Catching chickens

Annotation

Stephanie's response shows that she can:

- decompose a problem into a set of step-by-step instructions (algorithm)
- create a program in a simple programming environment based on this algorithm
- test her program, using a simple debugging strategy to fix the errors she finds.

Background

The students in Stephanie's learning group have been learning about algorithms and how they can use these to write computer programs. They have been using an introductory programming environment (ScratchJr) and experimenting with making characters move. They get frustrated when their programs do not work as expected.

The students have discussed the need to give very precise instructions in their programs. They have worked on ways to identify problems in their programs ("bugs") so they can fix these ("debugging"). They practised debugging by working through instructions, one step at a time, and describing what they think will happen.

Task

Ms Santos provides students with a ScratchJr template, and asks them to create a program where a boy takes two escaped chickens back to the barn. She also provides a model of where the characters should be positioned in the scene after the program has run.

Template

**Model of completed scene**

Before they start work in ScratchJr, students think through the series of steps (algorithm) they need to identify and then write their program.

This task requires the students to think logically as they plan their algorithm. It also encourages them to persevere until they achieve the specific outcome modelled by Ms Santos.

Student response

Stephanie plans specific instructions for the two chickens and the boy, then writes a program.
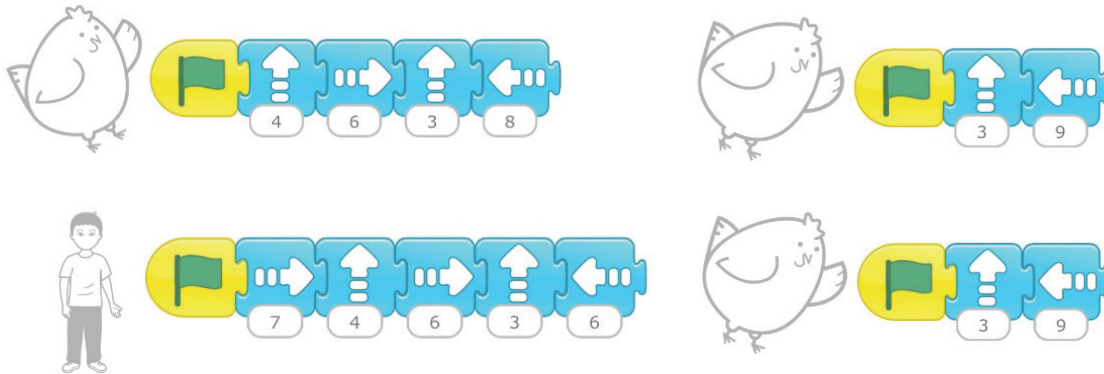
She tests her program, but the chickens move too soon and get to the barn before the boy.

Stephanie debugs her code by stepping through each of the instructions she has given. She realises there is a bug in the code for the chickens and edits her program to fix this.
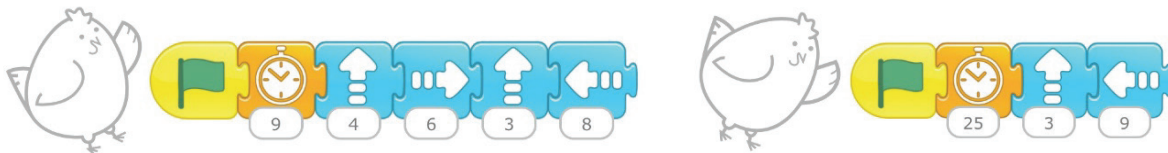
Stephanie runs the program again, and it completes successfully.

Ms Santos: *What was the bug in your program?*

Stephanie: *I wanted the chickens to wait until the boy got to them before they started moving, but I'd told them to move when I pressed the green flag. I changed it so that now they wait until he gets to them before they start moving.*

MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA