PROGRESS OUTCOME 2

How Māui slowed the sun

Annotation

The students show that they can break down a task into smaller steps and create a set of instructions to accomplish that task. They think logically and predict where the "robot" will be on the grid after each instruction in their algorithm.

When they encounter problems in their instructions, they can explain what these problems are and work collaboratively to fix them.

They evaluate the success of their instructions by testing them, and they communicate effectively when they do this.

The students understand that there are multiple algorithms that could solve this same problem.

Background

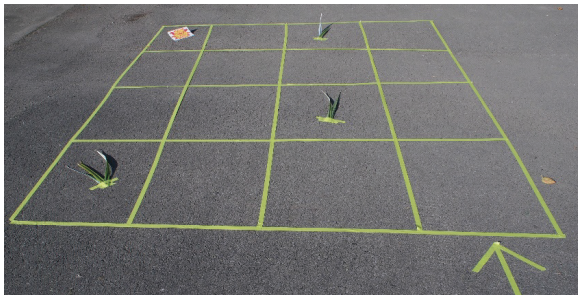
The students have been exploring different ways of giving instructions to achieve the same outcome. They have learned that computers need a clear and precise set of instructions because they can't think for themselves, and that these instructions are called algorithms.

The students have been reading the legend "How Māui slowed the sun", and Mrs Chen decides to use this story as the context for developing their computational thinking.

Task

The students' task is to direct Māui (a "robot" student) around a grid to collect flax and take it to Tama-nui-te-rā, the sun. The grid has been marked out on the ground.

The students work in groups to write an algorithm to guide Māui around the grid, collecting all the flax before taking it to Tama-nui-te-rā. They are only allowed to give three different instructions: "take a step forward", "turn to your left", and "turn to your right".



The instructions must be written using these symbols:

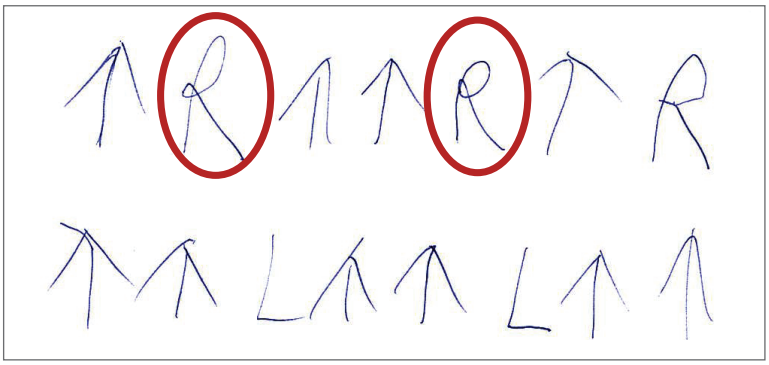
- "↑" (take a step forward)
- "L" (turn to your left)
- "R" (turn to your right).

Māui, the "robot", follows these instructions, starting by standing on the green arrow and facing forwards.

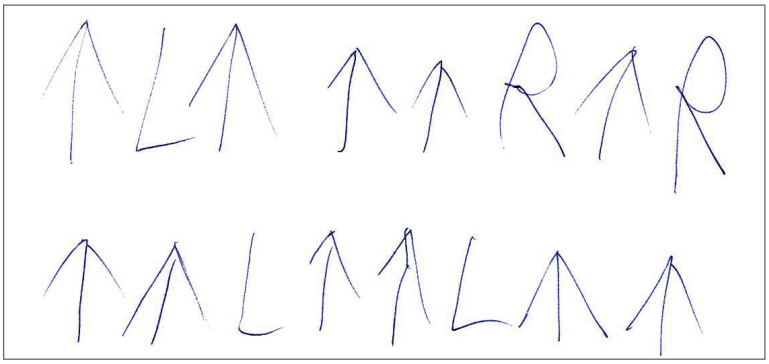
The group observes whether Māui successfully collects the flax and ends up on Tama-nui-te-rā.

This task has been designed to further students' capability in working as a group to achieve a specific outcome. It also deliberately introduces symbols as a means of communicating an algorithm.

Student response



There are two mistakes in one group's first algorithm.
They work together to fix these and write an algorithm that works.



Mrs Chen: *What happened when Māui tried to follow your instructions?*

Simon: *We got it wrong the first few times. The first mistake was that we made him turn right instead of left, but after we'd fixed that we found another bug, because we didn't make him walk far enough to get to the flax. But it works now.*

Mrs Chen: *Is this the only way you could have solved this problem?*

Mira: *We could try going to the flax squares in a different order, but this way works well.*

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