An algorithm could look like this

Start
buzzer HI
wait 1 second
buzzer LO
wait 1 second
buzzer HI
wait 1 second
buzzer LO
wait 1 second
buzzer HI
wait 1 second
buzzer LO
wait 1 second
buzzer HI
wait 3 seconds
buzzer LO
wait 1 seconds
buzzer HI
wait 3 seconds
buzzer LO
wait 1 seconds
buzzer HI
wait 3 seconds
buzzer LO
wait 1 seconds
buzzer HI
wait 1 second
buzzer LO
wait 1 second
buzzer HI
wait 1 second
buzzer LO
wait 1 second
buzzer HI
wait 1 second
buzzer LO

Algorithmic Efficiency

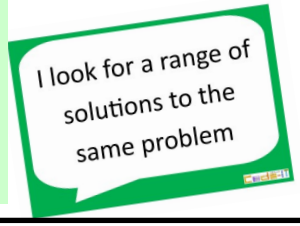
-Challenge pupils to write the same algorithm in less code

They can use circles for loops

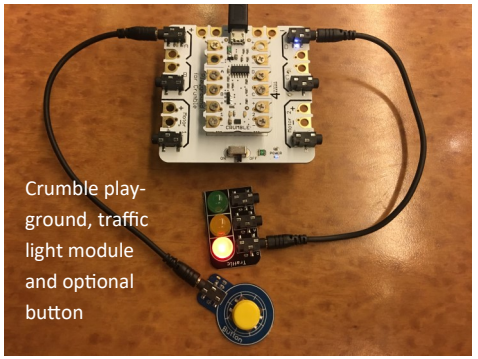
Computer Science Concepts

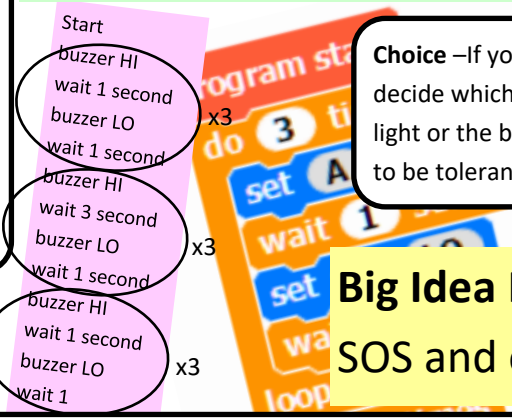
-All programming is an algorithm turned into code

-An Algorithm is a step by step sequences of instructions (or rules) to do something



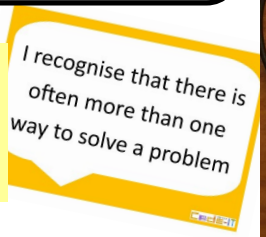
Everyone will need cables, playground with crumble attached, USB cable, 3x AA batteries, computer with crumble software installed available free from Redfern electronics.

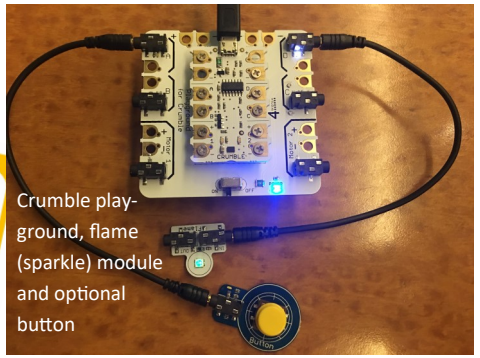

Crumble play-ground, traffic light module and optional button



Choice –If you have all the kit listed then why not allow your pupils to decide which modules to use, programmable light, a light on the traffic light or the buzzer. Ask them to justify their choice. Doing so enables them to be tolerant of ambiguity and cope with opened ended problems.

Big Idea Program Morse code SOS and other messages



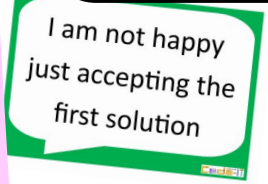

Crumble play-ground, flame (sparkle) module and optional button

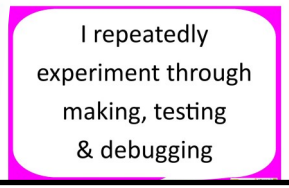
You could also use a buzzer module and optional button.

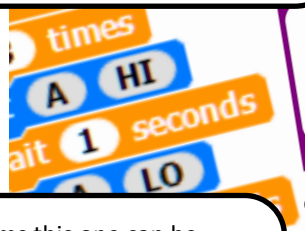
Algorithm –Students need to think through the precise order of the lights or buzzer, paying special attention to the length of time each light or noise is sounded for, dashes can't be mistaken for dots. If using the buzzer or traffic light they could be introduced to the idea of **HI** (on) or **LOW** (off) current and they could use that to plan their algorithm. Don't allow pupils to code until their algorithms are complete.

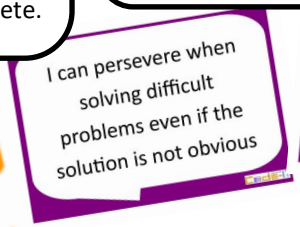
Equipment setup

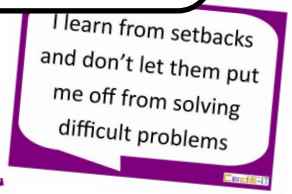
-Let pupils setup the kit using the maker cards. Don't be too quick to help.











See the code-it.co.uk/crumbleplayground for maker cards to help pupils connect and program their devices

Curricular Links –This module goes well with any communication topic.

Factoid –The telegraph was the internet of its day

Algorithm to code –Like most programming problems this one can be solved in different ways, simple sequence or loops. One extension is to ask pupils to set the SOS to run continuously so that the crew can concentrate on saving the ship. Another extension is to trigger the SOS using a button. If you have time why not program other morse code messages.

code-it.co.uk