

Facilitation Notes:

Purpose

These notes are intended to support teachers and leaders facilitate the pīkau *First steps in programming: Computational Thinking Progress Outcome 1* to a group of teachers, for example, in a staff meeting.

Pre-requisites

It is preferable that participants have completed the pīkau *What is Computational Thinking* and *Computational Thinking: the international perspective* before this pīkau.

Essential:

None

Preparation:

Complete the pīkau yourself.

First activity: Kidbots

Resources:

- a grid on the ground (can be an outside painted chess board, chalk grid, masking tape on carpet..., should be large enough for a participant to stand in individual squares)
- objects to use at destinations and barriers
- Mini whiteboard and whiteboard marker or paper and pen
- Job badges (print out available [here](#),) (optional)

Second activity: Lightbot (app available [here](#))

Have app working for display. Encourage participants to bring their own device to use it on.

Related pīkau:

What is Computational Thinking and *Computational Thinking: the international perspective*

Facilitation notes

These are arranged in the order that the content appears in the pīkau.

Access to a data projector or shared screen and speakers to present the pīkau is recommended.

Estimated time: 50 minutes (without activities), 70 minutes with activities (recommended).

Section	Facilitation notes
What you'll learn...	<p>The key points of this section are that you will learn to:</p> <ul style="list-style-type: none"> ● explain what a sequence is in the context of computer programming ● explain what decomposition is in the context of computer programming ● introduce simple ideas around debugging to students
Why this matters...	<p>The key point of this section is:</p> <ul style="list-style-type: none"> ● sequence is a key concept in programming
Links to existing knowledge	<p>The key point of this section is:</p> <ul style="list-style-type: none"> ● You probably already experience the importance of sequence in everyday life, for example, the order in which you make a cup of tea: you don't want to pour the water into your mug before the water has been boiled.
"Kidbots" - learning about sequence with "simple non-computerised tasks"	<p>The key points of this section are:</p> <ul style="list-style-type: none"> ● The concept of sequence can be taught to children via physical, 'unplugged' activity. ● This activity can easily be used across curriculum areas. ● Computer programs are written in advance, once starts running the programmer has no control over it. ● The terms 'programmer', 'tester', 'algorithm', 'bug' and 'debug' can be introduced in this activity as part of using them regularly so that students build up an understanding of what

	<p>they are.</p> <ul style="list-style-type: none"> • Different programming languages can be used to represent the same algorithm. • Different algorithms can be used for the same answer.
Activity	Participants have a go at the Kidbots activity (preferable) or the use Lightbot app (available for download here .)
Decomposition	<p>The key points of this section are:</p> <ul style="list-style-type: none"> • In this context decomposition is breaking a task down into small steps a computer can follow. • Decomposition happens a lot in programming, particularly when working on a large project with a team.
Integrated learning with sequences and decomposition	<p>The key point of this section is:</p> <ul style="list-style-type: none"> • The Kidbots activity can be used to support other curriculum areas easily by having the destinations of the 'bot' be new learning concepts.
Algorithms and programs	<p>The key points of this section are:</p> <ul style="list-style-type: none"> • Algorithms are the general idea of how to do something. If you haven't told students which "code" to use for forward, left and right (e.g. F, L, R), then what they give as instructions is the algorithm. • Programs are the specific instructions in the chosen programming language that represent the algorithm. If you say that they must use, say, F, L and R, then they are now coding their algorithm.
Activity	<p>Use the Lightbot app (link here). Progress through the Basic level to the third exercise. Complete this exercise without using right turns.</p> <p>If Lightbot was used in previous activity start at Basic exercise 3 and complete the exercise without using right turns.</p>
Quizzes - Concept check	Work through the questions as a group. If there are differing views on the correct answer, discuss what each others' thinking is on this

Link to programme design	The key points of this section are: <ul style="list-style-type: none">• Discuss ways that this could be integrated with other learning areas e.g. what sequences do students encounter elsewhere? What mathematical ideas are covered (such as forward 5 and back 3 is the same as forward 2).
Wrapping up and where to next?	The key point of this section is: <ul style="list-style-type: none">• Ideas about programming can be taught in a fun, active setting.