Year 5   Computing & ICT Knowledge Organiser Spring 1
Programming- Selection in Physical Computing.

1.   Connecting crumbles
- A microcontroller is a small device that can be programmed to control components that are connected to it.
- A Sparkle is a multi-colour LED designed to work with the Crumble.

2. Combining output components
- Motors can spin forward, backwards and go at different speeds.
- Count-controlled loops act as a counter to control how many times the commands are repeated.

3. Controlling with conditions
- A condition is a statement that can be either **true** or **false**. Programmers can use conditions to trigger **actions**.
- Conditions must be phrased as a question with just two options, **yes** or **no**.

4. Starting with selection
- Selection is when a programmer wants a set of actions to be carried out if a condition is met.
- The structure **if...then...** is used when giving these commands.

5. Drawing designs
- Smart homes are an example of where selection is used in the real world.
- A designed fairground ride can use them too, to spin at the speed you want it to spin and light the sparkler a colour of choice too.
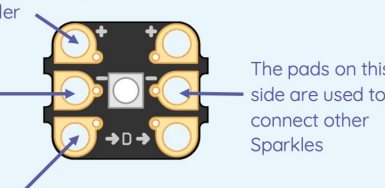
6. Writing and testing algorithms.
- An algorithm is A **precise** set of **ordered steps**, which can be followed by a human or a **computer to do a task**.
- Remember to test your program as you go, so you know whether to debug it as you go around.

Key Vocabulary

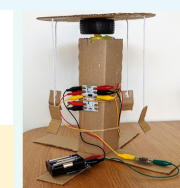|	
Crumble controller	A type of microcontroller.
Program	A specific set of ordered operations for a computer to perform
Infinite loop	A sequence of instructions that will continue endlessly
Condition	A statement that can be either **true** or **false.**
Debug	Debugging involves identifying a problem and solving the problem.
Selection	The decision part in programs. They use "if…, then…" statements.

Connecting Sparkle

Connects to a positive power (+) pad on the Crumble controller

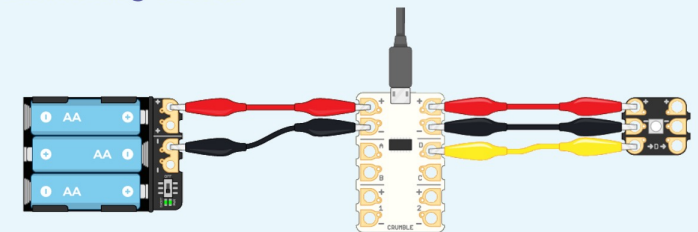Connects to a negative power (-) pad on the Crumble controller

The pads on this side are used to connect other Sparkles

Connects to the D pad on the Crumble controller

Connecting circuits

Connect your Crumble using the guide above. The Sparkle will flash white six times when you've connected it correctly.

Example of a fairground ride using a crumble.