

# Selection

## Introduction

This lesson introduces **selection**, **decision** and **flowchart**, building upon prior learning relating to algorithm, sequence and repetition.

<b>Learning Objective</b>	<ul style="list-style-type: none"><li>• To identify selection within an algorithm</li><li>• To demonstrate the use of selection</li></ul>
<b>Keywords</b>	<ul style="list-style-type: none"><li>• Selection</li><li>• Decision</li><li>• Flowchart</li></ul>

## Setting the Scene

Concept	How it is used
<b>IF</b> the weather is cold; <b>do</b> put a jumper on <b>IF</b> the weather is hot; <b>do</b> put your shorts on	When you write code, it is not always as straightforward as following the sequence from top to bottom. There can be a <b><u>selection</u></b> (a decision) made within the code to determine the next step in the algorithm.

*Can you think of any other statements relating to clothing and weather?*

## Activity 1

Scenario 10	Scenario 2
You are making a cup of tea for a friend; there are decisions that must be made to make it right for that person: <ul style="list-style-type: none"><li>• Do they want milk?</li><li>• Do they want sugar?</li></ul>	You want to play on your Xbox, but you have got homework to do: <ul style="list-style-type: none"><li>• Do you complete your homework first?</li></ul>

*Do you have any other decisions you make daily?*

	<b>Process</b>	The ' <b>process</b> ' is a step within the algorithm
	<b>Decision</b>	The ' <b>decision</b> ' is shown by two possible outcomes based on the decision made.

### Small Group Activity

In your group, I want you to think how the flowchart for making a pizza should be laid out and where the correct answer should be from the decision and selection made.

The output of this flowchart is the chosen pizza and depending on the selection(s) made, depends on the pizza output. Try this out with the person next to you.

*Why is there an arrow from the 'Yes' outcome to the 'No' output?*

*Could you add more decisions to be made in the algorithm?*

*Can you draw the algorithm to add another decision; another topping following the decision on pepperoni?*

*How could you make the flowchart steps more precise to follow?*

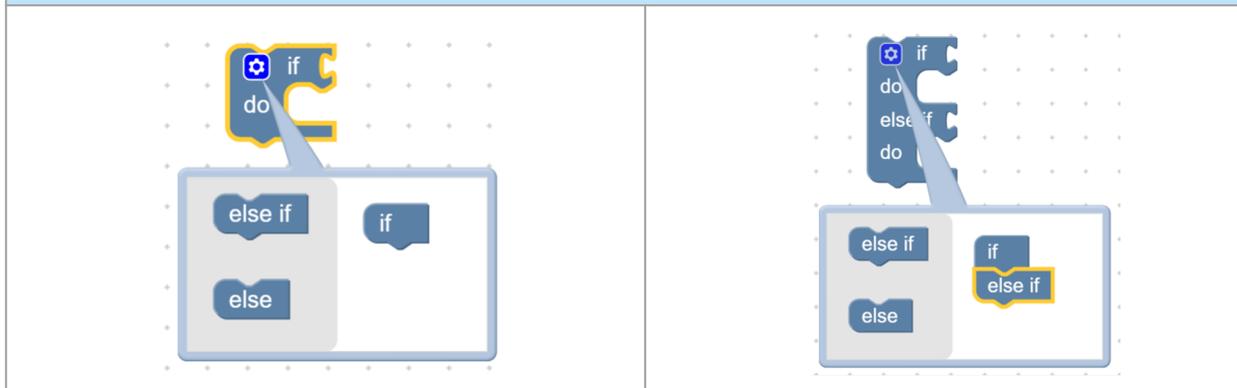
### Activity 2 Part 1

The blocks available for selection are located within the 'Logic' tab.

In computing 'Logic' means there is a true and a false output; just like our flowcharts.

In the IF/DO block the question connects after the IF. The computer will look at the IF and the decision to be made, the selection will determine what the output will be. This is called a conditional statement.

If you wanted to have one decision after another like the flowchart, you need to click the blue settings wheel and click and drag 'else if' or 'else' and connect it to the 'if' visible in the pop-up window.



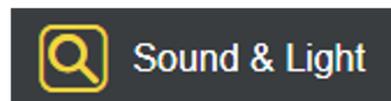
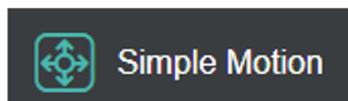
Wave your hands in the air... IF you see the teacher STOP .... Else keep waving

How can we get MiRo to make a selection in its movement?

**We are going to create a program where MiRo will open its eyes, wag its tail and display green colours IF you pat MiRo's head. If MiRo does not sense a touch, it will close its eyes and display red colours.**

## Activity 2 Part 2

Can you use the blocks within the 'Simple Motion' and 'Sound & Light' icons to add to your output when MiRo has its head stroked?



*How would the selection be displayed in a flowchart?*

## Using this flowchart as your plan, can you create the program in the MiRo simulator?

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 follow a flowchart?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Can you draw a flowchart with a decision, showing selection?	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> 
Can you use selection within a program to control MiRo?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>