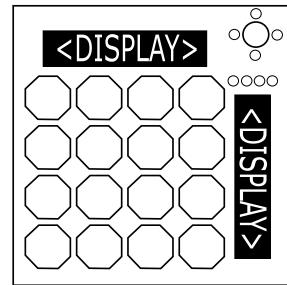


## On the Subject of The Bamboozling Button Grid

*This is exactly as hard as it looks...*

This module consists of 16 coloured buttons and two screens that each display four coloured messages.



Each button cycles through 5 colours.

Obtain an initial value from each message and use the operation associated with the displayed colours to compute the final values of each message.

Each final text value has a corresponding condition.

Press the four buttons that satisfy the conditions given by **both** messages in the order they were displayed.

If this is done correctly, all four LEDs above the second screen will turn green, and the module will advance to its next stage.

Otherwise, at least one LED will turn red. Red LEDs correspond to which of the four inputs were incorrect.

Do not press any buttons that have already been pressed. Doing so will immediately incur a strike and reset the current stage.

Making two errors on the same stage will reset the module back to stage 1 and a strike will be incurred.

Additionally, the status light (the large LED at the top right of the module) can be pressed at any time to reset the module.

- If there have been no inputs on the current stage, the module will reset back to stage 1.
- Otherwise, the module will reset only the current stage.

### Initial message values

Each message that can appear on the screen contains a letter of the alphabet:

- If the letter is spelled out using the NATO phonetic alphabet and it is spelled...
  - correctly, add 36 to the alphabetic position of the spelled out letter to obtain the initial value.
  - incorrectly, add 73 to the alphabetic position of the spelled out letter to obtain the initial value.
- Otherwise, the initial value is the alphabetic position of the letter.

See Appendix B for the correct spelling of the NATO phonetic alphabet letters.

### Final message values

Each colour has an associated operation to be applied to each of the initial values.

If the message contains...

- "THE LETTER", use the colour of the next message on the screen.
- "THE WORD", use the colour of the current message on the other screen.
- "MISSPELT", use the colour of the next message on the other screen.
- only the letter used to obtain the initial value, use the colour it is written in.

### Operation tables

Colour	Operation
White	Do nothing
Red	Add ten times the first digit
Orange	Add the sum of the digits
Yellow	Double the number
Lime	Add five times the difference between the digits
Green	Subtract the number from 100
Jade	Add eleven times the first digit

Colour	Operation
Grey	Swap the digits
Cyan	Add ten times the second digit
Azure	Add twice the sum of the digits
Blue	Double the number and add one
Violet	Add eight times the difference between the digits
Magenta	Subtract twice the number from 100
Rose	Add eleven times the second digit

Condition Table

Take the last two digits of the final value and locate the corresponding cell in the grid below.

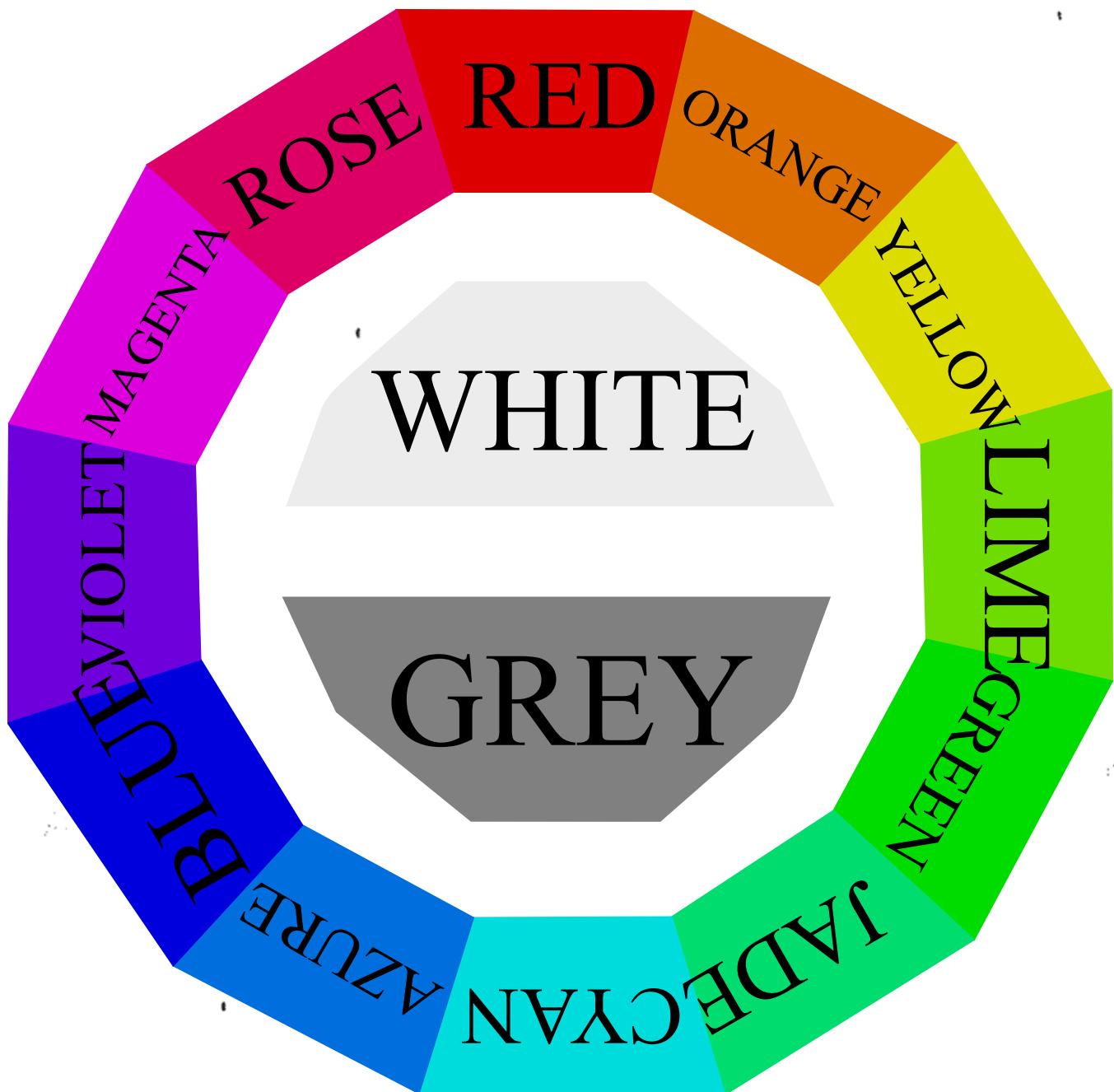
	-0	-1	-2	-3	-4	-5	-6	-7	-8	-9
0-	Y4	G2	R1	B5	G1	24	Y3	13	R5	Y2
1-	G1	B2	G5	B3	R4	45	Y1	R2	23	B4
2-	R4	34	R2	G3	R1	G1	B4	G4	B2	12
3-	B3	15	G3	R4	25	Y2	Y3	G3	R1	B1
4-	Y2	B4	Y1	23	B1	G4	B5	Y3	14	Y5
5-	23	R5	12	G1	Y4	B3	R2	R1	G3	G2
6-	Y3	R1	G5	B4	35	Y5	B1	G2	R5	14
7-	G1	Y4	24	R2	G5	R4	13	B5	Y1	R5
8-	45	B3	G1	Y3	B5	G3	15	R4	R2	Y2
9-	R5	G4	Y5	34	B4	G2	R3	R5	Y3	B2

- If the cell is of the form R#/Y#/G#/B#, the button must be the given colour at the given step of cycle.
- If the cell is of the form ##, the button must be the same colour at the two given steps of the cycle.

Both screens are blank at step 5 of the cycle.

If the second condition contradicts the first, the second condition is replaced with the following:

The button must be the colour given by the first condition at the step of the sequence after the step given by the first condition.

**Appendix A: Display Text Colours****Appendix B: Correct Spellings of NATO Phonetic Alphabet Letters**

ALPHA	BRAVO	CHARLIE	DELTA	ECHO	FOXTROT	GOLF	HOTEL	INDIA	JULIET	KILO	LIMA	MIKE
NOVEMBER	OSCAR	PAPA	QUEBEC	ROMEO	SIERRA	TANGO	UNIFORM	VICTOR	WHISKEY	XRAY	YANKEE	ZULU