Kei te hauora te Mimihau | Is the Mimihau Healthy?

The Mimihau stream has been an integral part of the Wyndham Ecosystem. For over the last 150 years, the river has run through land that has been drained and cleared primarily for dairy farming. The Mimihau used to be a source of food for the community to come together and helped sustain life in the repo | wetland that it used to flow through. Today it is a popular spot for people to catch trout and it is a popular site for swimming.

Investigation 1

Pātai | *Research Question*: Whats is around the Mimihau

Describe what you investigated.

We went to the Mimihau and went to have a look around the area and take notes and photos to see what things could affect the health of the river. We mainly looked around a certain spot of the Mimihau that looked good to investigate.

Type of data collected: Photos and notes

Describe the purpose (reason) for using this type of investigative approach to collect this type of data
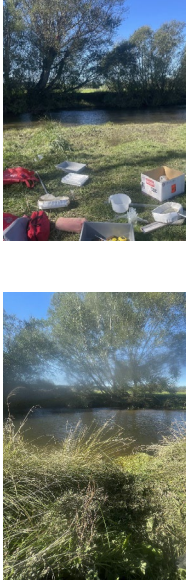
Exploring and observing allows you to get to know an area or an idea as a starting point.

It helps you to discover something new that may lead to more questions and therefore more investigations/investigating.

Can observe lots of factors fast.

Can be used when you aren't given a method or many instructions to follow.

Raraunga/Rangahau | *Results/Data*

Group Name	Site number	Site name	Stream bed type	Algae	Depth (cm)	Clarity (cm)	Temperature (oC)	Oxygen (%)	Average velocity
	Site 1: 4-#2	4-#2	Bedrock, mud or silt, large and small cobbles, water plant, gravel	Thin Mat, Short Filaments	70	60.5	10 (30sec)		0.43
	Site 2: 4B	4B	Bedrock, mud or silt, large and small cobbles, water plant, gravel	Thin Mat, Short Filaments	55	43	8 (30sec)		0.33
	Site 3: 2A	2A	Bedrock, mud or silt, large and small cobbles, water plant, gravel	Thin Mat, Short Filaments	35	60.5	8 (30sec)		0.46
	Site 2: 2#3	2#3	Large Cobbles, Mud or Silt	Thin Mat, Short Filaments	40	60.5	8.5	16.6	0.26
	Site 3: 5C	5C	Large Cobbles, Mud or Silt	Thin Mat, Short Filaments	95	60.5	10	17.2	0.23
	Site 1: 7A.1	7A.1	Large Cobbles, Mud or Silt	Thin Mat, Short Filaments	77	60.5	9	15.2	0.17
	Site1: 6#1	6#1	Mud or silt, Water plant, gravel	Thin mat, short filaments	40	59	8	18.5	0.45
	Site 2: 7 B	7 B	Sand, mud or silt, waterplant, small cobbles, gravel	medium mat, short Filiments	57	52	8	18.2	0.3
	Site3: 2C	2C	Sand, small cobbles, water plant, gravel	Medium mat, short filiments	45	59	7	16.6	0.38
	Site 1: 5-#1	5-#1	gravel,bedrock	thin mat, short filaments	25	60.5	10	17	0.507
	Site 2: 6-#3	6-#3	bedrock	thin mat, short filaments	25	60.5	8.7	15.5	0.39
	Site 3: 6B	6B	bedrock	thin mat, short filaments	18	60.5	9.8	16.4	0.45
	site 1 6A	#VALUE!	small cobbles, mud and slit	none	17	60.5	10	18.5	0.47
	site 2 6C	#VALUE!	large and small cobbles and mud and slit	thick mat and short filaments	13	60.5	11	18.3	0.4
	site 3 2B	#VALUE!	small cobbles, mud and slit	thin mat and short filaments	36	60.5	13	18.5	0.58
	Site 1: 2 - #2	2 - #2	Large and Small Cobbles, Gravel, Mud or Silt and Water Plants	Medium Mat and Short Filaments	35	60.5	10	16.6	0.41
	Site 2: 1 - #2	1 - #2	Water plants as the water was quite deep	Medium Mat and Short Filaments	97	60.5	10	15.6	0.21
	Site 1: 3 - #1	3 - #1	Bedrock, mud or silt, large cobles, water plants, gravel, man made	Thin mat, Short Filaments	30	11	10	18.5	0.41
	Site 2: 5 A	5 A	Bedrock, mud or silt, large cobles, water plants, gravel, man made	Medium mat, Short filaments	47	11	10	18.3	0.23
	Site 3: 1 - #3	1 - #3	Bedrock, mud or silt, large cobles, water plants, gravel, man made	Thin mat, Short Filaments	55	12	10	18.5	0.27

Otinga | *Findings/Conclusion*:

Used exploring and observing because it allowed us to explore different parts of the Mimihau like where farms or buildings were. This tells us where the runoff and the pollution might have come from because that's where the river mainly flows past. We would have struggled to find the other results/data because there are simply just so many, different and changing variables that would ruin the investigations with certain types of investigations.

Investigation 2

Pātai | *Research Question*: How good is the water in the Mimihau?
Momo Mātai | *Type of Investigative approach*: Classify and identify
Whāinga | *Purpose/Aim*: To see what specific things there were in the Mimihau
Describe what you investigated.
We investigated Certain species of underwater life to see if we could calculate a Total PTI (pollution tolerance index) number. This is done by catching some of the riverbed in a net then putting it into a tray of water and counting the Invertebrates in the tray, different invertebrates had different scores, you only counted the different species not the amount. This would allow us to get a water quality rating to see if the Mimihau was healthy. We tested this in three parts of the Mimihau.

Type of data collected: Naming and heratical data.
Describe the purpose (reason) for using this type of investigative approach to collect this type of data.
Classifying allows you to identify features that objects, events or living things have in common or features that they may have that makes them different. Using these features allows you to identify the name of things that may be used in further final results.

Raraunga/Rangahau | *Results/Data*.

Otinga | *Findings/Conclusion*:

We found out that the water quality was at a poor to a fair standard.. By using classifying and identifying we were able to classify the invertebrates into their different ranking for the total TPI number and we identified that this Mimihau might not be the best to collect food from. This task had a lot of factors so it would be hard for other types of investigations to get a good, accurate result. We were not limited on tools and gear.

Investigation 3

Pātai | *Research Question*: What are some relations between different factors of the Mimihau.

Momo Mātai | *Type of Investigative approach*: Pattern seeking.

Whāinga | *Purpose/Aim*: To see what some relationships are in the Mimihau.

Describe what you investigated.

We used some results from the table and put them into some graphs. We Looked at the graphs and tried to come up with conclusions on what the relationships could be between two factors of the table of results.

Type of data collected: Relational data.

Describe the purpose (reason) for using this type of investigative approach to collect this type of data.

We did pattern seeking because there are lots of variables and lots of many different forms of data to be able to say that the effect of one variable is due to another variable changing so we just see the relation between sets of data. Also a fast investigation as you are not necessarily having to repeat the investigation.

Raraunga/Rangahau | *Results/Data*:
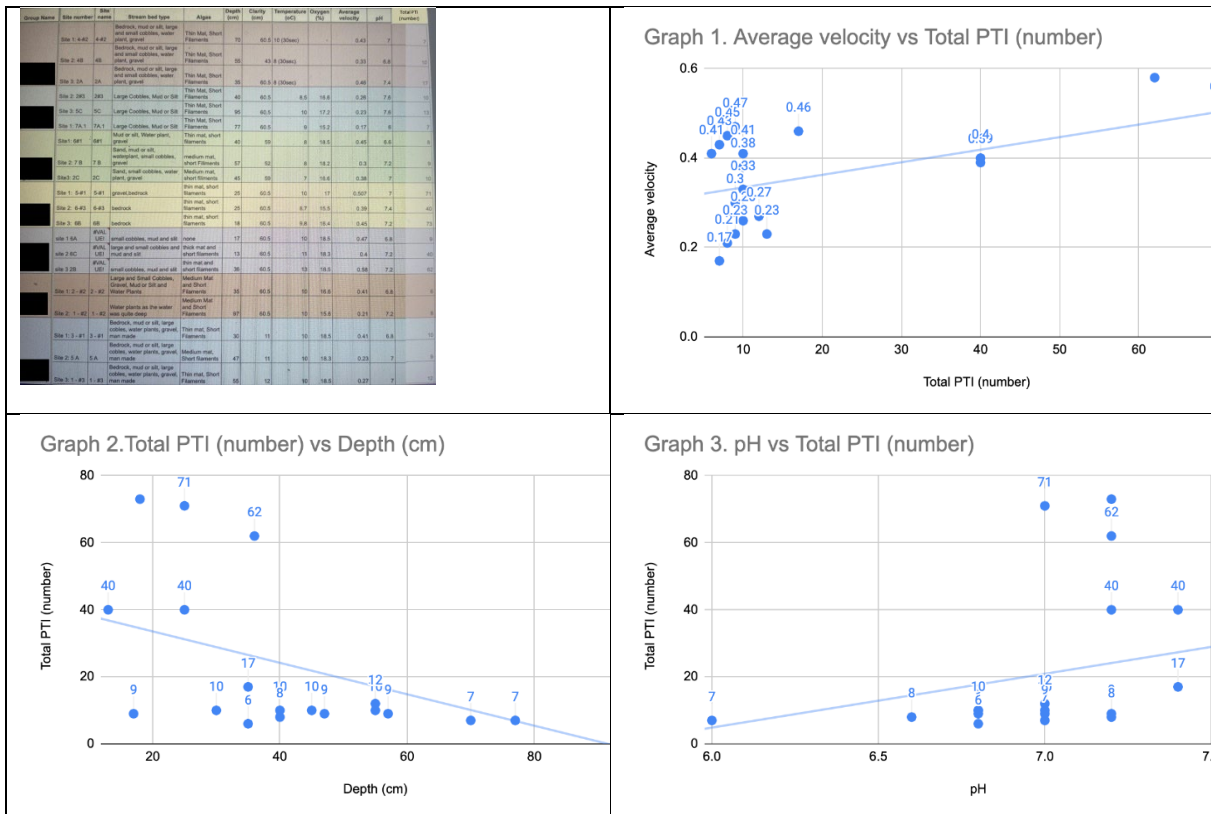
Otinga | *Findings/Conclusion*:

Graphs 1. The Bigger/faster the velocity of the water would wash away the pollution much easier and faster therefore giving it a bigger/ better of a Total PTI number.

Graph 2. When the water is deeper the current will just float on the top leaving the pollution to float or sit on the riverbed. When the water is shallower the current will hit the river bed and wash the pollution away much easier therefore getting a Bigger/better Total PTI number.

Graph 3. When the pH is 7 (neutral) it's not acidic or basic so the invertebrates won't die as easily and have a better home to live in therefore giving a bigger/better Total PTI number.

This helps us figure out the question by showing the data that we need. Its like the total PTI number shows us the result of the water and the Velocity, Depth and pH level basically shows us why the total PTI number is like that. This can help solve other problems like what makes the Mimihau unhealthy/healthy.

This investigation was better than others because the data was easily observed, tested and collected, didn't have to worry about having too much data, was easy to understand and we didn't have to rely on too much personal data.