

8 – He aha te Whakaaro Rorohiko?

Characters – Tama and Kōhine

English	Te Reo Māori
Kōhine - Hi Tama	Kōhine – Kia ora Tama
Tama - Hey Kōhine, Kia ora. How was school today?	Tama – Kia ora Kōhine. Pēhea te kura i tēnei rā?
Kōhine - Great! Mā Kiri told us all about computational thinking today but it's not thinking like a computer, it's about a process of thinking and by using it, we can design and create solutions for problems ourselves and also get computers to do stuff for us.	Kōhine – Tino pai! I kōrero mai a Mā Kiri mō te whakaaro rorohiko i tēnei rā engari ehara i te mea he rite ki te whakaaro pēnei i te rorohiko nei, he tukanga whakaaroaro tēnei, ā, mā te whakamahi i taua tukanga, ka taea e tātau te hoahoa me te hanga rongoā mō ngā raruraru, ka mutu ka riro mā ngā rorohiko ā tātau mahi e mahi.
Tama - (chuckling) Is that exactly how Mā Kiri spoke, is it?	Tama – (e katakata ana) I tino pērā tonu ngā kōrero a Mā Kiri, nē?
Kōhine - (earnestly) Yes. (folding her arms)	Kōhine – (pono te kōrero) Āe. (pōkai i ana ringa)
Tama - What you got there? (pointing to laptop)	Tama - He aha tērā? (ka tohu atu ki tana rorohiko-pona)
Kōhine - Homework! I'm looking through the list of activities to choose the one I want to do next week in class.	Kōhine – Mahi kāinga! Kei te tiro tiro ahau i te rārangi mahi kia pai ai taku kōwhiri i te mea e hiahia ana ahau ki te mahi ā tērā wiki.
Tama - What's there on the list to choose?	Tama – He aha ngā mea hei kōwhiri i te rārangi?
Kōhine - Well, I can programme a little robot to move around a path on the floor, I get that. But I don't understand how making a life cycle of a butterfly is computational thinking?	Kōhine – Ka taea e au tētahi mīhini karetao iti te whakahaere kia nekeneke i tētahi ara i runga i te papa, kei te mārāma ahau ki tērā. Engari, kāore i te mārāma ki ahau mēnā ka hangaia tētahi mataora o te pūrerehua he

	whakaaro rorohiko tēnā?
Tama - It says here (pointing to laptop) that you'll be using a sorting network, that is the computational thinking part. Remember, Mā Kiri said that computational thinking is a process of thinking and problem solving?	Tama – Kei konei e kī ana (ka tohu ki te rorohiko-pona) ka whakamahia e koe he whatunga kōmaka, koinā te wāhanga whakaaro rorohiko. Kia maumahara, i kī a Mā Kiri he tukanga te whakaaro rorohiko nō te whiriwhiri me te rapa rongoā?
Kōhine - yeah	Kōhine – āe
Tama - Well, when you think this way, you don't have to be using a computer. There are loads of choice things you can do without a computer. You'll have to learn about sorting networks before you can do that butterfly activity.	Tama – Nō reira, ina whakaaro pēnei koe, ehara i te mea me whakamahi rorohiko koe. He nui ngā mahi papai ka taea e koe me te kore rorohiko.
Kōhine - Oh! Mā Kiri said there are parts to computational thinking, she didn't tell us yet, do you know?	Kōhine – I kī mai a Mā Kiri kei reira anō ētahi wāhanga o te whakaaro rorohiko kāore anō kia kōrerohia mai e ia, kei te mōhio anō koe?
Tama - Yeah, there arrrrre...4 I think, yeah 4. Umm Decomposition is the first one, that's where you break down the problem into parts. Next is Abstraction . This is when you work out which of the small parts are important and which parts you can forget about. Then there is Pattern Recognition that's	Tama – Āe, e.. e whā ki tōku mōhio, āe e whā. Ko te Whakawāwāhi pea te mea tuatahi, i konei ka wāwāhia e koe te raruraru ki ōna wāhanga. Ko te Tangotango i muri mai. Ka wherawhera koe ko ēhea o ngā wāhanga iti ngā mea hira, ā, ko ēhea ngā mea hei whakarere. Ana i muri mai koe te Āhukahuka Taurira
Kōhine - Pattern renog, renog, pattern recon...pattern what?	Kōhine – He aha tērā.
Tama - Re-cog-nition	Kōhine – Āhukahuka Taurira
Kōhine - Re-cog-nition, thanks. That was hard to say.	Kōhine – Te āhua nei he uaua tērā.
Tama - Yeah, some words are. So Pattern Recognition is identifying patterns so we can make a prediction about what might work as a solution.	Tama – Ko te Āhukahuka Taurira, ko te tautuhi taurira tērā kia taea ai te tuku matapae mō tētahi rongoā pea ka taea.
Kōhine - Gosh, it seems a lot.	Kōhine – Te whānui kē.
Tama - yeah, but when you're actually doing computational thinking, it doesn't feel	Tama – āe, engari i a koe e mahi ana i te whakaaro rorohiko, ehara i te mea he uaua.

<p>this complicated. So, last is Algorithms and that is the steps of the instructions, in the right order.</p>	<p>Ana, ko te mea whakamutunga ko Ngā Hātepe, koinei ngā upane o ngā tohutohu, ki te raupapa tika.</p>
<p>Kōhine - Oh, I'm good at that bit already, I could practice algorithms now!</p>	<p>Kōhine – Nē, kua matatau kē ahau ki tērā wāhanga, ka taea e au ngā hātepe te whakaharatau ināianei tonu!</p>
<p>Tama - Al-gor-rithms</p>	<p>N/A</p>
<p>Kōhine - Al-gor-rithms. Yeah, instructions is much easier to say.</p>	<p>N/A</p>

Tama begins to move away from Kōhine and she has a thought...

<p>Kōhine - Tama.</p>	<p>Kōhine – Tama.</p>
<p>Tama - Yes?</p>	<p>Tama – Āe?</p>
<p>Kōhine - Māka and I are trying to solve a problem for Mum. She doesn't have time to water the garden at the marae enough and we want to make an automatic watering system for her. Can we use computational thinking to do that too?</p>	<p>Kōhine – Kei te whakamātau māua ko Māka ki te rapa i tētahi rongoā mā Māmā. Kāore ia i te whai wā ki te waiwai i te māra i te marae, ana e hiahia ana māua ki te hanga i tētahi pūnaha waiwai aunoa māna. Ka taea anō e māua te whakaaro rorohiko ki te whakamahi mō tēnā?</p>
<p>Tama - Yes, that's a good idea. Māka has been learning about this at school too, so you'll be able to work on it together.</p>	<p>Tama – Āe, he pai tēnā whakaaro. Kei te ako anō a Māka i tēnei i te kura, nō reira ka taea e kōrua te mahi tahi.</p>
<p>Kōhine - We're going to build a water sensor thing for the dirt, that tests how wet it is already and then decides to water the plants or not.</p>	<p>Kōhine – Ka hangaia e māua he pūoko wai mō te oneone, he aromatawai i te mākū o te oneone, kātahi ka whiriwhiri mēnā me waiwai i ngā tipu, kāore rānei.</p>
<p>Tama - That's a great idea, Mum will be stoked.</p>	<p>Tama – He tino pai tēnā whakaaro, ka tino harakoa a Māmā.</p>
<p>Kōhine - Thanks Tama (waving at him as he leaves the room)</p>	<p>Kōhine – Kia ora e Tama (ka pōhirihiri atu i a ia e wehe atu ana)</p>
<p>Tama - No worries</p>	<p>Tama – Kei te pai.</p>