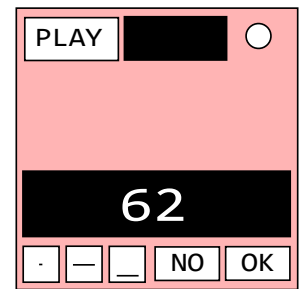


## On the Subject of Morsemetics

*Get it? Because it uses morse and maths! I'll see myself out...*

*See Appendix MorseOP for mathematical operation reference.*

- Interpret the signal from the flashing light using the Morse Code chart.
- The signal will play once upon pressing "Play".
- The signal will be a maths question, encoded in the format <a> <op> <b>.
- A response to the signal is entered using the dot, dash, and space buttons. The answer is submitted by pressing "OK".
- Your response is shown in the display. If you make a mistake, press "NO" to clear it.
- Warning: "NO" can only be pressed when the correct answer has a matching number in the time remaining, or when less than 30 seconds remain.



### How to Interpret

1. A short flash represents a dot.
2. A long flash represents a dash.
3. There is a long gap between letters.
4. There is a very long gap before the word repeats.

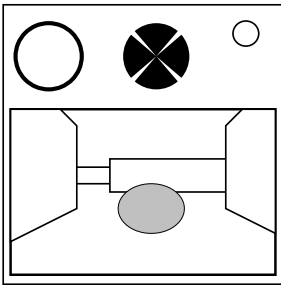
A	● —	U	● ● —
B	— ● ● ●	V	● ● ● —
C	— ● — ●	W	● — —
D	— ● ●	X	— ● ● —
E	●	Y	— ● — —
F	● ● — ●	Z	— — ● ●
G	— — ●		
H	● ● ● ●		
I	● ●		
J	● — — —		
K	— ● —	1	● — — — —
L	● — ● ●	2	● ● — — —
M	— —	3	● ● ● — —
N	— ●	4	● ● ● ● —
O	— — —	5	● ● ● ● ●
P	● — — — ●	6	— ● ● ● ●
Q	— — ● —	7	— — ● ● ●
R	● — ●	8	— — — ● ●
S	● ● ●	9	— — — — ●
T	—	0	— — — — —

**Appendix MorseOP: Mathematical Operations**

MULT, TIMES	Multiply the two numbers together.
OVER, DIV	Divide the first number by the second.
MOD, REM	Divide the first number by the second, and take the remainder.
POW, EXP	Take the first number, and apply the second number as a power.
XOR	Apply a bitwise XOR operation to the two numbers.

On the Subject of the Mouse In The Maze

Inside some bombs is a mouse that is remote-controlled via a chip in its spinal cord.



- The mouse is located inside one of the following mazes.
- The mouse can move forward or backward or turn left or right.
- To disarm the module, navigate the mouse to the accepting position and press the circular button with the labyrinth.
- Pressing the button at any other location causes a strike.
- The accepting position is marked with one of four colored spheres. Which one depends on the color of the torus in the middle of the maze, according to the table below.

Maze	Torus color	Sphere color	Maze	Torus color	Sphere color
	green	blue		white	yellow
	blue	white		green	green
	white	green		blue	white
	yellow	yellow		yellow	blue

Maze	Torus color	Sphere color	Maze	Torus color	Sphere color
	green	blue		yellow	yellow
	blue	yellow		blue	green
	white	green		green	white
	yellow	white		white	blue

Maze	Torus color	Sphere color	Maze	Torus color	Sphere color
	white	yellow		green	yellow
	green	white		blue	green
	blue	green		white	blue
	yellow	blue		yellow	white

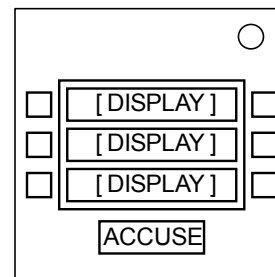
## On the Subject of Murder

*This module is powered by the restless soul of a murder victim. The only way to disarm it is to solve the case so the victim can pass peacefully to the afterlife.*

*See Appendix A for indicator identification reference.*

*See Appendix B for battery identification reference.*

*See Appendix C for port identification reference.*



- Select the murderer, murder weapon, and location on the display panels and press "ACCUSE" to disarm the module.
- The module displays one location in red – this is the room in which the body was found. It is not necessarily the room in which the crime occurred.
- The table below shows the location of the suspects and potential weapons at the time of the murder. The murderer must have been in the same location as the murder weapon at this time.
- Some suspects and potential weapons have already been eliminated from the investigation – these are not listed on the module.

### Suspects:

If there is a lit indicator with label TRN, use row 5 to locate the suspects.

Otherwise, if the body was found in the Dining Room, use row 7.

Otherwise, if the bomb has 2 or more Stereo RCA ports, use row 8.

Otherwise, if there are no D batteries on the bomb, use row 2.

Otherwise, if the body was found in the Study, use row 4.

Otherwise, if there are 5 or more batteries, use row 9.

Otherwise, if there is an unlit indicator with label FRQ, use row 1.

Otherwise, if the body was found in the Conservatory, use row 3.

Otherwise, the suspects can be located using row 6.

### Weapons:

If the body was found in the Lounge, use row 3 to locate the weapons.

Otherwise, if there are 5 or more batteries, use row 1.

Otherwise, if the bomb has a serial port, use row 9.

Otherwise, if the body was found in the Billiard Room, use row 4.

Otherwise, if there are no batteries on the bomb, use row 6.

Otherwise, if there are no lit indicators on the bomb, use row 5.

Otherwise, if the body was found in the Hall, use row 7.

Otherwise, if the bomb has 2 or more Stereo RCA ports, use row 2.

Otherwise, the weapons can be located using row 8.

**Locations:**

	Miss Scarlett	Professor Plum	Mrs Peacock	Reverend Green	Colonel Mustard	Mrs White
	Candle- stick	Dagger	Lead Pipe	Revolver	Rope	Spanner
1	Dining Room	Library	Lounge	Kitchen	Study	Conserv- atory
2	Study	Hall	Billiard Room	Lounge	Kitchen	Library
3	Kitchen	Billiard Room	Ballroom	Library	Conserv- atory	Dining Room
4	Lounge	Ballroom	Dining Room	Conserv- atory	Hall	Kitchen
5	Billiard Room	Kitchen	Study	Ballroom	Dining Room	Hall
6	Conserv- atory	Lounge	Library	Study	Billiard Room	Ballroom
7	Ballroom	Conserv- atory	Kitchen	Hall	Library	Study
8	Hall	Study	Conserv- atory	Dining Room	Lounge	Billiard Room
9	Library	Dining Room	Hall	Billiard Room	Ballroom	Lounge

On the Subject of Murder

- G=Reverend Green      • C=Candlestick      • A=Ballroom      • K=Kitchen
- K=Mrs Peacock      • D=Dagger      • B=Billiard Room      • L=Lounge
- M=Colonel Mustard      • P=Lead Pipe      • C=Conservatory      • S=Study
- P=Professor Plum      • R=Rope      • D=Dining Room      • Y=Library
- S=Miss Scarlett      • S=Spanner      • H=Hall
- W=Mrs White      • V=Revolver

	lit TRN	Dining Room	≥ 2×RCA	no D batteries	Study	≥ 5 batteries	unlit FRQ	Conservatory	otherwise
Lounge	GPA MSD PCK SDB		GSD KRC WDB	KDB MCK WVY		GDB MPA PSD SVY	GCK PVY SSD WRC		KVY MDB SRC WPA
≥ 5 batteries	KRS MCD PVK	KVK MDY PSC WRS	GCD KSC MPL PRS	GPL MVK SRS WDY	GSC KCD SPL WVK	PCD SDY WPL		GDY MSC SVK WCD	GRS KDY PPL SSC
serial port	GRA MDD SVB WPH	GPH MCY SRA	GDD MSL SPH WVB	GSL KVB PPH WCY	KDD MPH PRA SSL		KSL PCY SDD	GCY KRA PVB WDD	KCY MVB PSL WRA
Billiard Room	GDA MPD PSK WRH		GPD KVC MCL SRH	GCL MSK PRH		KRH MDA PPD WCL	GSK KCL SPD WVC		PCL SVC WDA
no batteries	GSA KVS SRB	MPY PCC SSA WVS	KCC MDL PVS WRB	GDL KRB SVS WPY	GCC PSA SDL		KDL MVS PPY WCC	GPY KSA MCC PRB	
no lit indicators		GSH KDK SVA WPS	GRD PPS SSH WCB	KCB MDK PSH SPS	KRD MSH PVA WDK	GCB KSH MVA PRD	GDK MPS SRD	KVA PCB SDK WRD	GPS MCB WVA
Hall	GCA KSS PPK WVH		KDC PSS SVH	MPK PVH SSS WRY		KVH MCA SRY	GPK MSS PRY WDC		GSS KRY SDC WCA
≥ 2×RCA	KCS PRK SPB WDH	GDH KRK MSY WCS	MVL PCS SDH WPB		MDH SVL WRK	GPB KDH SSY WVL	GRK KVL MCS PSY	GSY PPB SRK	GCS KSY MPB PVL
otherwise	KDS MVD SSB WCH	GCH PPC WDS		GRL KSB PCH SDS	GPC KVD MCH SRL	GSB KCH PVD WRL	KRL MDS SVD WPC	MPC PSB WVD	GDS MSB PRL SPC

On the Subject of the Mystic Square

1. "row/column" on this page always refers to the table below.
2. Discovering the Skull before the knight will cause a strike.
3. No other action will cause a strike.
4. How to find the skull:

1. If the middle position is empty, the skull is under the 7. Continue to step 4.
2. The middle number determines which row/column to use. If the last digit in the serial number is in one of the five cross positions as shown in the picture on the right, use rows. Otherwise, use columns.
3. Start from the empty position on the module. Using the table below, consider each number in the row/column and check if it's a direct neighbour to the current position. If it is, continue from that position. The final position is where the skull is located.
4. To disarm the module, move the sliders into a target constellation. See next page. Take care not to uncover the skull before the knight has been uncovered.

X		X
	X	
X		X

<

		last serial digit lies not on the cross-parts of the module							
	number in the middle of the module	1	2	3	4	5	6	7	8
on the cross-part	1	1	3	5	4	6	7	2	8
	2	2	5	7	3	8	1	4	6
	3	6	4	8	1	7	3	5	2
	4	8	1	2	5	3	4	6	7
	5	3	2	6	8	4	5	7	1
	6	7	6	1	2	5	8	3	4
	7	4	7	3	6	1	2	8	5
	8	5	8	4	7	2	6	1	3

**"row/column" on this page always refers to the module.**

Determining the desired constellation:

Before moving any sliders, use the sum of the rows as R1, R2 and R3 and the sum of the columns as C1, C2 and C3 to look up the target constellation in the table below. The following constellation is also always acceptable.



1	2	3
4	5	6
7	8	

	C1 > C2,C3	C2 > C1,C3	C3 > C1,C2	else																																				
R1 > R2,R3	<table><tr><td>1</td><td>?</td><td>2</td></tr><tr><td>?</td><td>?</td><td>?</td></tr><tr><td>4</td><td>?</td><td>3</td></tr></table>	1	?	2	?	?	?	4	?	3	<table><tr><td>1</td><td>?</td><td>2</td></tr><tr><td>?</td><td>?</td><td>?</td></tr><tr><td>3</td><td>?</td><td>4</td></tr></table>	1	?	2	?	?	?	3	?	4	<table><tr><td>1</td><td>?</td><td>3</td></tr><tr><td>?</td><td>?</td><td>?</td></tr><tr><td>7</td><td>?</td><td>5</td></tr></table>	1	?	3	?	?	?	7	?	5	<table><tr><td>1</td><td>?</td><td>3</td></tr><tr><td>?</td><td>?</td><td>?</td></tr><tr><td>5</td><td>?</td><td>7</td></tr></table>	1	?	3	?	?	?	5	?	7
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4	?	3																																						
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1	?	3																																						
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5	?	7																																						
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?	8	?																																						
R3 > R1,R2	<table><tr><td>1</td><td>?</td><td>?</td></tr><tr><td>?</td><td>2</td><td>?</td></tr><tr><td>?</td><td>?</td><td>3</td></tr></table>	1	?	?	?	2	?	?	?	3	<table><tr><td>?</td><td>?</td><td>3</td></tr><tr><td>?</td><td>2</td><td>?</td></tr><tr><td>1</td><td>?</td><td>?</td></tr></table>	?	?	3	?	2	?	1	?	?	<table><tr><td>3</td><td>?</td><td>?</td></tr><tr><td>?</td><td>2</td><td>?</td></tr><tr><td>?</td><td>?</td><td>1</td></tr></table>	3	?	?	?	2	?	?	?	1	<table><tr><td>?</td><td>?</td><td>1</td></tr><tr><td>?</td><td>2</td><td>?</td></tr><tr><td>3</td><td>?</td><td>?</td></tr></table>	?	?	1	?	2	?	3	?	?
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else	<table><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>?</td><td>4</td><td>?</td></tr><tr><td>?</td><td>5</td><td>?</td></tr></table>	1	2	3	?	4	?	?	5	?	<table><tr><td>1</td><td>?</td><td>?</td></tr><tr><td>2</td><td>4</td><td>5</td></tr><tr><td>3</td><td>?</td><td>?</td></tr></table>	1	?	?	2	4	5	3	?	?	<table><tr><td>?</td><td>5</td><td>?</td></tr><tr><td>?</td><td>4</td><td>?</td></tr><tr><td>1</td><td>2</td><td>3</td></tr></table>	?	5	?	?	4	?	1	2	3	<table><tr><td>?</td><td>?</td><td>1</td></tr><tr><td>5</td><td>4</td><td>2</td></tr><tr><td>?</td><td>?</td><td>3</td></tr></table>	?	?	1	5	4	2	?	?	3
	1	2	3																																					
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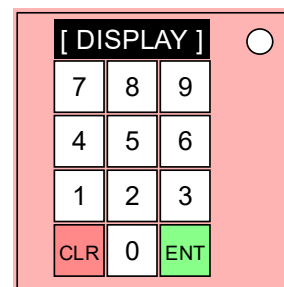
## On the Subject of Number Pads

*Try putting in 0000. No? Try 0001. Still not working? We might be here for a while...*

*See Appendix A for indicator identification reference.*

*See Appendix B for battery identification reference.*

*See Appendix C for port identification reference.*



- Enter a 4-digit code using the numbered buttons.
- Press the green button labelled ENT to submit the entered code.
- Press the red button labelled CLR to discard the entered code.
- Perform the first action that applies on each level.
- The CLR and ENT buttons' colors are to be ignored.

Using the wheel chart, starting from the center, pick a path by following the instructions below for each level you are on. (center level is 1, next one out is 2, etc.) Each path you take is the code digit corresponding to its level number unless contradicted by higher levels' instructions. Follow the final instructions after you complete all four levels.

On the first level, the paths are in order from the upper-right corner going clockwise. On the rest of the levels, they are also in clockwise order.

### Level 1:

If three or more of the numbered buttons are colored yellow, take the first path.

If the all three of the numbered buttons 4, 5, and 6 are colored white, blue, or red, take the second path.

If the serial number contains a vowel, take the third path.

Otherwise, take the fourth path.

### Level 2:

If there are at least two blue numbered buttons and at least three green buttons, take the first path.

If the numbered button 5 isn't blue nor white, take the second path.

If there are less than two ports on the bomb, take the third path.

Otherwise, take the fourth path, and if the top row of buttons contains a green button, subtract 1 from the first digit (if it's 0, it becomes 9).

### Level 3:

If there are more than two white numbered buttons and more than two yellow numbered buttons, take the first path.

Otherwise, take the second path and reverse the current 3-digit code.

### Level 4:

If there are 2 or less yellow numbered buttons, take the first path and add 1 to each digit (if a digit is 9, it becomes 0).

Otherwise, take the second path.

**Final Instructions:**

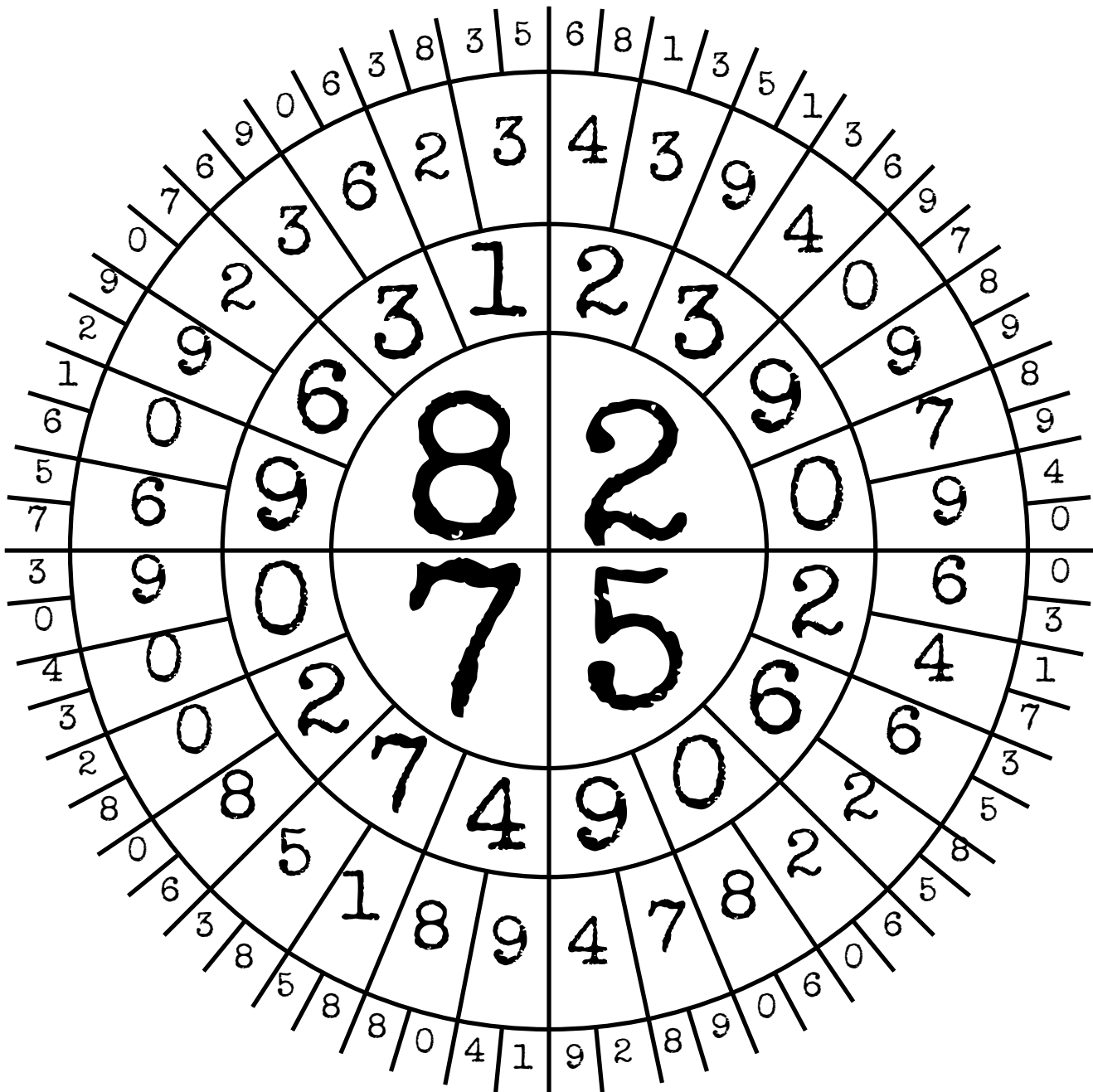
(follow all instructions in this order)

If the last digit of the serial number is even, swap the first and third digits.

If there are an odd number of batteries, swap the second and third digits.

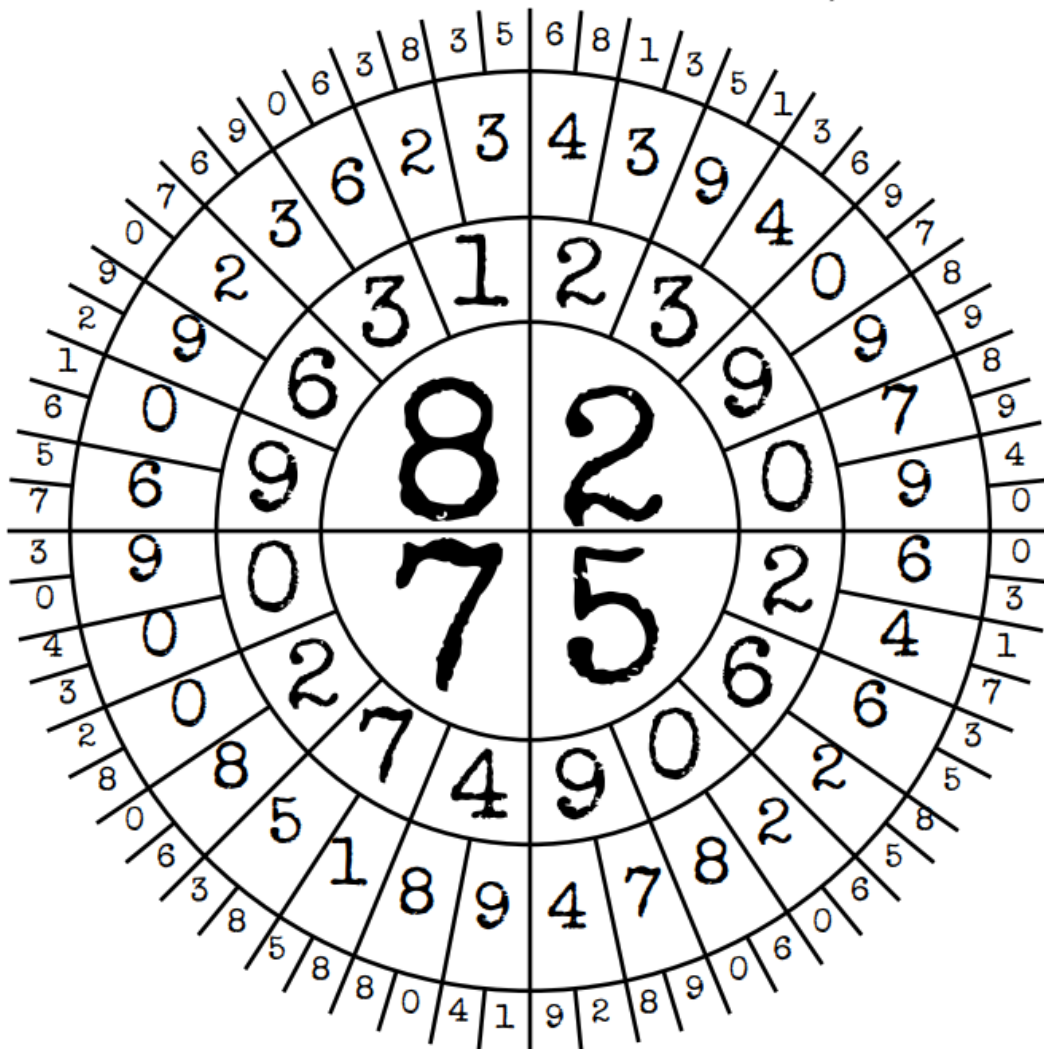
If both criteria above are not met, swap the first and fourth digits.

Finally, if the sum of all the digits in the code is even, reverse the code.

**Wheel Chart**

*If your numpad has 3 yellow bricks, not 3 green or 2 white in the mix, 5's not white or blue, latter's less than two, your code must be 4326.*

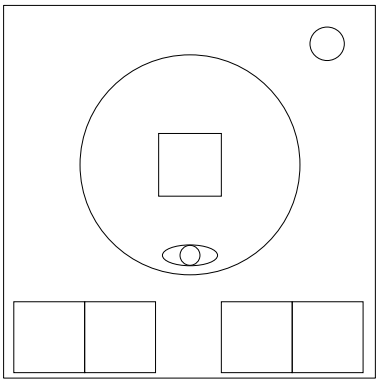
	Stage 1	Stage 2	Stage 3	Stage 4
Path 1	≥3 Yellow	≥2 Blue and ≥3 Green	≥3 White and ≥3 Yellow	≤2 Yellow; [Add 1 to Each Digit]
Path 2	4, 5, 6 are Red, White, or Blue	5 is NOT White or Blue	[Reverse Digits 1-3]	—
Path 3	Serial Number has Vowel	0 or 1 Port	<u><b>Final Instructions</b></u> <ul style="list-style-type: none"> <li>• SN Even: Swap 1/3</li> <li>• Batt. Odd: Swap 2/3</li> <li>• Neither: Swap 1/4</li> <li>• Digit Sum Even: Reverse</li> </ul>	
Path 4	—	[If Top Row has Green, -1 from First Digit]		



On the Subject of Orientation

If the bomb doesn't kill us a brain haemorrhage will.

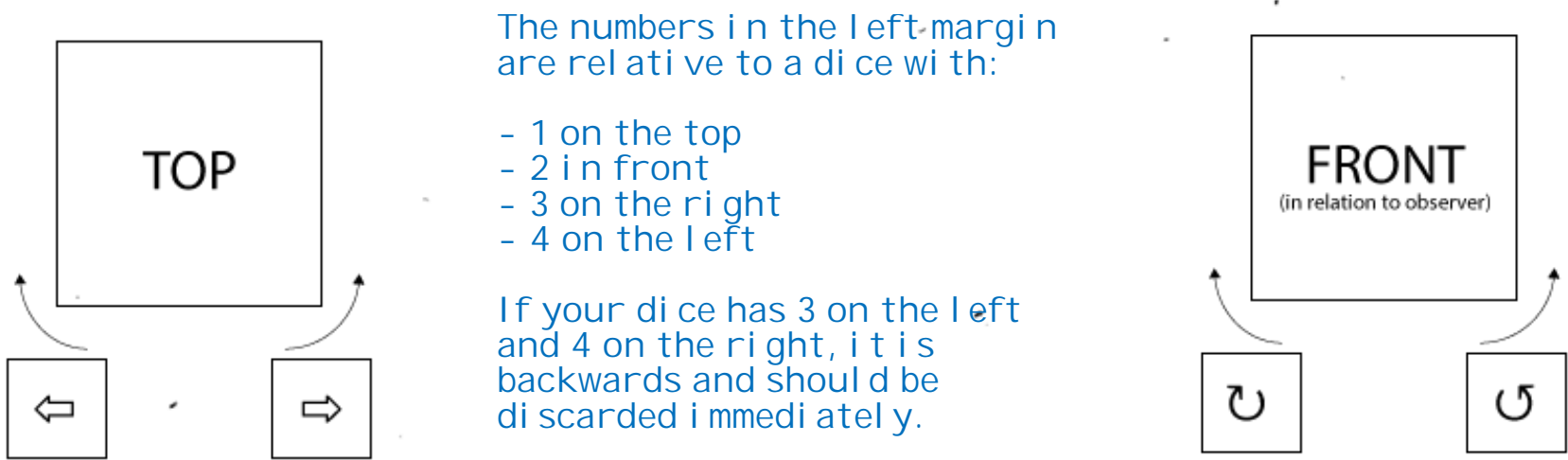
In order to diffuse this part of the bomb you will need good 3D orientation skills. A virtual cube needs to be rotated into a specific orientation using the four keys along the bottom. Unfortunately there is no display to indicate the current orientation of the virtual cube so you will have to imagine the state of the cube yourself.



The two keys in the bottom left will yaw the cube clockwise or anti-clockwise, respective to looking at the cube from the top.

The two keys in the bottom right will roll the cube clockwise or anti-clockwise, respective to the virtual observer. The virtual observer's position is indicated on the module as an eye. NOTE: The virtual observer's position may change.

For example, if the eye is at the bottom then it is facing the 'FRONT' face. Pressing 'Roll clockwise' will place the 'LEFT' face where the 'TOP' face is.



If the serial number on the bomb contains the letter R:

Rotate the cube so that the initial left face is in the same position as the initial top face, then press the SET button.

4 -> 1

Otherwise, if the bomb has a lit indicator with the label TRN or has it has a lit/unlit indicator with the label CAR:

Rotate the cube so that the initial bottom face is in the same position as the initial right face, then press the SET button.

6 -> 3

Otherwise, if the bomb has a PS2 port or there have been one or more strikes:

Rotate the cube so that the initial bottom face is in the same position as the initial front face and the initial left face is in the same position as the initial bottom face, then press the SET button.

6 -> 2  
4 -> 6

Otherwise, if the serial number on the bomb contains either the number 7 or 8:

Rotate the cube so that the initial right face is in the same position as the initial bottom face and the initial back face is in the same position as the initial front face, then press the SET button.

3 -> 6  
5 -> 2

**Otherwise, if there are more than two batteries on the bomb or the virtual observer's initial position is facing the initial left face:**

Rotate the cube so that the initial top face is in the same position as the initial bottom face, then press the SET button.

1 -> 6

**Otherwise:**

Rotate the cube so that the initial top face is in the same position as the initial left face, then press the SET button.

1 -> 4

**On a strike:**

If you get strike then the virtual cube will be reset to the initial position, be aware you may need to select a new rule if the obersever is now in a different position.

## On the subject of Orientation cheat sheet.

<b>1</b>	<b>If the Serial number contains an R</b>
Front	Clockwise
Right	Left, Counter clockwise
Back	Counter clockwise
Left	Left, Clockwise

<b>2</b>	<b>Lit TRN or a Lit/Unlit CAR</b>
Front	Counter clockwise
Right	Clockwise, Right
Back	Clockwise
Left	Clockwise, Left

<b>3</b>	<b>PS2 port present bomb has at least one strike</b>
Front	Counter clockwise, Left
Right	Left, Clockwise
Back	Clockwise, Left
Left	Left, Counter clockwise

<b>4</b>	<b>Serial number contains a 7 or 8</b>
Front	Clockwise, Left, Left
Right	Right, Clockwise, Right
Back	Counter clockwise, Left, Left
Left	Right, Counter clockwise, Right

<b>5</b>	<b>2 or more batteries Virtual observers initial position is facing initial left</b>	
Front	Clockwise	
	Left	Right, Counter clockwise
	Front	Clockwise
	Right	Right, Clockwise
Right	Clockwise	
	Front	Left, Clockwise
	Right	Clockwise
	Back	Left, Counter clockwise
Back	Clockwise	
	Right	Left, Clockwise
	Back	Clockwise
	Left	Left, Counter clockwise
Left	Clockwise	
	Front	Left, Counter clockwise
	Left	Clockwise
	Back	Left, Clockwise

<b>6</b>	<b>No other rule fits (Left is always caught by Rule 5)</b>	
Front	Counter clockwise	
Right	Clockwise, Right	
Back	Clockwise	

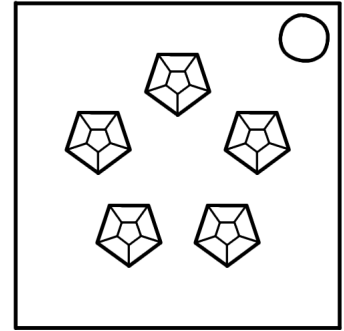


# On the Subject of Perspective Pegs

*Everything is different from the perspective of another.*

## Step 1: Key Colour

- Calculate the alphabetic position difference of the first two letters in the serial number. (A = 1, B = 2, etc.)
- Regard the difference between alphabetic positions to be positive.
- If there are four or more letters in the serial number, add the position difference of the third and fourth letters.
- Look up this number on the **Key Colour** table to obtain a colour.



## Step 2: Sequence Permutation

- Starting from the peg with three or more sides in this colour and proceeding clockwise, read the outermost facing colour of each peg to form a colour sequence of length five; this is the current sequence.
- Determine which column of the **Sequence Permutation** table to use.
- For each entry in the relevant column:
  - If the prime sequence is present in the current sequence, replace the first occurrence with the alternate sequence to form the new current sequence.
  - Otherwise, if the reverse of the prime sequence is present, replace the last occurrence with the reverse of the alternate sequence.
- Finally, take the first three colours in the current sequence to obtain the key sequence.

## Step 3: Key Sequence

- Angle the bomb with one peg close to you and in the centre of your view, then observe the five colours facing you in a line; this is the candidate sequence for this view.
- The key sequence is present in one of the five candidate sequences exactly once, either forward or reverse.
- Locate the candidate sequence that contains the key sequence, and press the three pegs representing the key sequence in order.
- If the key sequence is the same backwards as it is forwards, you can press the three pegs in either forward or reverse order.

**Table 1.1 Key Colour**

Regard the difference between alphabetic positions to be positive.

Take the least significant digit of the number, and look up in the table:

0	3	Red	5	8	Blue
4	9	Yellow	2	6	Purple
1	7	Green			

**Table 1.2 Sequence Permutation**

R - Red, Y - Yellow, G - Green, B - Blue, P - Purple

Determine which column to use based on battery count.

Perform permutations from top to bottom:

1 - 2 Batteries		3 - 4 Batteries		0, 5+ Batteries	
Prime	Alternate	Prime	Alternate	Prime	Alternate
R Y Y	B P Y	B P B	Y B G	P Y B	R G B
Y P G	P B R	Y Y P	B R P	Y R P	R Y R
R G P	B G R	G R B	Y P B	G Y R	G B P
Y B G	B Y Y	R P Y	G B G	B Y G	P G R
P P R	R Y P	Y G G	P B R	R P Y	G Y B
B G B	P Y G	G P B	Y G Y	P P G	P B R
Y G B	G P Y	P R P	B B G	R Y Y	B B R
P G G	G Y R	R Y R	R P B	Y G P	P Y Y

A - 1	N - 14
B - 2	O - 15
C - 3	P - 16
D - 4	Q - 17
E - 5	R - 18
F - 6	S - 19
G - 7	T - 20
H - 8	U - 21
I - 9	V - 22
J - 10	W - 23
K - 11	X - 24
L - 12	Y - 25
M - 13	Z - 26



On the Subject of Piano Keys

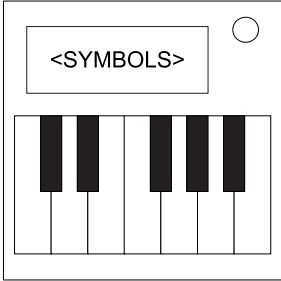
What do you get when you drop a piano down a mine shaft? A flat minor.

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.

See the next page for piano/keyboard reference.

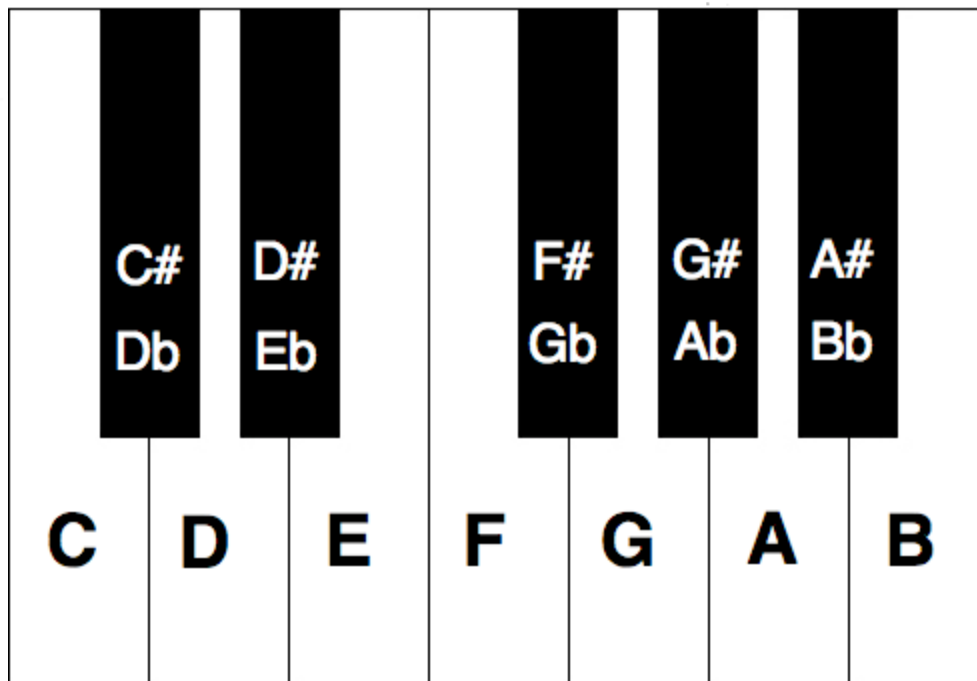


- A piano keys module will present with 3 musical symbols in the top indicator and a 12-note keyboard to input with.
- Each rule consists of one or more required symbol(s) and optional further requirements based on the bomb casing.
- Follow the list of rules down until one matches the criteria for the module; then execute the sequence of notes listed.
- A failed attempt will require re-entry of the entire note sequence.

Required Symbol(s)	Further Requirements	Note Sequence	
$\flat$	Last digit of serial number is even	$B\flat B\flat B\flat B\flat G\flat A\flat B\flat A\flat B\flat$	Final Fantasy
$C$ or $\sharp$	2 or more battery holders	$E\flat E\flat D D E\flat E\flat D E\flat E\flat D D E\flat$	Gui les Theme
$\natural$ and $\odot$	(No other requirements)	$E F\sharp F\sharp F\sharp F\sharp E E E$	James Bond
$\text{C}$ or $\sim$	RCA port is present	$B\flat A B\flat F E\flat B\flat A B\flat F E\flat$	Jurassi c
$\text{B}$	SND indicator is present and lit	$E E E C E G G$	Super Mario
$\text{w}$ or $\odot$ or $C$	3 or more batteries	$C\sharp D E F C\sharp D E F B\flat A$	Pi nk Panther
$\flat$ and $\sharp$	(No other requirements)	$G G C G G \text{C} G C$	Superman
$\text{C}$ or $\text{w}$	Serial number contains a 3, 7 or 8	$A E F G F E D D F A$	Tetri s Theme A
$\natural$ or $\sim$ or $\text{B}$	(No other requirements)	$G G G E\flat B\flat G E\flat B\flat G$	Empi re Strikes Back
(No requirement)	(No other requirements)	$B D A G A B D A$	Fai ry Theme

**Piano/Keyboard Reference**

Use the following graphic as a reference to how tones are mapped onto a standard 12-note piano/keyboard.



## On the Subject of Cruel Piano Keys

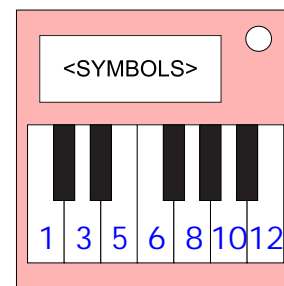
*The devil's interval approaches...*

*See Appendix A for indicator identification reference.*

*See Appendix B for battery identification reference.*

*See Appendix C for port identification reference.*

*See the third page for serialism & music terminology reference.*



- A cruel piano keys module will present with 4 musical symbols in the top indicator and a 12-note keyboard to input with.
- Each rule consists of one or more required symbol(s) and optional further requirements based on the bomb casing.
- Follow the list of rules down in **Table 2** until one matches the criteria for the module and bomb.
- Then use the lookup criteria to find the prime 12-tone row from **Table 1**.
- Then apply the according transformation from **Table 2** to the 12-tone row, and execute this final sequence.
- A failed attempt will require re-entry of the entire note sequence.

**Table 1.**

#	Prime 12-tone Sequence	#	Prime 12-tone Sequence
0	F D F# G# C B A# C# G E D# A	5	C D# F# D F C# B A G A# E G#
1	A# A C E C# D D# G B F# G# F	6	G# C A# C# E G B D# A D F F#
2	F# B A G# D C G C# F D# E A#	7	E A C# B G G# A# D# F# F C D
3	E D# D F# F A# G# C# C B G A	8	G# D# D E A# C# F# G F A C B
4	D E A A# C B C# G# F F# D# G	9	D# G# C B D C# F# A# F G A E

These are the  
inverses of the  
"tunes" above.

0: F G# E D A# B C A D# F# G C#

1: A# B G# E G F# F C# A D C D#

2: F# C# D# E A# C F B G A G# D

3: E F F# D D# A# C G G# A C# B

4: D C G F# E F D# G# B A# C# A

5: C A F# A# G B C# D# F D G# E

6: G# E F# D# C A F C# G D B A#

7: E B G A C# C A# F D D# G# F#

8: G# C# D C F# D# A# A B G E F

9: D# A# F# G E F C G# C# B A D

Table 2.

<u>Required Symbol(s)</u>	<u>Further Requirements</u>	<u>Lookup Index</u>	<u>Transformation</u>
and ~	2 or more indicators (lit or unlit)	Left-most digit in serial number	RI
# or ×	An empty port plate	Number of battery holders	P, transpose down by 'x' semitones, where 'x' = number of minutes remaining
⦿ or □	2 or more of a certain type of port	Least significant digit of number of completed modules	I
and ∕	2 or more port plates	9 minus the number of unlit indicators	R
¢ or C	Serial contains 1 or more vowels	Least significant digit of number of strikes	R, transpose down by 3 semitones
⌚ or ~	Even number of batteries	DVI-D present: 7 Otherwise: 3	P, transpose up by 'x' semitones, where 'x' = number of ports*
⌚ or {	An indicator with no vowels in the label	8	I
□ or ∕	Less than 2 ports	4	R
or ×	(No other requirements)	5	P
If none of these rules apply, revert back to the <u>Normal</u> Piano Keys ruleset and play the given note sequence normally.			

## Notes:

\*: The Stereo RCA port does not count as 2 separate ports; the Red & White connectors are part of the same singular port.

## Serialism & Music Terminology

To clarify, the note below a C would be a B, and similarly, the note after a B would be a C. The 12 tones on the piano essentially wrap around.

The Prime sequence (or 'P' for short), is the original or base form of the 12-tone row. No transformation takes place.

The Retrograde sequence (or 'R' for short), takes the Prime sequence, but executes it in reverse order. For example, the Retrograde of the Prime row A B C D E would be E D C B A.

The Inverse sequence (or 'I' for short), takes the Prime sequence, but the intervals between the notes are inverted. For example, take the interval from A to B; the interval is +2 semitones, as it takes you 2 semitones to get from A to B (A goes to A<sup>#</sup> then B). The inversion of this interval would be -2 semitones. Therefore, the inverted sequence would be A then G, as G is -2 semitones away from A (A goes to G<sup>#</sup> then G).

As an extended example, the Inversion of the Prime row A B C D E would be A G F<sup>#</sup> E D; the first note always remains the same, and all the other notes get inverted relative to that note.

The Retrograde Inverse sequence (or 'RI' for short), takes the Inverse sequence in Retrograde. For example, the Retrograde Inverse of the Prime row A B C D E would take the Inverse first (which is A G F<sup>#</sup> E D), and then the Retrograde of this Inverse would be D E F<sup>#</sup> G A.

Transpositions apply a translation of the tone row up or down by a given number of semitones. For example, the Prime row A B C D E transposed up by 1 semitone would be A<sup>#</sup> C C<sup>#</sup> D<sup>#</sup> F.

An Interval is the tonal distance between two distinct notes and is usually measured in semitones. For example, the interval from G to B is up 4 semitones.