

**Subject: Computing****Year group: 5 Term: Spring 1****Title: Selection in physical computing****What should I already know?**

- Some everyday tasks include repetition as part of a sequence, e.g. brushing teeth, dance moves
- We can use a loop command in a program to repeat instructions
- In programming there are indefinite loops and count-controlled loops
- An indefinite loop will run until the program is stopped
- You can program a loop to stop after a specific number of times
- Patterns can occur in sequences, e.g. 'step 3 times' means the same as 'step, step, step'
- Instruction order is important in a loop
- Not all tools enable more than one process to be run at once

**Facts I will learn**

- A condition can only be true or false
- A count-controlled loop can contain a condition
- There are similarities and differences between count-controlled and condition-controlled loops
- A condition-controlled loop will stop when a condition is met
- When a condition is met, a loop will complete a cycle before it stops
- Selection can be used to branch the flow of a program
- A loop can be used to repeatedly check whether a condition has been met
- The instruction order in 'if...then...else...' statements is important to the outcome

**Key questions**

- How are Micro:bits programmed?
- Can I write a program that includes count-controlled loops?
- Can I design a conditional loop?
- Can I use selection in an algorithm?
- How is selection used in real-world situations?
- Can I create a program that controls a physical computing project?

**Key Skills**

- To create a condition-controlled loop
- To use a condition in an 'if...then...' statement to start an action

**Experiences that school will provide**

- Cross-curricular links with other subjects
- Opportunities to use a range of hardware and software

**Key vocab****Definition****Infinite loop**

A command that repeatedly runs a defined section of code indefinitely

<ul style="list-style-type: none"><li>• To use selection to switch the program flow in one of two ways</li><li>• To use a condition in an ‘if...then...else...’ statement to produce given outcomes</li></ul>		<table><tr><td><b>Repetition</b></td><td>Part of a program where one or more commands are run multiple times in a loop</td></tr><tr><td><b>Program</b></td><td>A set of ordered commands that can be run by a computer to complete a task</td></tr><tr><td><b>Count-controlled loop</b></td><td>A command that repeatedly runs a defined section of code a predefined number of times</td></tr><tr><td><b>Condition-controlled loop</b></td><td>A command that repeatedly runs a defined section of code until a condition is met</td></tr><tr><td><b>Condition</b></td><td>A command that repeatedly runs a defined section of code a predefined number of times</td></tr><tr><td><b>Debug</b></td><td>The process of finding and correcting errors in a program</td></tr><tr><td><b>Selection</b></td><td>Part of a program where if a condition is met, then a set of commands is run</td></tr><tr><td><b>Input</b></td><td>Data that is sent to a program to be processed</td></tr><tr><td><b>Output</b></td><td>The result of data processed by a computer</td></tr></table>	<b>Repetition</b>	Part of a program where one or more commands are run multiple times in a loop	<b>Program</b>	A set of ordered commands that can be run by a computer to complete a task	<b>Count-controlled loop</b>	A command that repeatedly runs a defined section of code a predefined number of times	<b>Condition-controlled loop</b>	A command that repeatedly runs a defined section of code until a condition is met	<b>Condition</b>	A command that repeatedly runs a defined section of code a predefined number of times	<b>Debug</b>	The process of finding and correcting errors in a program	<b>Selection</b>	Part of a program where if a condition is met, then a set of commands is run	<b>Input</b>	Data that is sent to a program to be processed	<b>Output</b>	The result of data processed by a computer
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<p><b>Web links</b></p> <ul style="list-style-type: none"><li>• <a href="#">Keeping children safe online   NSPCC</a> Information about internet safety for children</li><li>• <a href="#">Microsoft MakeCode for micro:bit</a> The online interface for programming Micro:bits</li></ul>	<p><b>Experiences that could be provided at home</b></p> <ul style="list-style-type: none"><li>• Create your own board or card game that uses conditions such as ‘if,’ ‘then’ and ‘else.’</li><li>• Can you identify where these conditions are used in some of your favourite games?</li></ul>																			