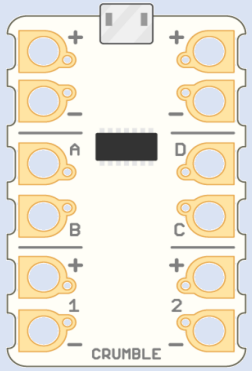
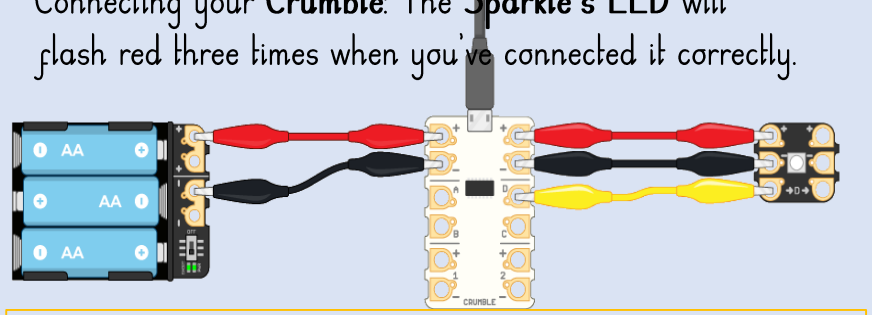
Year 5 – Programming A: Selection in Physical Computing

A **microcontroller** is a small device that can be programmed to control devices that are connected to it.

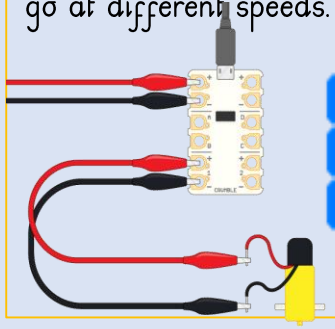
This **microcontroller** is a **Crumble controller**, which can control **LEDs** and **motors**.



Connecting your **Crumble**: The **Sparkle's LED** will flash red three times when you've connected it correctly.



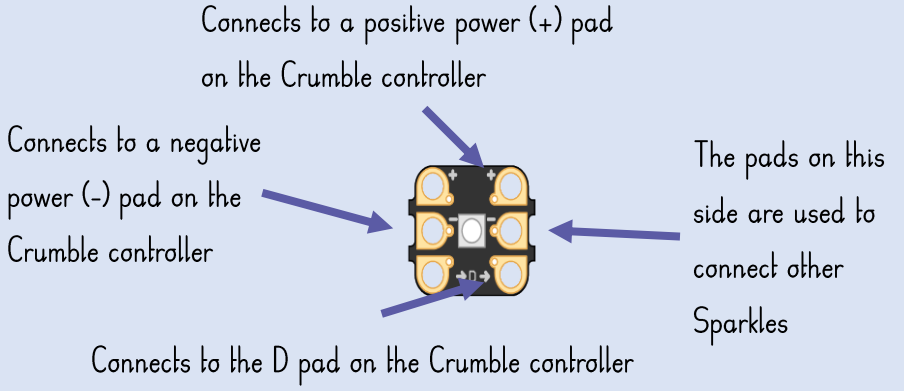
A **motor** can start, stop, spin forwards, spin backwards and go at different speeds.



```
motor 1 FORWARD at 75 %
motor 1 REVERSE at 50 %
motor 1 STOP
```

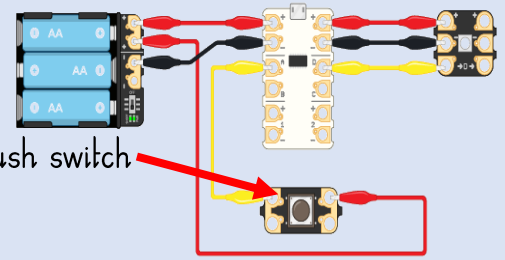
An **LED** is a light-emitting diode. When electricity is passed through an **LED**, it produces light.

The **LED** that is controlled by the **Crumble controller** is called a **sparkle**. The **crocodile clips** provide power to light the **LED** and data to control it.



A **push switch** can be used as an input for a **Crumble controller** and can be used in condition commands.

This code uses **a push switch** being pressed as a condition. When the switch is being pressed (condition is true) the circuit is described as high (HI). When the switch is not pressed (condition is false), the circuit is described as low (LO).




```
program start
do until A is HI
  set sparkle 0 to
loop
turn sparkle 0 off
```

Count controlled loop

```
program start
do forever
  set sparkle 0 to
  wait 0.5 seconds
  turn sparkle 0 off
loop
```

Condition – if the push button is pressed

Selection command block

```
program start
if A is HI then
  set sparkle 0 to
  wait 1.0 seconds
  turn sparkle 0 off
  set sparkle 1 to
  wait 1.0 seconds
  turn sparkle 1 off
end if
```

Action to be carried out if the condition is met