

Programming the Crumble

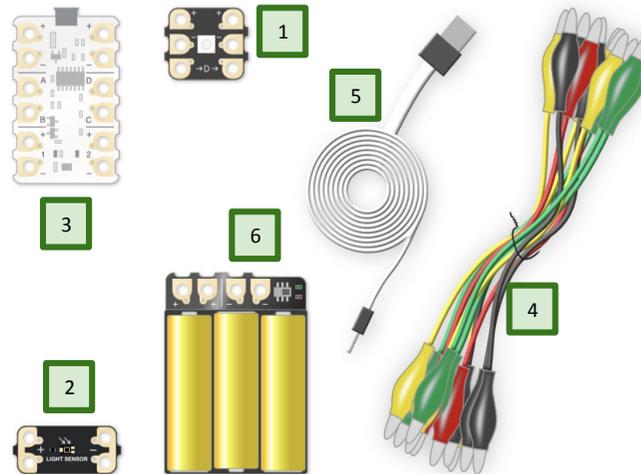
A program is a list of instructions that the Crumble will follow. The Crumble will 'run' a single line (i.e. a block) of a program, one at a time, starting from the top.



Insert a block under program start.

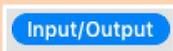
set all sparkles to set sparkle 0 to

Change colours of all or individual sparkles by clicking on the coloured boxes and adjusting the RGB value.



Crumble Software

Input/Output



The analogue input block can be found in this section. A B C or D can be used as analogue inputs. you must connect your LEDs (sparkles) or LDRs to the crumble controller, via A B C or D input/output.

Control



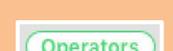
These blocks provide information about how each program should run, how long it should run for and what to do if a condition has been put in place.

Variables



Variables are used to store values. You can add your own variables to create conditions. E.g. If you set your variable as the LDR, you can program it to turn a sparkle on and off according to the value of the light it measures.

Operators



Basic mathematical functions can be found in the 'Operators' section. You can use these blocks to represent a true or false value. E.g. If the light sensor detects a light value lower than 50, then the sparkle will turn on.

Key vocabulary

Design	Generate, develop, model and communicate ideas through annotated sketches, prototypes and computer-aided design software.
Function	What a product does to be successful. Does it work? Is it functional?
Purpose	Why a product exists. The reason why a product is made. What problem does it solve?
Prototype	An early model or sample of a product used to test a concept.
1. LED (Sparkles)	Light Emitting Diode. An electronic device that emits light when a voltage is applied.
2. LDR	Light dependent resistor or light sensor. A device that is able to sense light levels and alter the current flowing between the input and the output, according to the level of light it receives.
3. Crumble Controller	A programmable controller. It drives 2 motors forwards and backwards at variable speeds and has 4 IO (Input/Output) pads that switches, LEDs and Light sensors can be added to.
4. Crocodile Leads	Plastic insulated leads with crocodile clips at each end. Used to join components within electrical circuits.
5. Micro USB	Micro USB is a miniaturized version of the Universal Serial Bus (USB). A lead used to connect the hardware to the software.
6. Switched Battery Box	Battery pack with switch. Used to power the components attached to the crumble.