Computing Knowledge Organiser We Are Bug Fixers

Key Knowledge

Learn these key facts

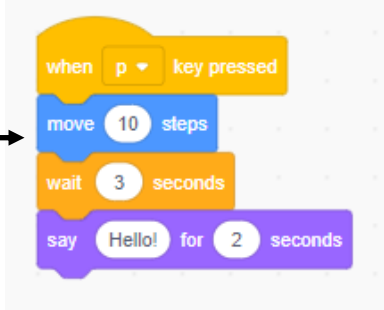
Algorithms

"When the 'p' key is pressed

Move 10 steps

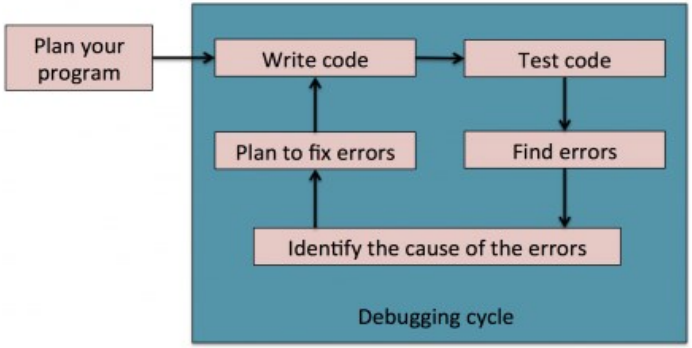
Then wait for 2 seconds

and then say 'hello' for 2 seconds



Algorithms are a set of instructions for a computer to follow. We need to be careful how we set out our algorithms as computers will follow the instructions exactly—even if they are wrong! Plan your algorithms by writing them out as a list of instructions, then use the blocks to create your code

The Debugging Cycle



The debugging cycle is used to help us find parts of algorithms that are not written correctly. Once we have found an error, we need to identify what has caused the error. Once we have done this we can plan to fix it. The cycle continues as we then write and test code to see if our bug has been fixed.

Logical Reasoning

Sprite moved when flag clicked ✓

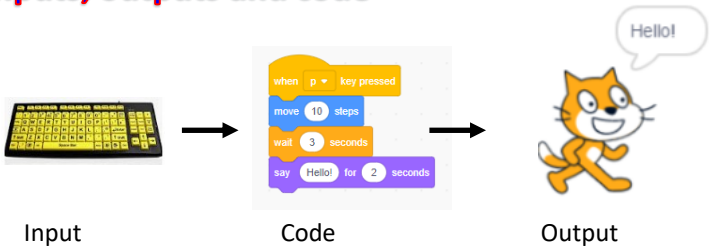
Moved at the correct angle ✓

Completed shape ✗

Look at 'repeat block'

We can use logical reasoning to find bugs by breaking the algorithm into steps. We can then look at what has worked and what hasn't worked. Once we have used logical reasoning to find the bug, we can then use the debugging cycle to fix the problem.

Inputs, outputs and code



Input Code Output

We can use input devices (keyboards) to input information (code) which will change the output of the computer (how the program acts).

Key Vocabulary

Understand these key words

Word	Definition
Debug	The process of fixing any faults in an algorithm.
Logical reasoning	Looking at how a code works by breaking it into smaller steps and thinking about what the algorithm is asking the computer to do.
Algorithm	An **algorithm** is a list of instructions that tells your computer exactly what steps to take to solve a problem or reach a goal.
Input	Information or data that is put into a computer. In this case, an algorithm.
Output	Information or data that the computer puts out. In this case, sounds and images.
Code	Code is a language that computers understand. We use it to tell computers what we want them to do.