Selection in Physical Computing

Y56 - CYCLE A - SPRING 2

I have already learned:

- That an **input** is an instruction given to a computer
- That an **output** is the result of an instruction given to a computer
- That inputing a command leads to a specific output
- That when a set of commands are inputted one after another it is known as an **algorithm**
- That the specific order that an algorithm is written in is known as a **sequence**
- That figuring out and fixing a problem in an algorithm is known as **debugging**

I am going to learn:

- That a computer is made up of physical parts called **components**
- That components are connected to computers using wired circuits
- That a **microcontroller** is a small device that can be programmed to control components that are attached to it
- That a **Crumble controller** is one type of microcontroller
- That when a condition is met, it's referred to as 'true'
- That when a condition is not met, it's referred to as 'false'
- That selection is used to control the flow of a program
- That selection is done using 'if...then' statements

I will be able to:

- Create a simple circuit and connect it to a microcontroller
- Program a microcontroller to respond to an input
- Program a microcontroller to make an LED switch on
- Program a microcontroller to make a motor run
- Use infinite, count-controlled and condition-controlled loops to control outputs
- Create an 'if...then...' statement to direct the flow of a program
- Sequence programming blocks to make a microcontroller perform a task

Outcome:
Design and make a working model of a fairground carousel using selection in programs to control physical components

Careers in programming

Hardware Engineer

Designing, building and repairing computers.

Vocabulary

command	A single instruction that can be used in a program to control a computer.
algorithm	A precise set of steps that can be followed to achieve a task.
condition	A statement that can be True or False.
selection	Part of a program where if a condition is met, a set of commands is run.
repetition	Part of a program where one or more commands are run in a loop.
infinite loop	A command that repeatedly runs a section of code until told to stop.
count-controlled loop	A command that repeatedly runs a section of code a certain number of times.
condition-controlled loop	A command that repeatedly runs a section of code until a condition is met.

How computers work and how they are made.

How to use computers to create digital content.

How to be safe and responsible on computers.

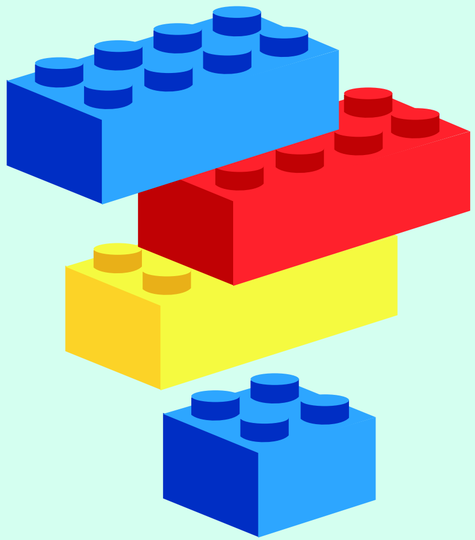
Which strands of computing have you been learning about today?

Useful Links

Coding games

Scratch

Building Blocks to E-Safety



E-Safety Tips

- Always follow the health & safety rules when working with physical computing devices
- Don't touch any moving parts when the computing device is in motion
- Never leave physical computing devices unattended while they are in use
- If you are unsure how to use the device safely, ask the teacher for help
- Don't attempt to use the device for things you haven't been asked to do - you could hurt yourself or damage the device

"Physical computing is not just about building machines, it's about building a better future, one component at a time."