

Debugging

Introduction

You will aim to learn the following objectives and keywords during this lesson.

Learning Objective	<ul style="list-style-type: none">• To describe how to debug a program• To demonstrate the skill debugging within a program
Keywords	<ul style="list-style-type: none">• Debugging

Setting the Scene

Concept	How it is used
Debugging is the ability to look through a problem to locate what is not working as expected and fix it.	<p>When you write a program mistakes can occur. Mistakes can help you learn as you are investigating different sections of the code.</p> <p>If the code is not working you need to look through all the lines or blocks of code to find the error and fix it.</p>

Can you think of a math lesson where you did not get the correct answer and you had to work out what went wrong and how to fix it?

Activity 1

Scenario 1	Scenario 2
<p>You have received some money for your birthday, and you are going shopping. You had £10 and you should have £2.50 left, but you have £1 left. Where has the money gone?</p> <ul style="list-style-type: none">• How much have you spent?• How much should you have left?• Have you missed something you bought, or have you put money in a different pocket?	<p>You are playing a new game on your console?</p> <ul style="list-style-type: none">• How do you work out how to play the game?• How do you know what the buttons do?• How can you improve and find hidden elements of the game?

Where else do you debug a program?

Small Group Activity

In your group, I want you to look at the cards given you.
Without any information can you work out what order or position they should go in?

You use **debugging** without thinking daily when you are faced with a new challenge or a problem that you have not got quite right on the first attempt.

Activity 2 Part 1

All the blocks could be used when debugging as it will depend on the error that has occurred and how it can be fixed.

It is good practice when creating a program, to develop and test in stages as this will help find an error for debugging.

This code is not working, can you help and debug it?
We are going to recreate the code and debug and fix it.

Simulate MiRo to output a sequence of sounds when the input 'clap' is heard.

Remember there is no fail in computing only debugging, fixing and learning!

Observe the output

Test	Expected outcome	Actual outcome	Action
Within 1 second of clap.	Head raises and tail wags		
After 1 second of clap	Head lowers and tail stops		



Activity 2 Part 2

Within this activity the use of colour is added to the program to simulate the mood when MiRo raises and lowers its head.



Observe the output

Test	Expected outcome	Actual outcome	Action
Within 1 second of clap.	Head raises, tail wags and lights green		
After 1 second of clap	Head lowers, tail stops and lights red		

Remember there is no fail in computing only debugging, fixing and learning!



Summary Self-Assessment

Question	Got it	Got it with help	Unsure
Can you describe what debugging is?	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 
Can you give an example of how debugging is used?	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 
Can you debug a given program and fix it?	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 