



# Glenfield Infant School Knowledge Organiser



Year 2 —Spring 1

Computing

Programming Robot Algorithms

## What should I already know?

I have used Bee-Bots and have set commands to make the robot move. I have begun to plan sequences of commands (algorithms) to get from one place to another.

## Vocabulary

<b>Sequence</b>	A set of instructions that are completed one after the other in a specific order
<b>clear</b>	Easy to understand
<b>unambiguous</b>	Clear and has only one possible meaning
<b>algorithm</b>	A set of ordered instructions which can be turned into a code
<b>program</b>	A set of instructions which tells a computer what to do
<b>prediction</b>	A smart guess about what will happen
<b>code</b>	Step-by-step instructions that tell a computer what to do
<b>debugging</b>	Fixing a problem in a program.
<b>decomposition</b>	Breaking down a big problem into smaller parts

### 1. Can you describe a set of instructions clearly?

We get computers to do what we want by giving instructions.

Robots have a computer inside.



Instructions need to be clear and precise to be understood by a computer or robot.

### 2. What happens if we change the order of our instructions?

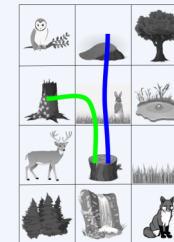
Same but different

Here are two algorithms:

Green line: ↑ ← ↑ →

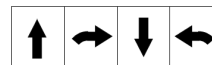
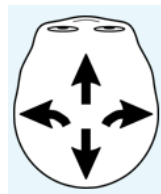
Blue line: → ← ↑ ↑

The instructions are the same. Why are the outcomes different?



The order of instructions can be important and can change the outcome.

### 3. Can you predict the outcome of a program?



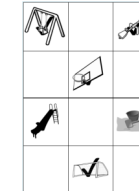
Paperbot helped us predict.

Bee-Bot tested our prediction



Predictions are made using reasoning. You can check your predictions by testing them.

### 4. Can you design and create a mat for a robot?



We put artwork on our mat. This made it look interesting and more fun to play with.

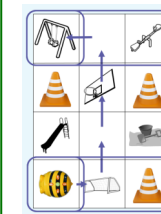


We used obstacles on our design which the Bee-Bot had to get around.



Programming projects can have code and artwork.

### 5. Can you design an algorithm?



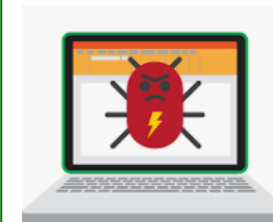
To plan a route you need to decide on your start and end squares.

Debugging helps fix any problems with our program



An algorithm is a set of ordered instructions.

### 6. Can you debug a program you have written?



A bug is a mistake in a program.

Bugs are found in most programs so are a normal part of programming.



Debugging fixes problems. To debug you need to test each part of the program to find the problem.