






# Computing Spring 1- Year 2 sequence- Robot Algorithms

Skill/concept	Concept	Skill	Skill	Skill	Skill
<p><b>Lesson 1-</b></p> <p>Learners will follow instructions given to them and give instructions to others. They will consider the language used to give instructions, and how that language needs to be clear and precise. Learners will combine several instructions into a sequence that can then be issued to another learner to complete.</p>	<p><b>Lesson 2-</b></p> <p>Learners will focus on sequences, and consider the importance of the order of instructions within a sequence. They will create sequences using the same instructions in different orders. They will then test these sequences to see how the different orders affect the outcome.</p>	<p><b>Lesson 3-</b></p> <p>Learners will use logical reasoning to make predictions. They will follow a program step by step and identify what the outcome will be.</p>	<p><b>Lesson 4-</b></p> <p>Learners will design, create, and test a mat for a floor robot. This will introduce the idea that design in programming not only includes code and algorithms, but also artefacts related to the project, such as artwork.</p>	<p><b>Lesson 5-</b></p> <p>Learners will design an algorithm to move their robot around the mat that they designed in Lesson 4. As part of the design process, learners will outline what their task is by identifying the starting and finishing points of a route. This outlining will ensure that learners clearly understand what they want their program to achieve.</p>	<p><b>Lesson 6-</b></p> <p>Learners will take on a larger programming task. They will break the task into chunks and create algorithms for each chunk. This process is known as 'decomposition' and is covered further in key stage 2. Learners will also find and fix errors in their algorithms and programs. They will understand this process to be 'debugging'.</p>
<p><b>What you will need for this lesson-</b></p> <p>Slides Worksheets</p>	<p><b>What you will need for this lesson-</b></p> <p>Slides Worksheets Floor robots</p>	<p><b>What you will need for this lesson-</b></p> <p>Slides Worksheets Floor robots Mats from lesson 2</p>	<p><b>What you will need for this lesson-</b></p> <p>Slides Worksheets Floor robots Small obstacles</p>	<p><b>What you will need for this lesson-</b></p> <p>Slides Floor robots Mats and obstacles from Lesson 4</p>	<p><b>What you will need for this lesson-</b></p> <p>Slides Worksheets Floor robots</p>
<p>Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. Create and debug simple programs</p>	<p>Create and debug simple programs</p>	<p>Use logical reasoning to predict the behaviour of simple programs</p>	<p>Create and debug simple programs</p>	<p>Understand what algorithms are, how they are implemented as programs on digital devices, and that programs execute by following precise and unambiguous instructions. Create and debug simple programs</p>	<p>Create and debug simple programs</p>

### Lesson 1-




WALT- describe a series of instructions as a sequence.

-  Follow instructions given by somebody else.
-  Choose a series of words that can be acted out as a sequence.
-  Give clear instructions.

Vocab- instruction, sequence, clear, unambiguous, algorithm, program

### Lesson 2-




WALT- explain what happens when we change the order of instructions.

-  Use the same instructions to create different algorithms.
-  Use an algorithm to program a sequence on a floor robot.
-  Show the difference in outcomes between two sequences.

Vocab- sequence, order, algorithm, instructions

### Lesson 3-




WALT- use logical reasoning to predict the outcome of a program.

-  Follow a sequence.
-  Predict the outcome of a sequence.
-  Compare my prediction to the outcome.

Vocab- sequence, prediction, program

### Lesson 4-




WALT- explain that programming projects can have code and artwork.

-  Explain the choices that I made for my mat design.
-  Identify different routes around my mat.
-  Test my mat to make sure it is usable.

Vocab- artwork, design, route, mat

### Lesson 5-




WALT- design an algorithm.

-  Explain what my algorithm should achieve.
-  Create an algorithm to meet my goal.
-  Use my algorithm to create a program.

Vocab- algorithm

### Lesson 6-

WALT- create and debug each part of the program.

-  Test and debug each part of the program.
-  Plan algorithms for each different part of a task.
-  Put together the different parts of my program.

Vocab- debugging, algorithm, program, decomposition