

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

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

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

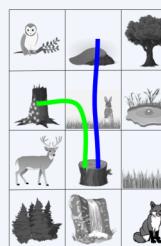
2. What happens if we change the order of our instructions?

Same but different

Here are two algorithms:

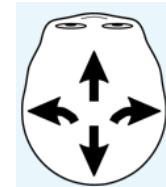
Green line: 
Blue line: 

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



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

3. Can you predict the outcome of a program?

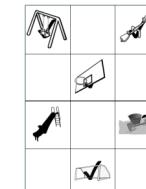


Paperbot helped us predict.

Bee-Bot tested our prediction

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

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



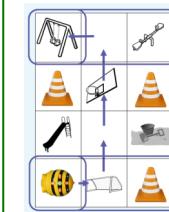
We put artwork on our mat. This made it look interesting and more fun to play with.



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

Sticky Knowledge 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



Sticky Knowledge 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.



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