style-type: none"> Possible catchment walk around the local area. 	<p>n/a</p>
<p>Wrap up (Approximately 5 minutes)</p>	<ul style="list-style-type: none"> Reflect on learning during session through a brainstorm or think, pair, share activity. Group discussion of ways we are already taking action. 	<p>n/a</p>

Inquiry Stage 3: Dive in and ask A learning inquiry

Facilitated by

Teacher

Overview

This session develops wonderings into the big/rich inquiry questions for the students' learning journeys. Teachers then communicate the big questions to coordinators who use them to plan the next stage.

Key concepts

- Inquiry learning and developing big/rich questions

Curriculum links

Achievement Objectives: Levels 3 & 4

English: Listening, reading and viewing, Speaking, Writing and presenting
Inquiry skills and information literacy

Learning intentions

Students are learning to:

- form a big/rich inquiry question to research

Teachers can form their own success criteria depending on their approach and student needs.

Suggested details of session

Key concepts and timing	Details	Resources and Links
Reflecting on inquiry cycle and KWHLs (Approx. 5 minutes)	<ul style="list-style-type: none"> • Review the inquiry cycle (see page 5 of this document). • Reflect on the students' KWHLs from stage one. Students could form groups to review their wonderings. 	WBC inquiry cycle .pdf
Forming a big/rich question for inquiry (Approx. 10 minutes)	<ul style="list-style-type: none"> • Together, compile some big/rich inquiry questions which you are interested in investigating during the field trip and remaining WBC sessions. Example big inquiry questions are: <ul style="list-style-type: none"> - <i>How healthy are our local freshwater environments?</i> - <i>What are the current issues with local freshwater environments?</i> - <i>How do local people care for the freshwater environments?</i> 	WBC Inquiry plan for water in your environment Google Slides example #2: Student inquiry plan

	- <i>How are we affecting local freshwater environments?</i>	
Student Inquiry Plan (Approx. 10 minutes)	<ul style="list-style-type: none"> Students can make a copy and record their own inquiry questions, plans and learnings on one of these documents. 	<p>Example student inquiry plan (Google Docs and Slides) Google Docs example #1: WBC Inquiry plan for water in your environment Google Slides example #2: Student inquiry plan</p>
WBC Learning Journal	<ul style="list-style-type: none"> Students can also complete the Whitebait Connection Learning journal and inquiry plan to help to identify how you will answer your question, how you will research the answer and record their inquiry. 	<p>11_WBC Learning Journal_MASTER.pdf</p>



Other resources		
Additional Years 5-8 activities for supporting your inquiry/ WBC	This list of resources grouped in context can add value to your inquiry and provide student- friendly additional research material.	Additional Y5-8 teaching resources to support WBC programme
Whitebait Connection website resources	Range of resources on WBC website	https://whitebaitconnection.co.nz/curriculum/teachers-and-coordinators-resources.html

Inquiry Stage 4: Diving deeper

Planning for the field trip

Facilitated by	WBC Coordinator
<p>Overview This session introduces students to the stream testing equipment used in the field. Students help to plan a field trip which supports the inquiry questions.</p>	
<p>Key concepts</p> <ul style="list-style-type: none"> ➤ Water testing: learning how to measure water quality indicators and compare changes ➤ How to measure and observe changes to habitat ➤ Understand risks and safe practises ➤ How to use monitoring equipment 	
<p>Curriculum links</p> <p>Achievement Objectives Science- Levels 3 and 4 <i>Nature of Science: Investigating in science</i> <i>Living World: Ecology</i> <i>Material World: Properties and changes of matter</i> <i>Health & P.E.: Personal health: Safety management</i></p>	<p>Learning intentions <i>Students are learning to:</i></p> <ul style="list-style-type: none"> - explore how to measure physical and chemical changes in water, such as clarity, pH, and temperature - recognise changes in habitat such as stormwater pollution - identify risks and their causes & describe safe practises to manage these.
<p>Resources and equipment needed: Teachers, please have the following available for our session:</p> <ul style="list-style-type: none"> ● Projector and screen or television for displaying presentation. ● Whiteboard or large white paper with markers for recording ideas. ● Internet access (if available). ● A suitable area to work in where water can be handled. 	<p>Example Success Criteria <i>Students can:</i></p> <ul style="list-style-type: none"> - practise using stream testing equipment and/or describe how to use it - identify which habitat assessment methods they will use on the field trip and decide how to record these - contribute to the safety planning for the field trip.

Suggested details of session

Resource name	Description	Link to resource
<p>Introducing the field trip (Approx. 10 minutes)</p>	<p>Preparation for the first field trip: itinerary for the day and key concepts.</p>	<p>Stream prep session slideshow ➡ WBC Stream prep (Compressed) v2 Year 5</p>

		plus.pptx (PowerPoint/Google Slides)
Stream testing methods and observation (Approx. 20 minutes)	<ul style="list-style-type: none"> Introduce students to methods for testing flow, temperature, conductivity and clarity. Demonstrate use of the equipment and students can practise using it. Identifying suitable habitats for living things and surveying aquatic animals. How to observe and monitor pests, weeds and fish barriers. 	Stream testing equipment: ➡ <ul style="list-style-type: none"> Clarity tubes pH strips Thermometer Conductivity meter Flow
Practise worksheet – Stream Health Worksheet (Google Doc) (Approx. 20 minutes)	<ul style="list-style-type: none"> Worksheet to practise stream health assessment. 	MTSW - Copy of WBC Stream Health. Worksheet. 2018_pH.doc ➡
Thinking about safety (Approx. 5-10 minutes)	<ul style="list-style-type: none"> Health and safety discussion and planning. 	See stream prep slideshow above.
Other resources for stream visit prep session		
Science Learning Hub: Monitoring stream health website	Interactive with videos, information and activities about monitoring streams	Monitoring stream health
Freshwater invertebrates guide by Landcare Research website	Detailed information about freshwater invertebrates (bugs) you might find in your stream and sampling methods.	https://www.landcareresearch.co.nz/resources/identification/animals/freshwater-invertebrates





Inquiry Stage 5: Explore and Discover

Field trip/s (3 - 4 hours)

Facilitated by

WBC Coordinator

Overview

The field trip/s are the experiential part of the Whitebait Connection programme where students explore and discover more about their local freshwater environment, make observations, collect data and build their inquiry to answer their big/rich questions.

Key concepts

- Gathering freshwater data to give us information about our environment
- Using monitoring methods to test fresh water
- Following the safety plan and looking after each other and the environment

Curriculum links

Achievement Objectives

Science- Levels 3 and 4

Nature of Science: Investigating in science

Living World: Ecology

Material World: Chemistry and Society

Health & P.E.: Personal health: Safety management

Learning intentions

Students are learning to:

- gather freshwater data and work together to provide evidence to support their ideas
- make observations about habitat for living things, bugs and fish
- use the monitoring equipment to test fresh water and reflect on their results
- use the safety plan to manage risks

Example Success Criteria

Students will:

- use testing equipment to monitor stream
- record and gather data and observations during the field trip
- follow the safety plan to stay safe



Resources and equipment needed for field trip

Coordinator will bring:

- Copy of Stream Health sheet for each student group (2-6 per group)
- Clipboards

Teacher and students to bring:

- Sturdy shoes that can get wet
- Other personal gear – i.e. lunch, water, warm clothes, sun protection etc.
- [Permission forms](#) signed by parents for photos etc
- Pens/Pencils
- Camera (optional)

General timetable of field trip

(Subject to change according to conditions and site)

- WBC Coordinator to sign off health and safety paperwork with teacher: [Pre-site assessment form](#) ➡
- Briefing and [karakia](#) ➡
- Water quality testing and stream activities. This usually consists of monitoring tests such as: clarity, pH, temperature, as well as observations of habitat and freshwater life.
- There may also be biodiversity sampling (fish and bugs/macrobenthos), measuring depth or flow, study of pest species such as weeds, or other site dependent activities.
- Re-group and share results.
- Debrief and wrap up.

After the field trip:

Your coordinator will send through a photo-story of your field trip to help with next stages of inquiry.

Inquiry Stage Six: Finding the treasure

Post Field Trip Follow Up

Facilitated by	WBC Coordinator
<p>Overview</p> <p>This session reflects on the findings and data gathered during the field trip. Students summarise the data gathered, reflecting on their inquiry so far. Students also identify how they will share their knowledge. This session helps to pave the way into stage seven of the inquiry: action.</p>	
<p>Key concepts</p> <ul style="list-style-type: none"> ➤ Interpreting data and observations ➤ Making conclusions based on results ➤ Thinking like a scientist about our results ➤ Issues in the local freshwater environment 	<p>Learning intentions</p> <p><i>Students are learning to:</i></p> <ul style="list-style-type: none"> - interpret their data, observations and results to reach conclusions - identify an issue which affects freshwater in their area and understand its causes and effects - share their data using an appropriate platform
<p>Curriculum links</p> <p>Achievement Objectives</p> <p>Science: Levels 3 and 4</p> <p><i>Nature of Science: Investigating and communicating in science</i></p> <p><i>Material World: Chemistry and Society</i></p> <p>Social Science: Social Studies</p>	<p>Example Success Criteria</p> <p><i>Students can:</i></p> <ul style="list-style-type: none"> - discuss results of field trip and use and critique their data to reach conclusions - record or enter their data onto an appropriate website or platform - research and discuss a concerning issue for their catchment

Suggested details of session		
Key concepts and timing	Details	Resources and Links
Reflecting on the field trip experience through the Photo-story	<ul style="list-style-type: none"> • The WBC Coordinator will review results and data. View the photo-story from your field trip. Students share experiences and observations. 	<p>Google Slides: Example Photo-story template (your WBC coordinator will send you a version of this with photos of your visit).</p> <p>Photo story example_template DRAFT1 ➡</p>
Interpreting data, the health of the stream	<ul style="list-style-type: none"> • Assist students to enter data into an appropriate database (if applicable). • Interpreting results: asking questions like a scientist- <i>Ask questions to use and critique your data, such as:</i> 	<p>Database for data entry e.g. Wai Care ➡</p> <p>Data sheets</p>

	<ul style="list-style-type: none"> ○ <i>Were the testing methods we used suitable for what we wanted to find out?</i> ○ <i>Which local issues did we observe?</i> ○ <i>Were there any patterns or themes in our results?</i> ○ <i>What could we use the data and observations for? Who might be interested in this?</i> 	TKI: Science capability: critique evidence.
Values continuum activity	<ul style="list-style-type: none"> ● Identify new values and attitudes of students through the values continuum activity. Record positions through photos or notes. This can help with our evaluation processes. 	Values continuum 2 ➔
Partnerships and sharing results	<ul style="list-style-type: none"> ● Partnerships activity: who has been a part of our inquiry? Make a list of all those involved. Write letters of thanks and share what you learnt with them ● Share the results and conclusions with your school community. 	n/a
Students reflecting on their inquiry	<ul style="list-style-type: none"> ● Reflecting on results and field trip/s: was the inquiry question(s) answered? If not, what are the next steps? Students can complete the Student Reflection Slideshow activity. 	Student Reflection Field trip
Issues for the stream and student inquiry	<ul style="list-style-type: none"> ● Investigate a human impact observed at the stream, and discuss what steps could be taken to reduce or resolve the issue. ● Lead in to talking about addressing the issue through action (next session). 	n/a



Inquiry Stage Seven: It's all about action

Planning and carrying out an action for fresh water

Facilitated by

Students, teacher and WBC Coordinator

Overview

This phase of the inquiry is about reflecting on knowledge, observations, research and information during the inquiry to plan action to address issues.

Students are assisted by WBC Coordinators to identify sources of support and to carry out the actions.

Key concepts

- Kaitiakitanga: protecting freshwater and maintaining the balance
- Environmental action can help to solve a freshwater issue

Curriculum links

Achievement Objectives

Science: Levels 3 and 4

*Nature of Science: Participating and Contributing
Integrated curriculum and key competencies*

Learning intentions

Students are learning to:

- plan and carry out a successful action which has some impact on an issue
- contribute to protecting and restoring fresh water and exercise kaitiakitanga

Example Success criteria

Teachers can form their own success criteria depending on their approach and student needs.

Suggested details of session

Students will plan and carry out an appropriate action for freshwater.

- Consider freshwater issues in your community and discuss.
- Work with students to assist them to come up with their own actions to address an issue which has come up during their learning inquiry.
- Use the environmental action planner and action menu below to help you with the planning process.
- Contact your coordinator for additional support with your action: [Coordinator details](#)
- Celebrate and share the learning! This could be by holding a community hui.

Please invite your WBC Coordinator to any opening or celebration events for your action- we love to see your successes.

Resources to support stage seven: It's all about action

Environmental Action planner PDF	https://drive.google.com/file/d/1_5qzn2bmCc0UykGmdIHYQk2pc7z-tTvc/view?usp=sharing
Action inspiration ideas PDF	WBC Action Inspiration.docx
Evaluation forms Your WBC Coordinator will also provide a link to the Google Forms versions of the evaluation form on completion of the WBC programme	Student evaluation form PDF https://drive.google.com/file/d/0B9xMnYa0UYWleFJjbUE2Y1J4UIk/view?usp=sharing Teacher evaluation form PDF https://drive.google.com/file/d/0B9xMnYa0UYWIR0c5LWdIUzRHM0k/view?usp=sharing
WBC Planning and taking action Google Slides Slideshow	WBC Planning and taking action (New Branding) v1





2.3 Example Unit plan

Whitebait Connection: Overarching Learning Goal <i>To raise awareness, understanding and involvement in freshwater restoration and conservation through provision of dynamic experiential environmental education opportunities.</i>		
Principles Learning to learn Inclusion Treaty of Waitangi Community engagement Future focus	Key competencies Thinking Using language, symbols and texts Managing self Relating to others Participating and contributing	
Values <ul style="list-style-type: none"> ● Innovation, inquiry, curiosity ● Diversity ● Community and participation ● Ecological sustainability ● Integrity 	Levels 3-4 (Years 5-8)	
Curriculum links	Science Nature of Science: Investigating in science, Understanding about science; Communicating in science and Participating and contributing Living World: Ecology and Evolution Material World: Chemistry and Society	English: Listening, Reading and viewing Speaking, Writing and presenting Social Science: Social studies Health & PE Personal Health and Physical Development - Safety management
Key concepts	<i>Show knowledge & understanding of:</i> <ul style="list-style-type: none"> ● Fresh water is a precious taonga (treasure). ● Water moves in a cycle. ● Recognising the five native NZ whitebait species (īnanga, banded kōkopu, shortjaw kōkopu, giant kōkopu, kōaro). ● The life cycle of the inanga. ● A catchment is an area of land where water flows to one point. ● Freshwater habitats include: wetlands, rivers, streams and lakes. ● Our native whitebait species who rely on healthy freshwater habitats. ● Environmental changes and threats to freshwater life include: deforestation, pest fish, pest plants, sedimentation and pollution. 	



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|--|--|
| | <ul style="list-style-type: none">● Freshwater habitats in New Zealand.● Gathering freshwater data and making observations to give us information about our environment.● Using monitoring methods to test fresh water.● Interpreting data and observations and making conclusions.● Issues in the local freshwater environment.● The impact people have had, and can have on the freshwater environment.● The importance of working together as local communities, including the ethic of Kaitiakitanga (stewardship/guardianship). |
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Section Three:

3.1 Documentation and planning tools

See links below for our Whitebait Connection documentation.

WBC School agreement	Standard WBC School agreement which outlines school and WBC roles, understandings and responsibilities.	WBC Coordinator School Responsibility Agreement 2018.pdf
Student permission form template	Standard WBC Form to send home to parents for field trip permissions.	Permission forms
Risk Assessment Forms (RAF)	This RAF template will be adjusted by your WBC Coordinator with specific considerations for your chosen field trip site.	https://drive.google.com/file/d/15crhS7n3kr29BqWBF73IQfJdezGIkTo-/view?usp=sharing
Itinerary: School Dates and Details	The itinerary template will be adjusted by your WBC Coordinator with the dates and details of your sessions.	WBC Coordinator will provide this after your initial planning meeting.
Karakia	Our MTSCT karakia which opens the field trip.	Karakia
Pre-site assessment form	A health and safety form which your Coordinator will bring to the field trip and you will sign off to ensure that conditions are safe to go ahead.	Pre-site assessment form
WBC Evaluation forms	Your WBC Coordinator will also provide a link to the Google Forms versions of the evaluation form on completion of the WBC programme	Student evaluation form PDF https://drive.google.com/file/d/0B9xMnYa0UYWleFJjbUE2Y1J4UIk/view?usp=sharing Teacher evaluation form PDF https://drive.google.com/file/d/0B9xMnYa0UYWIR0c5LWdiUzRHMOk/view?usp=sharing



We look forward to working with you and your students.