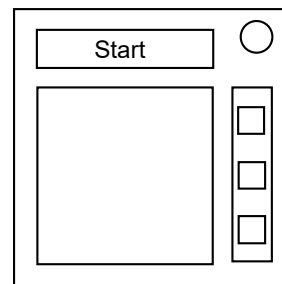


On the Subject of Coloured Cubes

WHY ARE THEY MOVING??!?

This module initially contains only a pressable screen and three stage light buttons. Press the screen to start.

Pressing the screen reveals nine colourful cubes, each of varying colours and sizes. Select cubes to form sets in three stages to solve the module.



Sets

For this module, **set** is a group of three like objects with any number of **parameters**, such that for each parameter, its value is either the same, or different for all three objects.

For example, red (200), green (020), and olive (110) form a set while aqua (122), lime (120), and white (222) do not. The parameters in this case are the red, green, and blue ternary components of each colour.

Solving

True Positions

In each stage, first note down the colour and size* of each cube. Then determine each cube's **true position** using the table below. Use these positions to determine the parameters of each cube in the next section.

Stage	Notes	True Position
1	None	The physical position of the cube on the module.
2	The cubes will shuffle around** on the module.	The physical position of the cube on the module in stage one, before shuffling.
3	The cubes will <i>have a good time</i> . Ignore their frolicking.	The position which forms a set with the true positions of the cube in the previous two stages. Use the row and column of each position as parameters.

* Press the screen to view all possible sizes. Press the screen again to go back.

** See the Stage Lights section if you missed the movements.

Modifying the Cubes

Each cube has been modified using its true position as follows:

- The rows correspond to red, green, and blue from top to bottom. The colour component corresponding to the cube's row has been incremented by 1 (wrapping back down to 0 from 2).
- The columns are numbered 0, 1, and 2 from left to right. Each cube's size has been increased by its column number (wrapping as above).

For example, a big red cube with true position at bottom-middle (column 1, blue row) will be displayed as a small rose cube.

Reverse these changes to determine the actual state of each cube.

Submitting

In the first two stages, select the three cubes which form a set, using their RGB colour* components and sizes as parameters. In stage three, select the two cubes which form a set with the **hidden value**, determined by the colours of the **stage lights** in the previous two stages. Press the screen to submit.

Stage Lights

The stage lights along the side of the module display information needed for stage three:




























In the first two stages, the lights will display red, green, and blue values using additive colour mixing. In stage one, the values for each component correspond to the position with the component. In stage two, it's the position without the component. Positions are 0, 1, and 2 from bottom to top.

Combine these values with the number of ports (stage one) or indicators (stage two) on the bomb, modulo 3, as the size to get a cube state for each stage. The hidden value for stage three is the cube state which forms a set with the states from the first two stages.

They can also be used to go back to previous stages, for example to view the cube shuffling again for stage two. Pressing a stage light will show the stage corresponding to its position, plus one.

* See APPENDIX-COLOUR for a breakdown of colours into their components.

APPENDIX-COLOUR

	Colour	R	G	B		Colour	R	G	B
	Rose	2	0	1		Red	2	0	0
	Orange	2	1	0		Yellow	2	2	0
	Lime	1	2	0		Green	0	2	0
	Jade	0	2	1		Blue	0	0	2
	Azure	0	1	2		Cyan	0	2	2
	Violet	1	0	2		Magenta	2	0	2
	Pink	2	1	2		Plum	1	0	1
	Salmon	2	1	1		Maroon	1	0	0
	Cream	2	2	1		Olive	1	1	0
	Mint	1	2	1		Forest	0	1	0
	Aqua	1	2	2		Teal	0	1	1
	Maya	1	1	2		Indigo	0	0	1
	White	2	2	2		Grey	1	1	1
						Black	0	0	0