Waiora Stream Study

Aims of the kit:

- Introduction to water quality issues in NZ
- Identify how land use affects water health
- Assess stream health in your local river through completing different science tests

This kit can link to the following NZ Curriculum (2026)

horizons
REGIONAL COUNCIL

Curriculum Links	Activities and ideas
Science (2007) *Nature of Science* Investigating in science: • Ask questions, plan and carry out investigations (e.g., water clarity, pH, conductivity, temperature, flow rate). • Gather and interpret data from physical and biological tests. *Living World* Levels 1–2: • Recognise that living things have certain requirements for survival and are suited to their environment. Levels 3–4: • Explain how living things are adapted to their environment and how changes (e.g., land use) affect ecosystems. • Investigate relationships between living things and their environment (macroinvertebrates as indicators of water quality). *Communicating in science* • Record and present findings (graphs, tables, reports). *Participating and contributing* • Use science knowledge to make decisions about improving stream health (riparian planting, fencing, rubbish removal) *Planet Earth and Beyond* Levels 3–4: • Explore how water, air, soil, and rocks interact in the environment. • Understand how human activity (land use) impacts water systems.	Kit has all activities listed to complete a water quality assessment of a stream such as measuring water flow, clarity, sediment size, pH, temperature, conductivity, nets and trays for catching invertebrates, and conducing a habitat survey Other ideas: • Compare clarity at different points along the stream and discuss possible causes (e.g., erosion, runoff). • Conduct a water quality survey on two different rivers such as a small stream and one that flows into it.

Maths (2026 curriculum) – use in addition to maths textbooks as desired *Statistics and Probability* • Phases 1–4 (Y0–10): Pose investigative questions, collect and manage data, use displays (dot plots, bar/line graphs), summarise, interpret, draw conclusions, and communicate findings. Includes understanding variation and uncertainty. *Measurement* • Phases 2–4 (Y4–10): Accurate measurement of length, area, time, volume, temperature, and derived quantities (e.g. flow rate). *Geometry* • Phases 2–4 (Y4–10): Use scale, coordinates, area, and perimeter to represent and plan spatial layouts. *Number & Algebra* • Phases 2–4 (Y4–10): Work with whole numbers, fractions, decimals, percentages, ratios, and averages.	• Plot pH, temperature, conductivity, flow rate to explore trends over time. • Tally macroinvertebrate counts by species to identify pollution indicators. • Use variation in measurements across sites to make comparisons and deductions. • Measure stream width, depth, and calculate flow speed (distance ÷ time). • Record water temperature and relate it to biological health. • Map sampling points and riparian planting zones using scale diagrams. • Calculate averages (e.g. mean pH, mean macroinvertebrate count). • Calculate percentage of sensitive species in samples. • Use ratios to compare counts across sites or times.

English (2026 curriculum) *Oral Language* • Share observations and findings clearly using scientific vocabulary (e.g., “clarity,” “pH,” “riparian”). • Engage in discussions about water quality issues and solutions. *Reading* • Read and interpret informational texts about water quality, land use, and stream ecology. • Identify key ideas and supporting details in scientific or environmental texts. *Writing* • Write structured reports summarizing stream health tests and biological findings. • Create persuasive or informative texts advocating for stream improvement.	• Students present stream health results to peers or community, perhaps orally describe a stream visit—its sounds, sights, and smells—developing vocabulary linked to water, habitat, and ecology. • Group discussions on how land use impacts water health. • Students read DOC or regional council resources on freshwater health. • Compare texts on different restoration methods (e.g., riparian planting vs. fencing). • Students write a scientific-style report including introduction, methods, results, and conclusion. Students draw and label parts of the stream environment ("muddy bank", "flowing water"), practicing basic writing and label structure. • In small groups, find and read information on riparian planting and create a summary poster. • Develop a persuasive poster or letter to the local council about improving water quality. • Examine water quality campaigns for persuasive techniques. • Create multimodal texts (video, infographic) promoting stream restoration.