



# BOMB DEFUSAL MANUAL

Version 1

Verification Code: 241

*Welcome to the dangerous and challenging world of bomb defusing.*

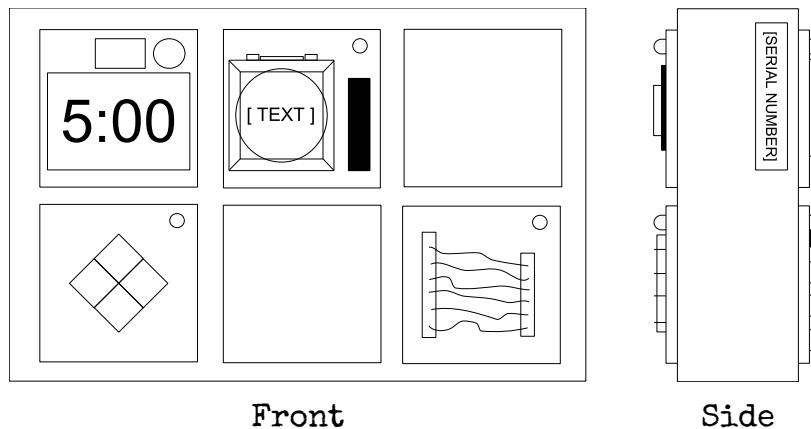
*Study this manual carefully; you are the expert. In these pages you will find everything you need to know to defuse even the most insidious of bombs.*

*And remember — One small oversight and it could all be over!*

# Defusing Bombs

A bomb will explode when its countdown timer reaches 0:00 or when too many strikes have been recorded. The only way to defuse a bomb is to disarm all of its modules before its countdown timer expires.

Example Bomb



## Modules

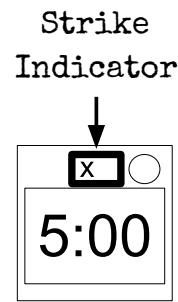
Each bomb will include up to 11 modules that must be disarmed. Each module is discrete and can be disarmed in any order.

Instructions for disarming modules can be found in Section 1. "Needy" modules present a special case and are described in Section 2.

## Strikes

When the Defuser makes a mistake the bomb will record a strike which will be displayed on the indicator above the countdown timer. Bombs with a strike indicator will explode upon the third strike. The timer will begin to count down faster after a strike has been recorded.

If no strike indicator is present above the countdown timer, the bomb will explode upon the first strike, leaving no room for error.



## Gathering Information

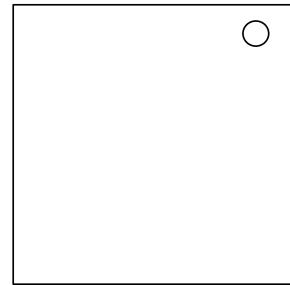
Some disarming instructions will require specific information about the bomb, such as the serial number. This type of information can typically be found on the top, bottom, or sides of the bomb casing. See Appendix A, B, and C for identification instructions that will be useful in disarming certain modules.

## Section 1: Modules

Modules can be identified by an LED in the top right corner.

When this LED is lit green the module has been disarmed.

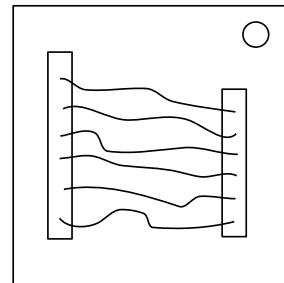
All modules must be disarmed to defuse the bomb.



## On the Subject of Wires

*Wires are the lifeblood of electronics! Wait, no, electricity is the lifeblood.  
Wires are more like the arteries. The veins? No matter...*

- A wire module can have 3–6 wires on it.
- Only the one correct wire needs to be cut to disarm the module.
- Wire ordering begins with the first on the top.



### 3 wires:

If there are no red wires, cut the second wire.

Otherwise, if the last wire is white, cut the last wire.

Otherwise, if there is more than one blue wire, cut the last blue wire.

Otherwise, cut the last wire.

### 4 wires:

If there is more than one red wire and the last digit of the serial number is odd, cut the last red wire.

Otherwise, if the last wire is yellow and there are no red wires, cut the first wire.

Otherwise, if there is exactly one blue wire, cut the first wire.

Otherwise, if there is more than one yellow wire, cut the last wire.

Otherwise, cut the second wire.

### 5 wires:

If the last wire is black and the last digit of the serial number is odd, cut the fourth wire.

Otherwise, if there is exactly one red wire and there is more than one yellow wire, cut the first wire.

Otherwise, if there are no black wires, cut the second wire.

Otherwise, cut the first wire.

### 6 wires:

If there are no yellow wires and the last digit of the serial number is odd, cut the third wire.

Otherwise, if there is exactly one yellow wire and there is more than one white wire, cut the fourth wire.

Otherwise, if there are no red wires, cut the last wire.

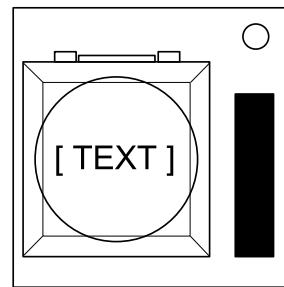
Otherwise, cut the fourth wire.

## On the Subject of The Button

You might think that a button telling you to press it is pretty straightforward. That's the kind of thinking that gets people exploded.

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.



Follow these rules in the order they are listed. Perform the first action that applies:

1. If the button is blue and the button says "Abort", hold the button and refer to "Releasing a Held Button".
2. If there is more than 1 battery on the bomb and the button says "Detonate", press and immediately release the button.
3. If the button is white and there is a lit indicator with label CAR, hold the button and refer to "Releasing a Held Button".
4. If there are more than 2 batteries on the bomb and there is a lit indicator with label FRK, press and immediately release the button.
5. If the button is yellow, hold the button and refer to "Releasing a Held Button".
6. If the button is red and the button says "Hold", press and immediately release the button.
7. If none of the above apply, hold the button and refer to "Releasing a Held Button".

### Releasing a Held Button

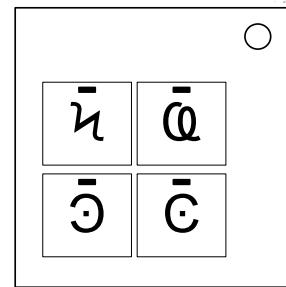
If you start holding the button down, a colored strip will light up on the right side of the module. Based on its color you must release the button at a specific point in time:

- Blue strip: release when the countdown timer has a 4 in any position.
- White strip: release when the countdown timer has a 1 in any position.
- Yellow strip: release when the countdown timer has a 5 in any position.
- Any other color strip: release when the countdown timer has a 1 in any position.

## On the Subject of Keypads

I'm not sure what these symbols are, but I suspect they have something to do with occult.

- Only one column below has all four of the symbols from the keypad.
- Press the four buttons in the order their symbols appear from top to bottom within that column.



|   |
|---|
| Q |
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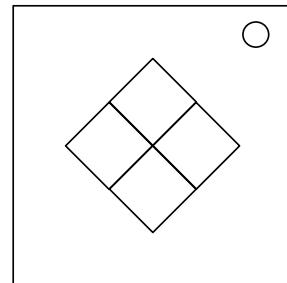
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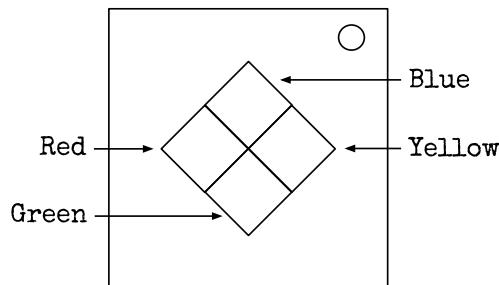
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## On the Subject of Simon Says

This is like one of those toys you played with as a kid where you have to match the pattern that appears, except this one is a knockoff that was probably purchased at a dollar store.



1. One of the four colored buttons will flash.
2. Using the correct table below, press the button with the corresponding color.
3. The original button will flash, followed by another. Repeat this sequence in order using the color mapping.
4. The sequence will lengthen by one each time you correctly enter a sequence until the module is disarmed.



If the serial number contains a vowel:

|                  |            | Red Flash | Blue Flash | Green Flash | Yellow Flash |
|------------------|------------|-----------|------------|-------------|--------------|
| Button to press: | No Strikes | Blue      | Red        | Yellow      | Green        |
|                  | 1 Strike   | Yellow    | Green      | Blue        | Red          |
|                  | 2 Strikes  | Green     | Red        | Yellow      | Blue         |

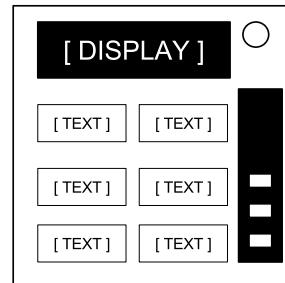
If the serial number does not contain a vowel:

|                  |            | Red Flash | Blue Flash | Green Flash | Yellow Flash |
|------------------|------------|-----------|------------|-------------|--------------|
| Button to press: | No Strikes | Blue      | Yellow     | Green       | Red          |
|                  | 1 Strike   | Red       | Blue       | Yellow      | Green        |
|                  | 2 Strikes  | Yellow    | Green      | Blue        | Red          |

## On the Subject of Who's on First

This contraption is like something out of a sketch comedy routine, which might be funny if it wasn't connected to a bomb. I'll keep this brief, as words only complicate matters.

1. Read the display and use step 1 to determine which button label to read.
2. Using this button label, use step 2 determine which button to push.
3. Repeat until the module has been disarmed.



### Step 1:

Based on the display, read the label of a particular button and proceed to step 2:

|          |        |         |         |         |         |
|----------|--------|---------|---------|---------|---------|
| YES      | FIRST  | DISPLAY | OKAY    | SAYS    | NOTHING |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
| BLANK    | NO     | LED     | LEAD    | READ    |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
| RED      | REED   | LEED    | HOLD ON | YOU     | YOU ARE |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
| YOUR     | YOU'RE | UR      | THERE   | THEY'RE | THEIR   |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
| THEY ARE | SEE    | C       | CEE     |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |
|          |        |         |         |         |         |

**Step 2:**

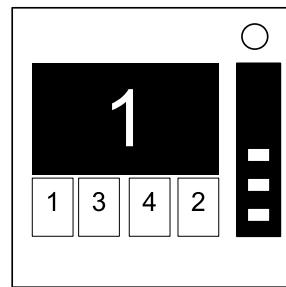
Using the label from step 1, push the first button that appears in its corresponding list:

|                   |   |
|-------------------|---|
| <b>"READY":</b>   | YES, OKAY, WHAT, MIDDLE, LEFT, PRESS, RIGHT, BLANK, READY, NO, FIRST, UHHH, NOTHING, WAIT |
| <b>"FIRST":</b>   | LEFT, OKAY, YES, MIDDLE, NO, RIGHT, NOTHING, UHHH, WAIT, READY, BLANK, WHAT, PRESS, FIRST |
| <b>"NO":</b>      | BLANK, UHHH, WAIT, FIRST, WHAT, READY, RIGHT, YES, NOTHING, LEFT, PRESS, OKAY, NO, MIDDLE |
| <b>"BLANK":</b>   | WAIT, RIGHT, OKAY, MIDDLE, BLANK, PRESS, READY, NOTHING, NO, WHAT, LEFT, UHHH, YES, FIRST |
| <b>"NOTHING":</b> | UHHH, RIGHT, OKAY, MIDDLE, YES, BLANK, NO, PRESS, LEFT, WHAT, WAIT, FIRST, NOTHING, READY |
| <b>"YES":</b>     | OKAY, RIGHT, UHHH, MIDDLE, FIRST, WHAT, PRESS, READY, NOTHING, YES, LEFT, BLANK, NO, WAIT |
| <b>"WHAT":</b>    | UHHH, WHAT, LEFT, NOTHING, READY, BLANK, MIDDLE, NO, OKAY, FIRST, WAIT, YES, PRESS, RIGHT |
| <b>"UHHH":</b>    | READY, NOTHING, LEFT, WHAT, OKAY, YES, RIGHT, NO, PRESS, BLANK, UHHH, MIDDLE, WAIT, FIRST |
| <b>"LEFT":</b>    | RIGHT, LEFT, FIRST, NO, MIDDLE, YES, BLANK, WHAT, UHHH, WAIT, PRESS, READY, OKAY, NOTHING |
| <b>"RIGHT":</b>   | YES, NOTHING, READY, PRESS, NO, WAIT, WHAT, RIGHT, MIDDLE, LEFT, UHHH, BLANK, OKAY, FIRST |
| <b>"MIDDLE":</b>  | BLANK, READY, OKAY, WHAT, NOTHING, PRESS, NO, WAIT, LEFT, MIDDLE, RIGHT, FIRST, UHHH, YES |
| <b>"OKAY":</b>    | MIDDLE, NO, FIRST, YES, UHHH, NOTHING, WAIT, OKAY, LEFT, READY, BLANK, PRESS, WHAT, RIGHT |
| <b>"WAIT":</b>    | UHHH, NO, BLANK, OKAY, YES, LEFT, FIRST, PRESS, WHAT, WAIT, NOTHING, READY, RIGHT, MIDDLE |
| <b>"PRESS":</b>   | RIGHT, MIDDLE, YES, READY, PRESS, OKAY, NOTHING, UHHH, BLANK, LEFT, FIRST, WHAT, NO, WAIT |
| <b>"YOU":</b>     | SURE, YOU ARE, YOUR, YOU'RE, NEXT, UH HUH, UR, HOLD, WHAT?, YOU, UH UH, LIKE, DONE, U     |
| <b>"YOU ARE":</b> | YOUR, NEXT, LIKE, UH HUH, WHAT?, DONE, UH UH, HOLD, YOU, U, YOU'RE, SURE, UR, YOU ARE     |
| <b>"YOUR":</b>    | UH UH, YOU ARE, UH HUH, YOUR, NEXT, UR, SURE, U, YOU'RE, YOU, WHAT?, HOLD, LIKE, DONE     |
| <b>"YOU'RE":</b>  | YOU, YOU'RE, UR, NEXT, UH UH, YOU ARE, U, YOUR, WHAT?, UH HUH, SURE, DONE, LIKE, HOLD     |
| <b>"UR":</b>      | DONE, U, UR, UH HUH, WHAT?, SURE, YOUR, HOLD, YOU'RE, LIKE, NEXT, UH UH, YOU ARE, YOU     |
| <b>"U":</b>       | UH HUH, SURE, NEXT, WHAT?, YOU'RE, UR, UH UH, DONE, U, YOU, LIKE, HOLD, YOU ARE, YOUR     |
| <b>"UH HUH":</b>  | UH HUH, YOUR, YOU ARE, YOU, DONE, HOLD, UH UH, NEXT, SURE, LIKE, YOU'RE, UR, U, WHAT?     |
| <b>"UH UH":</b>   | UR, U, YOU ARE, YOU'RE, NEXT, UH UH, DONE, YOU, UH HUH, LIKE, YOUR, SURE, HOLD, WHAT?     |
| <b>"WHAT?":</b>   | YOU, HOLD, YOU'RE, YOUR, U, DONE, UH UH, LIKE, YOU ARE, UH HUH, UR, NEXT, WHAT?, SURE     |
| <b>"DONE":</b>    | SURE, UH HUH, NEXT, WHAT?, YOUR, UR, YOU'RE, HOLD, LIKE, YOU, U, YOU ARE, UH UH, DONE     |
| <b>"NEXT":</b>    | WHAT?, UH HUH, UH UH, YOUR, HOLD, SURE, NEXT, LIKE, DONE, YOU ARE, UR, YOU'RE, U, YOU     |
| <b>"HOLD":</b>    | YOU ARE, U, DONE, UH UH, YOU, UR, SURE, WHAT?, YOU'RE, NEXT, HOLD, UH HUH, YOUR, LIKE     |
| <b>"SURE":</b>    | YOU ARE, DONE, LIKE, YOU'RE, YOU, HOLD, UH HUH, UR, SURE, U, WHAT?, NEXT, YOUR, UH UH     |
| <b>"LIKE":</b>    | YOU'RE, NEXT, U, UR, HOLD, DONE, UH UH, WHAT?, UH HUH, YOU, LIKE, SURE, YOU ARE, YOUR     |

## On the Subject of Memory

*Memory is a fragile thing but so is everything else when a bomb goes off, so pay attention!*

- Press the correct button to progress the module to the next stage. Complete all stages to disarm the module.
- Pressing an incorrect button will reset the module back to stage 1.
- Button positions are ordered from left to right.



### Stage 1:

If the display is 1, press the button in the second position.

If the display is 2, press the button in the second position.

If the display is 3, press the button in the third position.

If the display is 4, press the button in the fourth position.

### Stage 2:

If the display is 1, press the button labeled "4".

If the display is 2, press the button in the same position as you pressed in stage 1.

If the display is 3, press the button in the first position.

If the display is 4, press the button in the same position as you pressed in stage 1.

### Stage 3:

If the display is 1, press the button with the same label you pressed in stage 2.

If the display is 2, press the button with the same label you pressed in stage 1.

If the display is 3, press the button in the third position.

If the display is 4, press the button labeled "4".

### Stage 4:

If the display is 1, press the button in the same position as you pressed in stage 1.

If the display is 2, press the button in the first position.

If the display is 3, press the button in the same position as you pressed in stage 2.

If the display is 4, press the button in the same position as you pressed in stage 2.

### Stage 5:

If the display is 1, press the button with the same label you pressed in stage 1.

If the display is 2, press the button with the same label you pressed in stage 2.

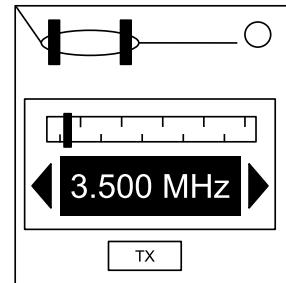
If the display is 3, press the button with the same label you pressed in stage 4.

If the display is 4, press the button with the same label you pressed in stage 3.

## On the Subject of Morse Code

An antiquated form of naval communication? What next? At least it's genuine Morse Code, so pay attention and you might just learn something.

- Interpret the signal from the flashing light using the Morse Code chart to spell one of the words in the table.
- The signal will loop, with a long gap between repetitions.
- Once the word is identified, set the corresponding frequency and press the transmit (TX) button.



### How to Interpret

- A short flash represents a dot.
- A long flash represents a dash.
- There is a long gap between letters.
- There is a very long gap before the word repeats.

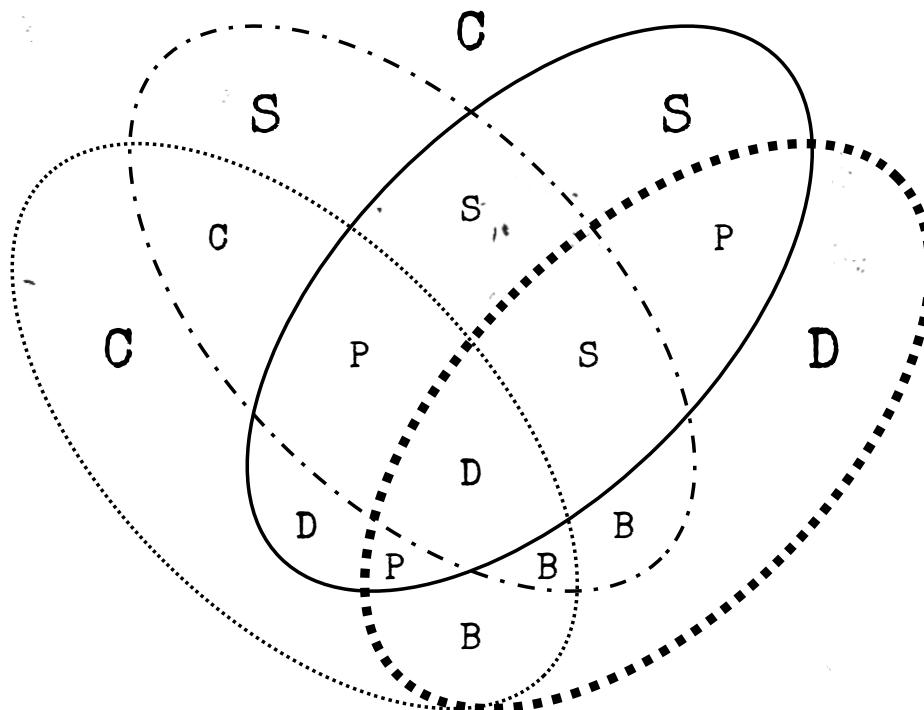
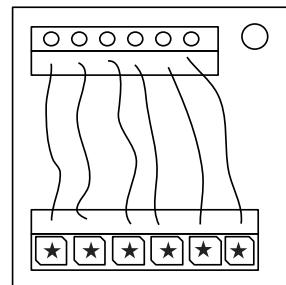
|   |           |   |                   |
|---|-----------|---|-------------------|
| A | ● -       | U | ● • -             |
| B | - - . .   | V | ● • • -           |
| C | - - . - . | W | ● - -             |
| D | - - . .   | X | - - . -           |
| E | .         | Y | - - . - -         |
| F | ● . - - . | 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 | ● - - . . . . . . |

| If the word is: | Respond at frequency: |
|-----------------|-----------------------|
| shell           | 3.505 MHz             |
| halls           | 3.515 MHz             |
| slick           | 3.522 MHz             |
| trick           | 3.532 MHz             |
| boxes           | 3.535 MHz             |
| leaks           | 3.542 MHz             |
| strobe          | 3.545 MHz             |
| bistro          | 3.552 MHz             |
| flick           | 3.555 MHz             |
| bombs           | 3.565 MHz             |
| break           | 3.572 MHz             |
| brick           | 3.575 MHz             |
| steak           | 3.582 MHz             |
| sting           | 3.592 MHz             |
| vector          | 3.595 MHz             |
| beats           | 3.600 MHz             |

## On the Subject of Complicated Wires

These wires aren't like the others. Some have stripes! That makes them completely different. The good news is that we've found a concise set of instructions on what to do about it! Maybe too concise...

- Look at each wire: there is an LED above the wire and a space for a ★ symbol below the wire.
- For each wire/LED/symbol combination, use the Venn diagram below to decide whether or not to cut the wire.
- Each wire may be striped with multiple colors.



|  |                        |
|--|------------------------|
|  | Wire has red coloring  |
|  | Wire has blue coloring |
|  | Has ★ symbol           |
|  | LED is on              |

| Letter | Instruction   |
|--------|---|
| C      | Cut the wire  |
| D      | Do not cut the wire   |
| S      | Cut the wire if the last digit of the serial number is even |
| P      | Cut the wire if the bomb has a parallel port                |
| B      | Cut the wire if the bomb has two or more batteries          |

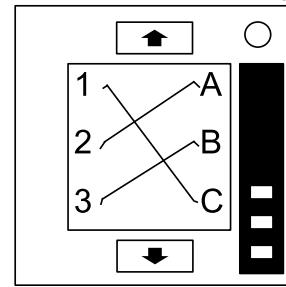
See Appendix B for battery identification reference.

See Appendix C for port identification reference.

## On the Subject of Wire Sequences

*It's hard to say how this mechanism works. The engineering is pretty impressive, but there must have been an easier way to manage nine wires.*

- Within this module there are several panels with wires on them, but only one panel is visible at a time. Switch to the next panel by using the down button and the previous panel by using the up button.
- Do not switch to the next panel until you are sure that you have cut all necessary wires on the current panel.
- Cut the wires as directed by the following table. Wire occurrences are cumulative over all panels within the module.

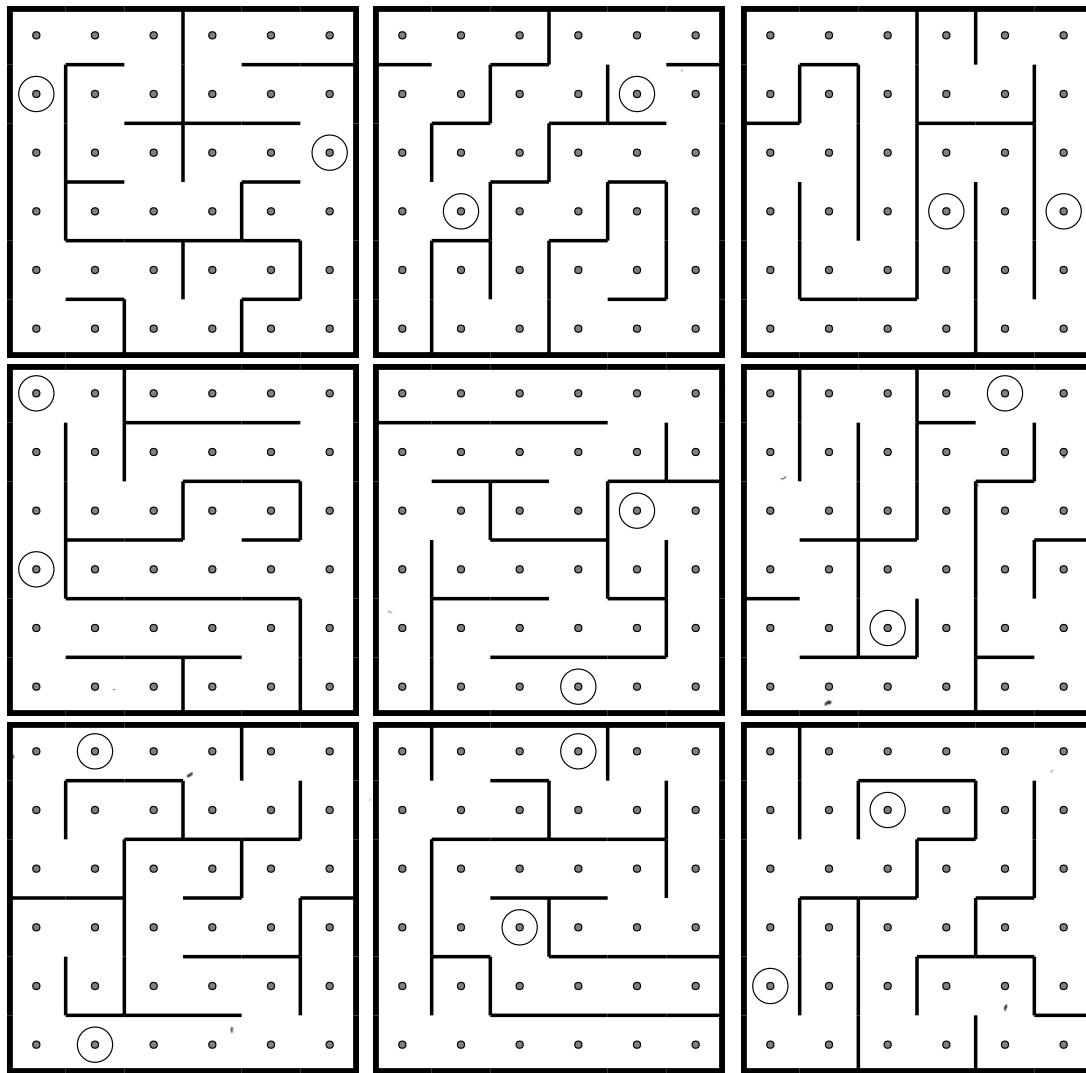
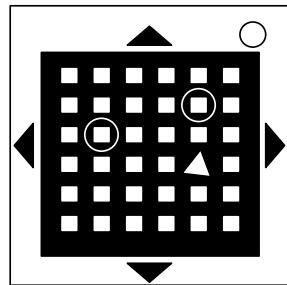


| Red Wire Occurrences   |                      | Blue Wire Occurrences   |                      | Black Wire Occurrences   |                      |
|------------------------|----------------------|-------------------------|----------------------|--------------------------|----------------------|
| Wire Occurrence        | Cut if connected to: | Wire Occurrence         | Cut if connected to: | Wire Occurrence          | Cut if connected to: |
| First red occurrence   | C                    | First blue occurrence   | B                    | First black occurrence   | A, B or C            |
| Second red occurrence  | B                    | Second blue occurrence  | A or C               | Second black occurrence  | A or C               |
| Third red occurrence   | A                    | Third blue occurrence   | B                    | Third black occurrence   | B                    |
| Fourth red occurrence  | A or C               | Fourth blue occurrence  | A                    | Fourth black occurrence  | A or C               |
| Fifth red occurrence   | B                    | Fifth blue occurrence   | B                    | Fifth black occurrence   | B                    |
| Sixth red occurrence   | A or C               | Sixth blue occurrence   | B or C               | Sixth black occurrence   | B or C               |
| Seventh red occurrence | A, B or C            | Seventh blue occurrence | C                    | Seventh black occurrence | A or B               |
| Eighth red occurrence  | A or B               | Eighth blue occurrence  | A or C               | Eighth black occurrence  | C                    |
| Ninth red occurrence   | B                    | Ninth blue occurrence   | A                    | Ninth black occurrence   | C                    |

## On the Subject of Mazes

*This seems to be some kind of maze, probably stolen off of a restaurant placemat.*

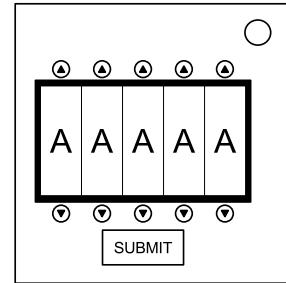
- Find the maze with matching circular markings.
- The defuser must navigate the white light to the red triangle using the arrow buttons.
- **Warning:** Do not cross the lines shown in the maze. These lines are invisible on the bomb.



## On the Subject of Passwords

Fortunately this password doesn't seem to meet standard government security requirements: 22 characters, mixed case, numbers in random order without any palindromes above length 3.

- The buttons above and below each letter will cycle through the possibilities for that position.
- Only one combination of the available letters will match a password below.
- Press the submit button once the correct word has been set.

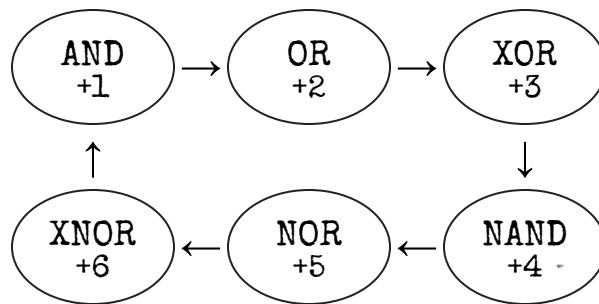
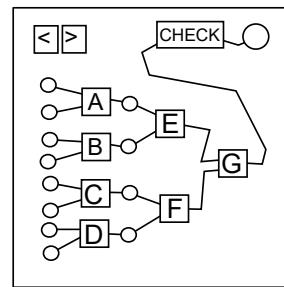


|       |       |       |       |       |
|-------|-------|-------|-------|-------|
| about | after | again | below | could |
| every | first | found | great | house |
| large | learn | never | other | place |
| plant | point | right | small | sound |
| spell | still | study | their | there |
| these | thing | think | three | water |
| where | which | world | would | write |

## On the Subject of Logic Gates

There are only 10 types of bomb experts: those who understand logic gates, and those who don't.

The module contains a circuit of 7 logic gates, lettered A through G. Logic gates are explained on the second page. The circuit has 8 inputs and 1 output. Determine all gate types and find an input configuration that will set the final output to on.



- The first row of 8 LEDs tell you the input states. The second row of 4 LEDs tell you the output states of gates A through D. Use the arrow buttons to cycle through different input configurations, and determine the gate types of the first four gates.
- One gate type will occur twice on the circuit, all others once. In the following rules, if the found gate type already occurs, and you already found the duplicate, continue taking single steps until you find an available gate type.
- To find the gate type of gate E:
  - Start at the gate type of gate A in the diagram above.
  - Take the  $+n$  number of the gate type of gate B. Take that many steps following the arrows.
- To find the gate type of gate F:
  - Start at the gate type of gate E in the diagram above.
  - Take the  $+n$  number of the gate type of gate C. Take that many steps.
- To find the gate type of gate G:
  - Start at the gate type of gate F in the diagram above.
  - Take the  $+n$  number of the gate type of gate D. Take that many steps.
- Once you've established all gate types, cycle to an input configuration that will set the final output to on. Press 'CHECK'. If the output is off, you've earned a strike.

A logic gate is an elementary building block of a digital circuit. Most logic gates have two inputs and one output. At any given moment, every input and every output is either off (0, false) or on (1, true).

There are seven basic logic gates: NOT, AND, OR, XOR, NAND, NOR and XNOR. The NOT gate has one input and one output. The others have two inputs and one output. Inputs are normally drawn on the left, outputs on the right.

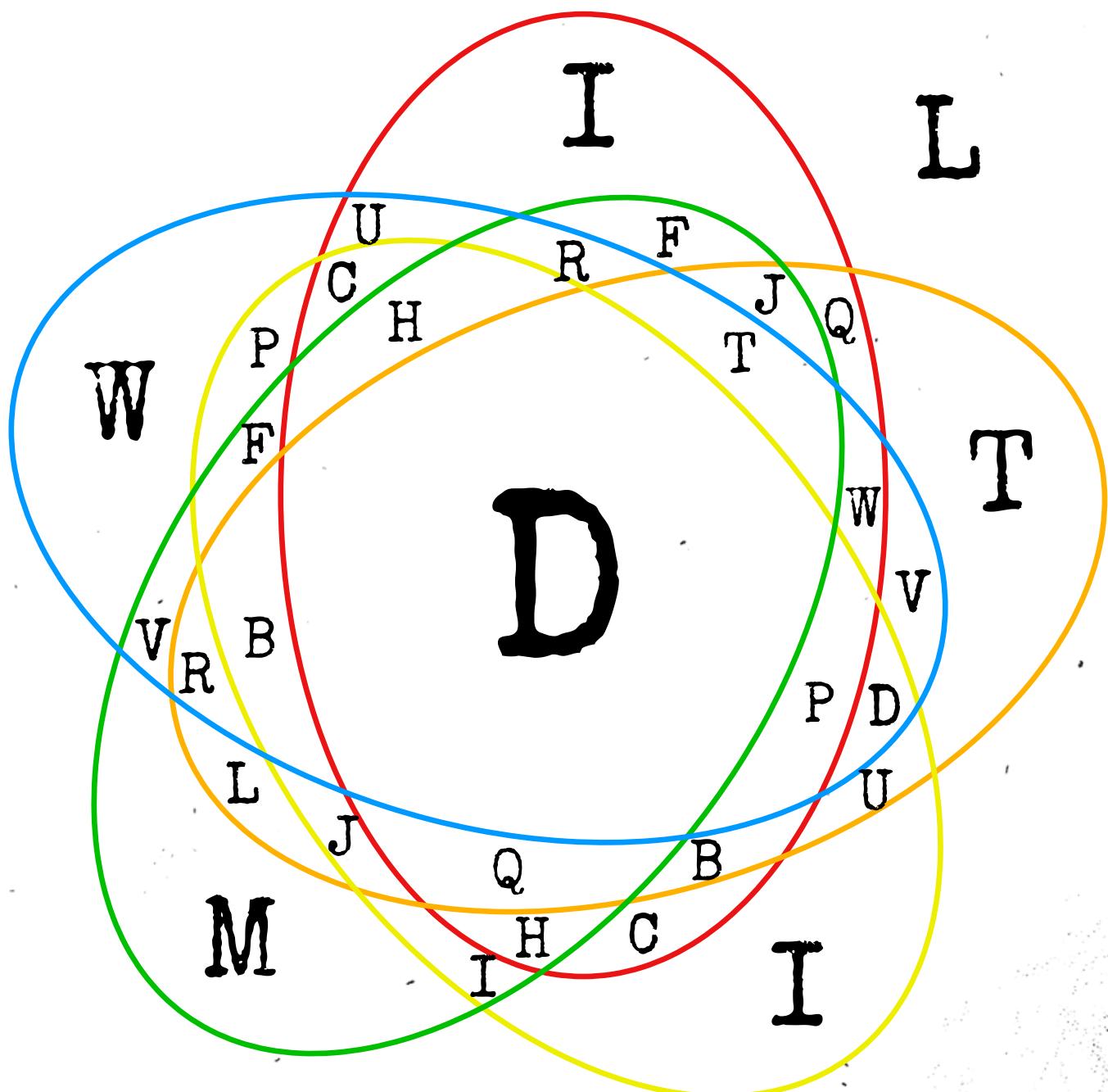
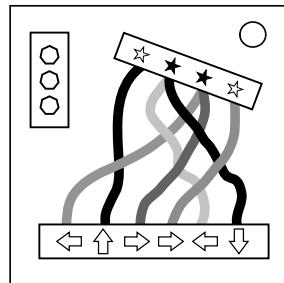
|      |   |
|------|---|
| NOT  | Has only one input. True becomes false, false becomes true. This gate will not be used on the module directly.  |
| AND  | When both inputs are true, the output is true. Otherwise, the output is false.  |
| OR   | When either or both inputs are true, the output is true. When both inputs are false, the output is false.   |
| XOR  | (Exclusive-OR) If either, but not both, inputs are true, the output is true. If neither or both inputs are true, the output is false.   |
| NAND | It operates as an AND gate followed by a NOT gate. When both inputs are true, the output is false. Otherwise, the output is true.   |
| NOR  | It operates as an OR gate followed by a NOT gate. When either or both inputs are true, the output is false. When both inputs are false, the output is true.                               |
| XNOR | (Exclusive-NOR) It operates as an XOR gate followed by a NOT gate. If either, but not both, inputs are true, the output is false. If neither or both inputs are true, the output is true. |

| INPUT |   | OUTPUT |    |     |      |     |      |
|-------|---|--------|----|-----|------|-----|------|
|       |   | AND    | OR | XOR | NAND | NOR | XNOR |
| 0     | 0 | 0      | 0  | 0   | 1    | 1   | 1    |
| 0     | 1 | 0      | 1  | 1   | 1    | 0   | 0    |
| 1     | 0 | 0      | 1  | 1   | 1    | 0   | 0    |
| 1     | 1 | 1      | 1  | 0   | 0    | 0   | 1    |

## On the Subject of Perplexing Wires

*Complicated Wires just isn't complicated enough.*

- Look at each wire: there is a “★” symbol above the wire and an arrow symbol below the wire, as well as three small LEDs on the side.
- For **each** wire, use the Venn diagram below to decide whether or not to cut the wire. The meanings of the colors and letters in the Venn diagram are described on the next page.



| Red                                      | Orange                                       | Yellow                    | Green                                      | Blue  |
|--|--|---------------------------|--|---|
| The wire is red, yellow, blue, or white. | The wire shares the same color as its arrow. | The wire's star is black. | The wire's position on the bottom is even. | The wire crosses another wire. <sup>[1]</sup> |

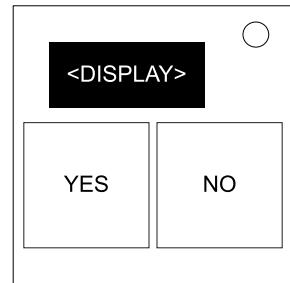
| Letter | Instruction  |
|--------|--|
| C      | Cut the wire.  |
| F      | Always cut the wire, but only cut it first.                                      |
| L      | Always cut the wire, but only cut it last.                                       |
| W      | Cut the wire if more of the LEDs are on than off.                                |
| T      | Cut the wire if the top LED is on.   |
| U      | Cut the wire if its arrow points up or down.                                     |
| M      | Cut the wire if the arrow points down or right.                                  |
| H      | Cut the wire if the wire shares a star with another wire.                        |
| P      | Cut the wire if its position at the bottom is equal to the number of ports.      |
| B      | Cut the wire if its position at the bottom is equal to the number of batteries.  |
| I      | Cut the wire if its position at the bottom is equal to the number of indicators. |
| Q      | Cut the wire if the color of the wire is unique.                                 |
| J      | Cut the wire if, at the bottom, it is adjacent to an orange or purple wire.      |
| V      | Cut the wire if the serial number has a vowel, or if the bomb has a USB port.    |
| R      | Cut the wire if its arrow direction is unique.                                   |
| D      | Do not cut the wire.   |

[1] Specifically, two wires are considered “crossing” if their top connectors (near the stars) are in the opposite order from their bottom connectors (near the arrows).

## On the Subject of Color Flash

*It's easy to identify colors. Red, Blue, Green, etc. Turns out it's a bit harder when you display a word color in a different color though...*

- A color flash module will repeatedly flash a sequence of 8 different words representing colors in different colors.
- The possible colors are Red, Yellow, Green, Blue, Magenta and White.
- There is also a Yes button and a No button on the module.
- Only one of the Yes and No buttons need to be pressed to disarm the module, but must be pressed at the correct time according to the rules below.
- The color of the last word in the sequence determines which set of rules to follow below.
- Follow the rules down from the top-most rule, down to the bottom-most rule for the block that applies to your module.



### The color of the last word in the sequence is Red:

If Green is used as the word at least three times in the sequence, press Yes on the third time Green is used as either the word or the color of the word in the sequence.

Otherwise, if Blue is used as the color of the word exactly once, press No when the word Magenta is shown.

Otherwise, press Yes the last time White is either the word or the color of the word in the sequence.

### The color of the last word in the sequence is Yellow:

If the word Blue is shown in Green color, press Yes on the first time Green is used as the color of the word.

Otherwise, if the word White is shown in either White or Red color, press Yes on the second time in the sequence where the color of the word does not match the word itself.

Otherwise, count the number of times Magenta is used as either the word or the color of the word in the sequence (the word Magenta in Magenta color only counts as one), and press No on the color in the total's position (e.g. a total of 4 means the fourth color in sequence).

Continuation of previous table...

**The color of the last word in the sequence is Green:**

If a word occurs consecutively with different colors, press No on the fifth entry in the sequence.

If Magenta is used as the word at least three times in the sequence, press No on the first time Yellow is used as either the word or the color of the word in the sequence.

Otherwise, press Yes on any color where the color of the word matches the word itself.

**The color of the last word in the sequence is Blue:**

If the color of the word does not match the word itself three times or more in the sequence, press Yes on the first time in the sequence where the color of the word does not match the word itself.

If the word Red is shown in Yellow color, or the word Yellow is shown in White color, press No when the word White is shown in Red color.

Otherwise, press Yes the last time Green is either the word or the color of the word in the sequence.

**The color of the last word in the sequence is Magenta:**

If a color occurs consecutively with different words, press Yes on the third entry in the sequence.

If the number of times the word Yellow appears is greater than the number of times that the color of the word is Blue, press No the last time the word Yellow is in the sequence.

Otherwise, press No on the first time in the sequence where the color of the word matches the word of the seventh entry in the sequence.

**The color of the last word in the sequence is White:**

If the color of the third word matches the word of the fourth word or fifth word, press No the first time that Blue is used as the word or the color of the word in the sequence.

If the word Yellow is shown in Red color, press Yes on the last time Blue is used as the color of the word.

Otherwise, press No.

## On the Subject of Cruel Piano Keys

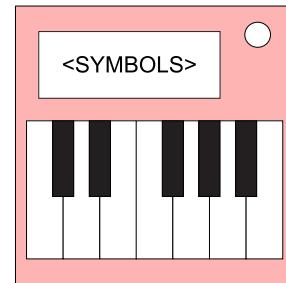
*The devil's interval approaches...*

*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 |

Table 2.

| <u>Required Symbol(s)</u>  | <u>Further Requirements</u>              | <u>Lookup Index</u>                                    | <u>Transformation</u>   |
|--|--|--|---|
| or ~   | 2 or more indicators (lit or unlit)      | Left-most digit in serial number                       | RI  |
| # or x   | 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   |
| or √   | 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<br>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 x   | (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:

\*: If the number of battery holders exceeds 9, continually subtract 10 until you have a result in the 0 to 9 range (inclusive).

†: If the result is negative, continually add 10 until you have a result in the 0 to 9 range (inclusive).

‡: 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.

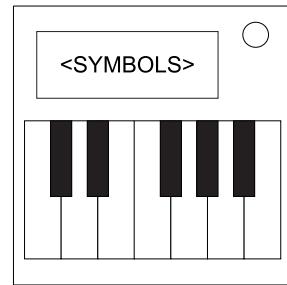
## On the Subject of Festive Piano Keys

*Let's all gather round for a family sing-a-long!*

*See Appendix A for indicator identification reference.*

*See Appendix B for battery identification reference.*

*See Appendix C for port identification reference.*



- A festive piano keys module will present with 3 musical symbols in the top indicator and a 12-note keyboard to input with; This will be different to the regular piano keys module by a different backing color.
- 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.

| <u>Required Symbol(s)</u> | <u>Further Requirements</u>                         | <u>Note Sequence</u>   |
|---------------------------|---|--|
| //                        | More even digits in the serial number than odd      | E♭ F E♭ C A♭ F E♭  |
| ♪ or ♪                    | Any duplicate characters or digits in serial number | C♯ B A F♯ G♯ A G♯ F♯   |
| ~ and *                   | (No other requirements)                             | G A G E G A G E  |
| ▼ or □                    | At most 2 types of port                             | E♭ E♭ D♭ A♭ E♭ E♭ F D♭   |
| ^                         | Lit indicator with vowel                            | B A G E♭ D A B A G   |
| ♪ or ♪                    | 3 or more AA batteries                              | F♯ G A A D B A G E D   |
| ○ and □                   | (No other requirements)                             | G E F G C B C D C B A G  |
| > or ^ or ▼               | Serial number contains 1 or 9                       | G G G G G G G B♭ E♭ F G  |
| ♪ or ♫ or //              | (No other requirements)                             | D D D C♯ C♯ C♯ B C♯ B F♯   |
| (No requirement)          | (No other requirements)                             | B♭ A B♭ G<br>(Play sequence <u>x</u> times, where <u>x</u> equals largest digit in serial + 1) |

## On the Subject of Piano Keys

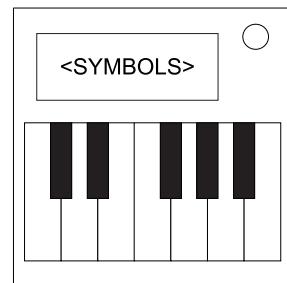
*What do you get when you drop a piano down a mine shaft? A flat minor.*

*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.*

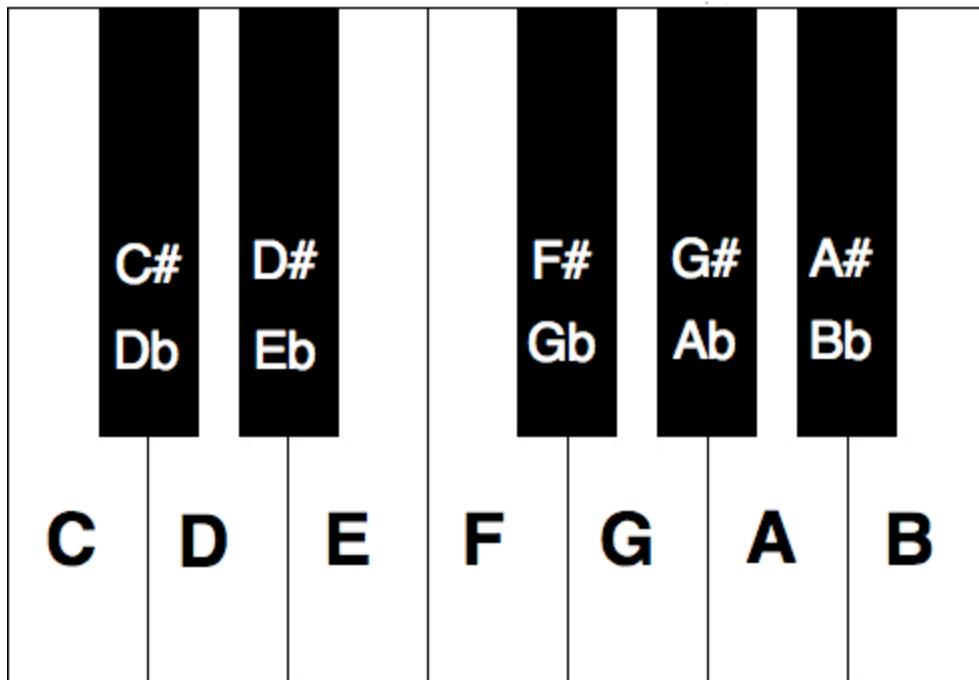


- A piano keys module will present with 3 musical symbols in the top indicator and a 12-note keyboard to input with.
- Each rule consists of one or more required symbol(s) and optional further requirements based on the bomb casing.
- Follow the list of rules down until one matches the criteria for the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

| <u>Required Symbol(s)</u> | <u>Further Requirements</u>         | <u>Note Sequence</u>           |
|---------------------------|-------------------------------------|--------------------------------|
| ♭                         | Last digit of serial number is even | B♭ B♭ B♭ B♭ G♭ A♭ B♭ A♭ B♭     |
| C or #                    | 2 or more battery holders           | E♭ E♭ D D E♭ E♭ D E♭ E♭ D D E♭ |
| ♯ and ○                   | (No other requirements)             | E F♯ F♯ F♯ F♯ E E E            |
| ∅ or ~                    | RCA port is present                 | B♭ A B♭ F E♭ B♭ A B♭ F E♭      |
|                           | SND indicator is present and lit    | E E E C E G G                  |
| ~ or ○ or C               | 3 or more batteries                 | C♯ D E F C♯ D E F B♭ A         |
| ♭ and #                   | (No other requirements)             | G G C G G C G C                |
| ∅ or ~                    | Serial number contains a 3, 7 or 8  | A E F G F E D D F A            |
| ♯ or ~ or                 | (No other requirements)             | G G G E♭ B♭ G E♭ B♭ G          |
| (No requirement)          | (No other requirements)             | B D A G A B D A                |

### Piano/Keyboard Reference

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

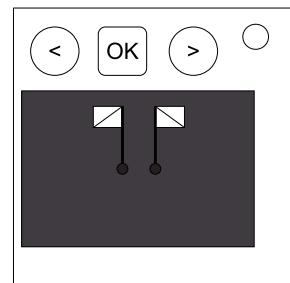


## On the Subject of Semaphore

*This module demands attention from the sea - unlucky for you the bomb's bone dry.*

*See the next page for semaphore reference.*

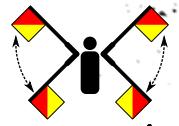
- A semaphore module will present with a previous button, a next button, an OK button and a semaphore indicator.
- Use the previous and next buttons to navigate through the semaphore sequence, starting from the left-most semaphore character to the right-most semaphore character.
- The semaphore sequence will contain some characters from the serial number on the bomb, but also includes one other character not present in the serial number.
- Navigate to the one and only character that is missing from the serial number, and then press the OK button.
- Control characters, such as 'Numerals', 'Letters', 'Error', 'Rest' and 'Cancel' are not considered as a valid answer.



## Semaphore Reference

Numbers are signalled by first signalling 'Numerals', then the numbers.  
 Similarly, letters are signalled by first signalling 'Letters', then the letters.

Use the following graphics as a reference to how to interpret semaphore characters.

|   |   |  |   |   |
|---|---|--|---|---|
| <br>Rest / Space | <br>Numerals | <br>Error / Attention | <br>A or 1 | <br>B or 2           |
| <br>C or 3       | <br>D or 4   | <br>E or 5            | <br>F or 6 | <br>G or 7           |
| <br>H or 8      | <br>I or 9   | <br>J or Letters      | <br>K or 0 | <br>L                |
| <br>M          | <br>N      | <br>O               | <br>P    | <br>Q              |
| <br>R          | <br>S      | <br>T               | <br>U    | <br>V              |
| <br>W          | <br>X      | <br>Y               | <br>Z    | <br>Cancel / Annul |

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## On the Subject of Emoji Math



*Math is easy. But is it easy when the numbers are in another language? Let's find out.*

Decipher the characters on the display into numbers and solve the answer to the question. Enter the answer with the keypad and press '=' to submit it. Use '-' to toggle the negative sign for negative answers. There's no delete button so press those buttons carefully!

For example: =(+=( translates to 1+1

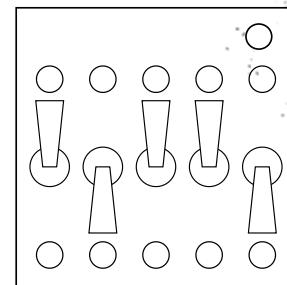
The answer to enter is 2.

| Character | Number |
|-----------|--------|
| :)        | 0      |
| =()       | 1      |
| (:        | 2      |
| )=        | 3      |
| :()       | 4      |
| ):        | 5      |
| =)        | 6      |
| (=        | 7      |
| :         | 8      |
| :         | 9      |

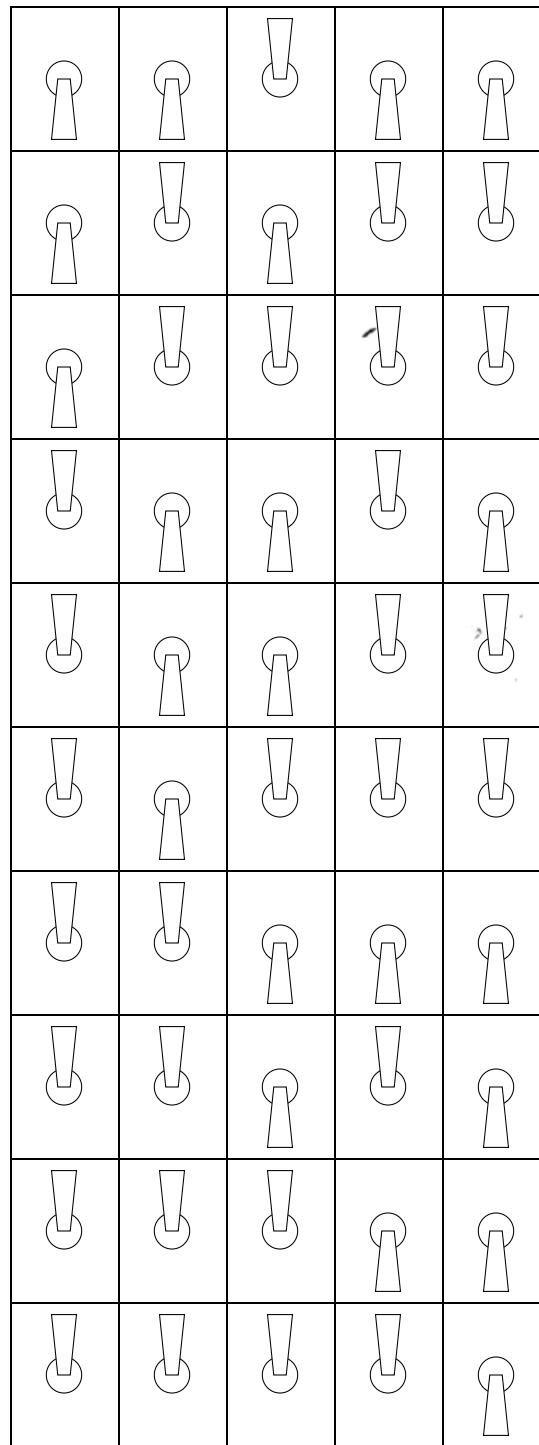
## On the Subject of Switches

*A yes or no choice isn't too bad. Unfortunately you have to make five of them and any of them could be your last.*

Switches need to be flipped to match the lit indicators either above or below them.



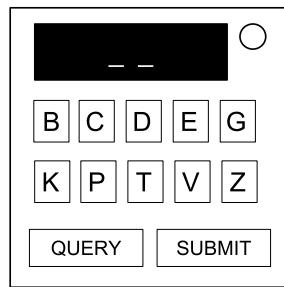
Avoid the following switch states:



## On the Subject of Two Bits

This poorly programmed lookup device is as maddening with its slow responses as it is unforgiving with ill-timed inputs. Patience required.

Query a series of two-letter codes to track down the correct answer before submitting it. This primitive lookup machine is intolerant to incomplete and excessive inputs, as well as any input while it is busy.



### Step 1: Determine Initial Code

If the serial number contains a letter, use the leftmost letter's numeric position in the alphabet as your base value (e.g. A=1, B=2). For no letters, use 0.

Add the last digit of the serial number multiplied by the number of batteries present.

If there is a Stereo RCA port present, double the current value.\*

This value\*\* is now the current code.

\* Note: Skip this step if there is also an RJ45 port present.

\*\* Note: Use the last two digits if the value is greater than 99. Prepend with a zero if less than 10.

### Step 2: Determine character pair and Perform Query

Using the current code, look up the character pair. Enter that pair into the device and press "Query".

|    | -0 | -1 | -2 | -3 | -4 | -5 | -6 | -7 | -8 | -9 |
|----|----|----|----|----|----|----|----|----|----|----|
| 0- | kb | dk | gv | tk | pv | kp | bv | vt | pz | dt |
| 1- | ee | zk | ke | ck | zp | pp | tp | tg | pd | pt |
| 2- | tz | eb | ec | cc | cz | zv | cv | gc | bt | gt |
| 3- | bz | pk | kz | kg | vd | ce | vb | kd | gg | dg |
| 4- | pb | vv | ge | kv | dz | pe | db | cd | td | cb |
| 5- | gb | tv | kk | bg | bp | vp | ep | tt | ed | zg |
| 6- | de | dd | ev | te | zd | bb | pc | bd | kc | zb |
| 7- | eg | bc | tc | ze | zc | gp | et | vc | tb | vz |
| 8- | ez | ek | dv | cg | ve | dp | bk | pg | gk | gz |
| 9- | kt | ct | zz | vg | gd | cp | be | zt | vk | dc |

### Step 3: Repeat and Submit

The response code from the device from the query in Step 2 is now your current code. Perform Step 2 an additional 2 times, using the new code each time.

After receiving the response code from the final query, look up the corresponding character pair, enter the pair into the device and press "Submit".

## On the Subject of Sword

*These letters are confusing. I think they're in the wrong order.*

The display shows a scrambled word. Decipher the word and punch it in to solve this module.

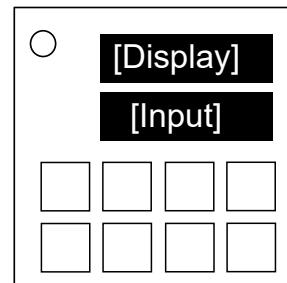
|                      |                       |                      |                      |
|----------------------|-----------------------|----------------------|----------------------|
| [Display]            | <input type="radio"/> |                      |                      |
| [Input]              |                       |                      |                      |
| <input type="text"/> | <input type="text"/>  | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | <input type="text"/>  | <input type="text"/> | <input type="text"/> |

## On the Subject of Anagrams

*Randomly punching in the letters will eventually give me another word. One of the arrangements must work, right?*

The display shows a word. Rearrange the letters to form another word. It's got to work. It just has to.

Note that the status light is on the top left of the module.

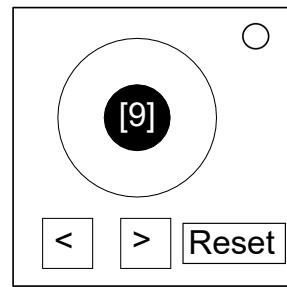


## On the Subject of Combination Locks

*This looks like a combination lock. I thought I was disarming this bomb, not unlocking it.*

*See Appendix B of original manual for battery identification reference.*

*See Appendix Two Factor for two factor identification reference.*



Like a typical combination lock, this requires 3 numbers to unlock. Turn the dial to the right to the first number. Then turn it to the left for the second number. Finally, turn it to the right for the last number. That will unlock it!

If sequential numbers in the code are the same, perform a full revolution back to the same number.

### How to decode the combination:

Each number ranges from 0-19. Refer to the table to determine each number. Be careful if there are two factor codes present because they change periodically!

#### First number:

1. Add the least significant digit of each two factor code together.
2. If there are no two factor codes, use the last digit of the serial number plus the number of solved modules.
3. Add the number of batteries.
4. Subtract 20 if the result is over 19.

#### Second number:

1. Add the most significant digit of each two factor code together.
2. If there are no two factor codes, use the number of modules on the bomb (including needy modules).
3. Add the number of solved modules.
4. Subtract 20 if the result is over 19.

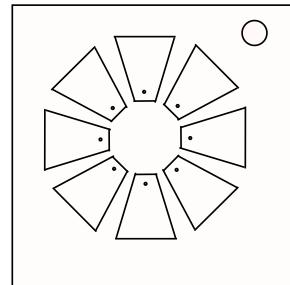
#### Third number:

1. Add the first two numbers together.
2. Subtract 20 if the result is over 19.

## On the Subject of Round Keypads

*I think someone tried to make this module look really cool, but failed.*

- The circular keypad contains 8 symbols from the columns below.
- Find the column below that contains the most symbols from the keypad.
- If two or more columns have the most symbols, use the right-most column.
- Press all buttons that have a symbol not present on the correct column.

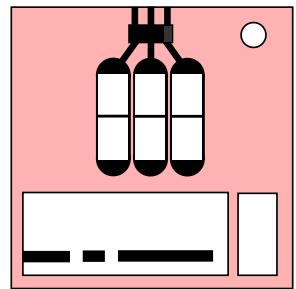


|   |   |   |   |   |   |
|---|---|---|---|---|---|
| Q | Ё | © | б | Ψ | б |
| А | Ӯ | Ӯ | Ҕ | Ҕ | Ӯ |
| Ӷ | Ҽ | Ҽ | Ҋ | Ҋ | ӷ |
| ӵ | Ӱ | Ӱ | Ҋ | Ҋ | Ӱ |
| Ҹ | ☆ | Ҹ | Ҹ | Ҹ | Ҹ |
| Ӵ | Ӵ | Ӵ | Ҋ | Ҋ | Ӵ |
| Ҵ | ˙ | ☆ | ˙ | ★ | Ω |

## On the Subject of Morseomatics

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

- Every letter of the alphabet is considered to have numeric value equal to its position (A=1, B=2 ... Z=26)
- Numeric values outside the 1-26 range wrap around ( $Z+1=A$ ,  $26+1=1$ )
- Three unique letters are being received on a loop, shown by the three flashing lights in the middle of the module
- To solve the module, a correct response letter must be sent in morse using the transmit button in the bottom-right
- The small switch at the top can be used to toggle the received letter lights



Transmitted morse is interpreted based on gaps between button holds.

Holding for more than double the length of the average gap is considered to be a dash, and anything shorter is considered a dot.

When transmitting, E and T are considered equal, as they are indistinguishable.

Take the 4th and 5th character of the serial number, this is your character pair.

Perform each step below in sequence, modifying your character pair progressively:

- For each indicator that has a matching letter in the received letters; add 1 to the first character of your pair if the indicator is on, or the second character if it is off
- If the sum of your character pair is a square number, add 4 to the first character; otherwise, subtract 4 from the second character
- Add the largest received letter to the first character in your pair
- If any received letters are prime, subtract them from the first character in your pair
- If any received letters are square, subtract them from the second character in your pair
- If batteries are present and any received letters are divisible by the number of batteries present, subtract those received letters from both characters in your pair

After performing all steps, perform whatever rule applies below:

- Characters are equal: Transmit the first character
- First character larger: Transmit the difference of the two characters
- Second character larger: Transmit the sum of the two characters

## 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 ● -  
 B - - . . .  
 C - - - .  
 D - - . .  
 E ●  
 F . . - - .  
 G - - - - .  
 H . . . . .  
 I . .  
 J ● - - - -  
 K - - . - -  
 L . - - . .  
 M - - -  
 N - - .  
 O - - - -  
 P . - - - .  
 Q - - - - . -  
 R . - - . .  
 S . . . .  
 T - -

U ● . . -  
 V ● . . - -  
 W ● - - -  
 X - - . . -  
 Y - - . - -  
 Z - - - - . .

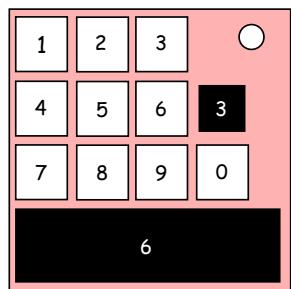
1 ● - - - - -  
 2 ● . - - - -  
 3 ● . . - - -  
 4 ● . . . - -  
 5 ● . . . . -  
 6 - - . . . .  
 7 - - - - . .  
 8 - - - - . . .  
 9 - - - - - .  
 0 - - - - - -

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

## On the Subject of Forget Me Not

*This one likes attention, but not too much attention.*

- The main display will update on each solved module\*. The current display stage is shown on the smaller display.
- Add the displayed number to the corresponding number gained from the chart below, and record the least significant digit from the total. This is the calculated number for that stage.
- When all other modules\* have been completed, the display will turn blank.
- Press the calculated numbers on the keypad in the order they were obtained.
- If an incorrect calculated number is entered, an LED will indicate what number was displayed.



### First number:

- If the bomb has an unlit CAR indicator, the number is 2.
- Otherwise, if the bomb has more unlit indicators than lit indicators, the number is 7.
- Otherwise, if the bomb has no unlit indicators, the number is the amount of lit indicators.
- Otherwise, the number is the last digit of the serial.

### Second number:

- If the bomb has a serial port and 3 or more digits in the serial, the number is 3.
- Otherwise, if the previous calculated number was even, the number is the previous calculated number plus 1.
- Otherwise, the number is the previous calculated number minus 1.

### All other numbers:

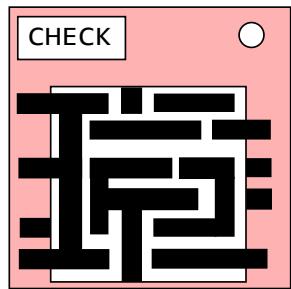
- If either of the previous two calculated numbers were 0, the number is the largest digit in the serial.
- Otherwise, if both of the previous two calculated numbers were even, the number is the smallest odd digit in the serial, or 9 if no such digit exists.
- Otherwise, the number is the most significant digit of the sum of the previous two calculated numbers.

\*Some modules are ignored by Forget Me Not modules.

## On the Subject of Plumbing

*I'd wash your hands after this one...*

- The module has 4 input pipes (left) and 4 output pipes (right). At least one input pipe and one output pipe will be active.
- The defuser must connect all active input pipes to all active output pipes, whilst taking care not to connect inactive pipes, using the 6 by 6 grid of pipes. Clicking on a pipe in the 6 by 6 grid will rotate it.
- All pipes connected to an active pipe must also correctly connect to other pipes. Any pipe with a connection not going into another pipe (or going into an inactive in/out pipe) will cause a strike upon checking the solution.
- Once the solution has been entered, press "CHECK" to verify the solution. An incorrect solution will cause a strike.
- Active input and output pipes are determined using the table below. If the pipe has more points for it than against, it is active.

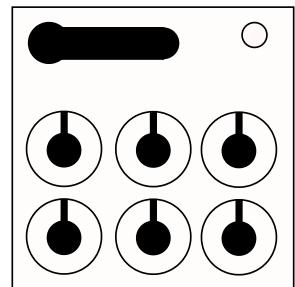


|  |   |
|--|---|
| <b>Red Input</b>   | <b>Yellow Input</b>   |
| <ul style="list-style-type: none"> <li>• For: Serial contains a '1'</li> <li>• For: Exactly 1 RJ45 port</li> <li>• Against: Any duplicate ports</li> <li>• Against: Any duplicate serial characters</li> </ul>                             | <ul style="list-style-type: none"> <li>• For: Serial contains a '2'</li> <li>• For: One or more Stereo RCA ports</li> <li>• Against: No duplicate ports</li> <li>• Against: Serial contains a '1' or 'L'</li> </ul>   |
| <b>Green Input</b>   | <b>Blue Input</b>   |
| <ul style="list-style-type: none"> <li>• For: Serial contains 3 or more numbers</li> <li>• For: One or more DVI-D ports</li> <li>• Against: Red Input is inactive</li> <li>• Against: Yellow Input is inactive</li> </ul>                  | <ul style="list-style-type: none"> <li>• Note: Always active if all other inputs are inactive</li> <li>• For: At least 4 port types</li> <li>• For: At least 4 batteries</li> <li>• Against: No ports</li> <li>• Against: No batteries</li> </ul>                           |
| <b>Red Output</b>  | <b>Yellow Output</b>  |
| <ul style="list-style-type: none"> <li>• For: One or more Serial ports</li> <li>• For: Exactly one battery</li> <li>• Against: Serial contains more than 2 numbers</li> <li>• Against: More than 2 inputs are active</li> </ul>            | <ul style="list-style-type: none"> <li>• For: Any duplicate ports</li> <li>• For: Serial contains a '4' or '8'</li> <li>• Against: Serial doesn't contain a '2'</li> <li>• Against: Green Input is active</li> </ul>  |
| <b>Green Output</b>  | <b>Blue Output</b>  |
| <ul style="list-style-type: none"> <li>• For: Exactly 3 inputs are active</li> <li>• For: Exactly 3 ports are present</li> <li>• Against: Less than 3 ports are present</li> <li>• Against: Serial contains more than 3 numbers</li> </ul> | <ul style="list-style-type: none"> <li>• Note: Always active if all other outputs are inactive</li> <li>• For: All inputs are active</li> <li>• For: Any other output is inactive</li> <li>• Against: Less than 2 batteries</li> <li>• Against: No Parallel port</li> </ul> |

## On the Subject of the Safety Safe

*This safe either contains immense riches, or is empty.*

- All 6 dials must be oriented correctly to solve the module.
- Each dial has a tell, where it clicks louder. This is the starting location for each dial.
- Follow the rules below to determine how far to rotate each dial after the starting location.
- Turn the lever to check the solution. Any correct dials are indicated with a green light, and any incorrect dials are indicated with a red light.
- Starting at 0, add the number of port types on the bomb, multiplied by 7.
- Add the number of lit indicators with a matching letter in the serial, multiplied by 5.
- Add the number of unlit indicators with a matching letter in the serial.
- For the first five dials, add the number obtained from the table on the next page, using both the location of the dial and the serial number as reference.
- For the last dial, add the sum of the numbers in the last column using all characters in the serial number as a reference.
- Note: A full rotation takes 12 turns.

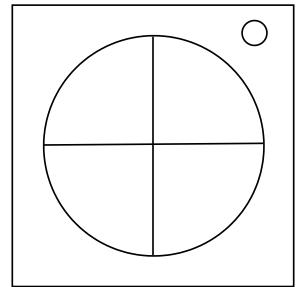


| Dial   |        |       |        |        |       |
|--------|--------|-------|--------|--------|-------|
| Top    |        |       | Bottom |        |       |
| Left   | Middle | Right | Left   | Middle | Right |
| Serial |        |       |        |        |       |
| First  | Second | Third | Fourth | Fifth  | All   |
| A      | 8      | 3     | 4      | 8      | 9 0   |
| B      | 10     | 1     | 3      | 7      | 3 8   |
| C      | 2      | 1     | 1      | 5      | 3 6   |
| D      | 11     | 6     | 11     | 11     | 7 7   |
| E      | 0      | 5     | 5      | 8      | 2 1   |
| F      | 4      | 2     | 7      | 7      | 1 5   |
| G      | 7      | 4     | 4      | 2      | 10 5  |
| H      | 8      | 3     | 6      | 6      | 6 5   |
| I      | 0      | 11    | 0      | 0      | 9 10  |
| J      | 2      | 11    | 8      | 0      | 5 6   |
| K      | 5      | 2     | 5      | 1      | 0 4   |
| L      | 1      | 9     | 8      | 11     | 11 11 |
| M      | 1      | 7     | 9      | 5      | 6 2   |
| N      | 9      | 5     | 1      | 4      | 4 9   |
| O      | 5      | 9     | 8      | 10     | 2 8   |
| P      | 3      | 10    | 9      | 1      | 9 7   |
| Q      | 4      | 10    | 6      | 1      | 4 8   |
| R      | 8      | 0     | 4      | 0      | 6 11  |
| S      | 9      | 4     | 0      | 6      | 3 10  |
| T      | 7      | 6     | 7      | 11     | 5 3   |
| U      | 11     | 9     | 6      | 3      | 11 1  |
| V      | 11     | 11    | 2      | 8      | 1 0   |
| W      | 6      | 0     | 11     | 6      | 11 2  |
| X      | 4      | 2     | 7      | 2      | 8 10  |
| Y      | 10     | 7     | 10     | 10     | 8 9   |
| Z      | 3      | 7     | 1      | 10     | 0 4   |
| 0      | 7      | 0     | 3      | 5      | 8 6   |
| 1      | 9      | 10    | 10     | 9      | 1 2   |
| 2      | 2      | 5     | 11     | 7      | 7 3   |
| 3      | 10     | 8     | 10     | 4      | 10 4  |
| 4      | 6      | 8     | 0      | 3      | 5 0   |
| 5      | 6      | 3     | 3      | 3      | 0 11  |
| 6      | 1      | 1     | 5      | 2      | 7 3   |
| 7      | 0      | 6     | 2      | 4      | 2 1   |
| 8      | 5      | 4     | 9      | 9      | 10 7  |
| 9      | 3      | 8     | 2      | 9      | 4 9   |

## On the Subject of Simon States

*I'm not sure this even qualifies as Simon Says...*

- One or more colours will flash per stage.
- Each stage will also show the colours of previous stages.
- The current sequence will repeat after a short delay.
- When the sequence repeats, your input is not reset.
- If you press an incorrect button, your input is reset.
- Using the table on the next page, press the correct colour for each stage to advance.
- When a rule asks for colour priorities, use the table below to determine the correct colour.
- When colourblind mode is enabled, shapes will be present on the buttons to help distinguish them.



| Priority | Top-Left Button Colour |          |          |          |
|----------|------------------------|----------|----------|----------|
|          | ■ Red                  | ▲ Yellow | ● Green  | ★ Blue   |
| Highest  | ■ Red                  | ★ Blue   | ● Green  | ▲ Yellow |
| High     | ★ Blue                 | ▲ Yellow | ■ Red    | ● Green  |
| Low      | ● Green                | ■ Red    | ▲ Yellow | ★ Blue   |
| Lowest   | ▲ Yellow               | ● Green  | ★ Blue   | ■ Red    |

*Note: Symbols are only visible on the module if colourblind mode is enabled.*

### Stage 1

- If one colour flashed, press that colour.
- Otherwise, if two colours flashed and one was ★blue, press the highest priority colour that flashed.
- Otherwise, if two colours flashed, press ★blue.
- Otherwise, if three colours flashed including ■ red, press the lowest priority colour that flashed.
- Otherwise, if three colours flashed, press ■ red.
- Otherwise, press the second highest priority colour.

### Stage 2

- If only ■ red and ★blue flashed, press the highest priority colour that didn't flash.
- Otherwise, if two colours flashed, press the lowest priority colour that didn't flash.
- Otherwise, if one colour flashed and it was not ★blue, press ★blue.
- Otherwise, if one colour flashed, press ▲ yellow.
- Otherwise, if all colours flashed, press the same colour as stage 1.
- Otherwise, press the colour that didn't flash.

### Stage 3

- If three colours flashed and at least one was pressed in a previous stage, press the highest priority colour that flashed and hasn't been pressed.
- Otherwise, if three colours flashed, press the highest priority colour that flashed.
- Otherwise, if two colours flashed and both have been pressed, press the lowest priority colour that didn't flash.
- Otherwise, if two colours flashed, press the same colour as stage 1.
- Otherwise, if one colour flashed, press that colour.
- Otherwise, press the second lowest priority colour.

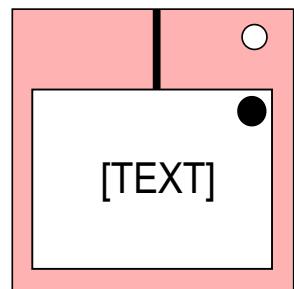
### Stage 4

- If three unique colours have been pressed, press the fourth colour.
- Otherwise, if three colours flashed and exactly one hasn't been pressed, press that colour.
- Otherwise, if at least three colours flashed, press the lowest priority colour.
- Otherwise, if one colour flashed, press that colour.
- Otherwise, press • green.

## On the Subject of The Square Button

*This may look like the button you know and love, but don't be fooled! It's a brilliantly disguised imposter foiled only by a single mistake: It's the wrong shape.*

Follow these rules in the order they are listed. Perform the first action that applies:



1. If the button is blue and the number of AA batteries is larger than the number of D batteries, hold the button and refer to "Releasing a Held Button".
2. If the button is yellow or blue and has as at least as many letters on the label as the highest number in the serial, press and immediately release.
3. If the button is yellow or blue and the label states a colour, hold the button and refer to "Releasing a Held Button".
4. If the button has no label, press and immediately release when the two seconds digits on the timer match.
5. If the button is not dark grey and the number of letters on the label is larger than the number of lit indicators, press and immediately release.
6. If there are at least 2 unlit indicators and the serial contains a vowel, press and immediately release.
7. If no other rule applies, hold the button and refer to "Releasing a Held Button".

### Releasing a Held Button

If you start holding the button down, a coloured LED will light up on the right side of the button case. Based on its colour, follow the rules below:

- Cyan: Release when the two seconds digits add up to 7.
- Orange: Release when the two seconds digits add up to 3 or 13.
- Other: Release when the two seconds digits add up to 5.

If the LED is flickering, follow these rules instead:

- Cyan: Release when the number of seconds remaining is a multiple of 7.
- Orange: Release when the number of seconds displayed is either prime or 0.
- Other: Release one second after the two seconds digits add up to a multiple of 4.

## On the Subject of Foreign Exchange Rates

*If bombs were stock brokers...*

Defusing this module requires the expert to have a device that can connect to the World Wide Web.

|   |   |   |
|---|---|---|
| G | B | P |
| U | S | D |
| 1 | 2 | 3 |

This module has the ability to connect to the internet and query the state of foreign exchange rates. There should be a three times three grid of keys, each with a light emitting diode. DO NOT PRESS ANY KEY ON THIS MODULE WHILE THE LIGHT EMITTING DIODES ARE FLASHING IN SEQUENCE.

The keys are grouped by rows:

Top row: ISO 4217 alphabetic code for the base currency.[1][2]

Middle row: ISO 4217 alphabetic code for the target currency.[1][2]

Bottom row: Value of currency to convert.

### All light emitting diodes have turned green:

Enter the following uniform resource locator into your internet capable device:

<http://api.fixer.io/latest?base=XXX&symbols=YYY>

Replace XXX with the ISO 4217 alphabetic code for the base currency.

Replace YYY with the ISO 4217 alphabetic code for the target currency.

You will receive data in a Javascript object notation format, look for {"YYY": NUMBER}, where NUMBER will be the exchange rate. Using the exchange rate, convert the number in the bottom row to the target currency, round that number down and take note of the 2nd digit from the left[4]. Press the Nth key where N is the noted number (count keys from left to right, top to bottom)[5].

### All light emitting diodes have turned red:

In this case the module failed to query today's currency rates. Get the ISO 4217 numeric code for the target currency's country and take note the 2nd digit from the right. Press the Nth key where N is the noted number (count keys from left to right, top to bottom)[5].

[1]: If there is more than one battery on the bomb, the base currency code and target currency code is swapped.

[2]: This may instead be the ISO 4217 numeric code.

[3]: Note the currency rates are updated around 4PM CET.

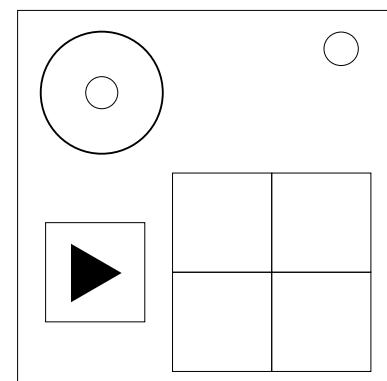
[4]: In the case the converted currency is less than 10, the noted number is 0.

[5]: In the case the noted number is 0, press the top left key.

## On the Subject of Listening

"Why did we send a deaf person to defuse a bomb?" – Person who is no longer alive.

Press the play button to play a sound clip through the speaker. Each sound clip has a corresponding code that contains any of the four symbols \$ \* & #. Match the sound clip to the table below and enter the code via the four button keypad.



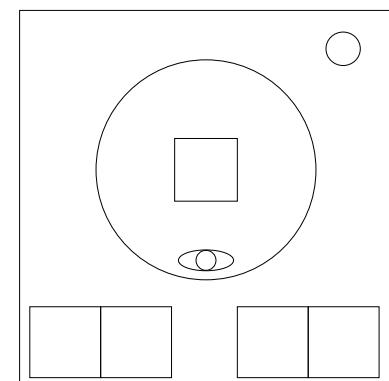
|                    |           |                       |           |
|--------------------|-----------|-----------------------|-----------|
| Taxi Dispatch      | &&&**     | Dial-up Internet      | *#&*&     |
| Cow                | &\$#\$\$& | Police Radio Scanner  | **###     |
| Extractor Fan      | \$#\$\$*& | Censorship Bleep      | &&\$&*    |
| Train Station      | #\$\$**   | Medieval Weapons      | &\$**&    |
| Arcade             | \$#\$\$#* | Door Closing          | #\$#&\$   |
| Casino             | **\$*#    | Chainsaw              | &#&&#     |
| Supermarket        | #\$\$&*   | Compressed Air        | \$\$*\$*  |
| Soccer Match       | ##\$*\$   | Servo Motor           | \$&\$\$\$ |
| Tawny Owl          | \$#*\$&   | Waterfall             | &**\$\$   |
| Sewing Machine     | #&&*#     | Tearing Fabric        | \$&&*&    |
| Thrush Nightingale | **#**     | Zipper                | &\$&##    |
| Car Engine         | &#**&     | Vacuum Cleaner        | #&\$*&    |
| Reloading Glock 19 | \$&**#    | Ballpoint Pen Writing | \$*\$\$** |
| Oboe               | &\$\$##   | Rattling Iron Chain   | *#\$&&    |
| Saxaphone          | \$&&**    | Book Page Turning     | ###&\$    |
| Tuba               | #&\$##    | Table Tennis          | *\$\$&\$  |
| Marimba            | &*\$*\$   | Squeeky Toy           | \$*&##    |
| Phone Ringing      | &\$\$&*   | Helicopter            | #&\$&&    |
| Tibetan Nuns       | #&&&&     | Firework Exploding    | \$&\$\$*  |
| Throat Singing     | **\$\$    | Glass Shattering      | *\$*\$\$  |
| Beach              | *&*&&     |                       |           |

Note: pressing play also clears whatever code you have entered.

## On the Subject of Orientation

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

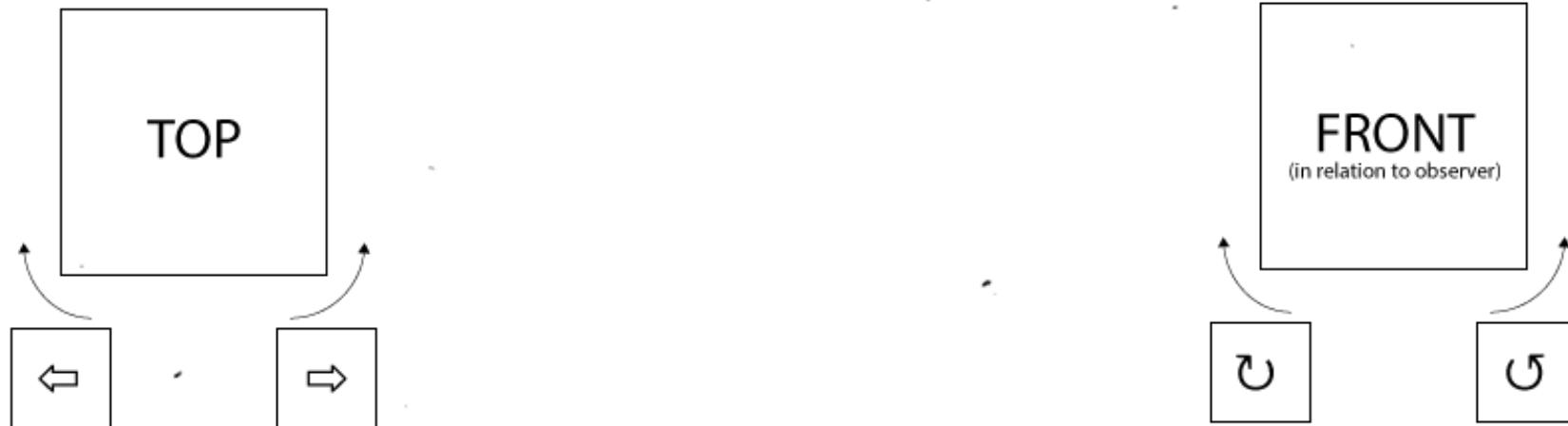
In order to diffuse this part of the bomb you will need good 3D orientation skills. A virtual cube needs to be rotated into a specific orientation using the four keys along the bottom. Unfortunately there is no display to indicate the current orientation of the virtual cube so you will have to imagine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

### 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.

### 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.

### 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.

**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.

**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.

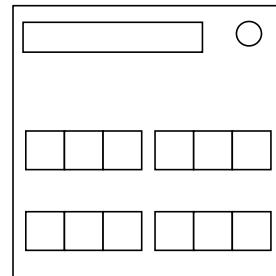
**On a strike:**

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 observer is now in a different position.

## On the Subject of Connection Check

*What is this, some kind of circuit visualization? I don't even care anymore...*

- This module contains 4 number pairs placed on each side of 4 LEDs and a "Check" button.
- To disarm this module, you must follow these steps:



1. Find out in which chart you will be looking for connections, using the rules given below.
2. For each LED look at the numbers on each side of it and check if there is a line connecting the circles denoted with those numbers in the right chart.
3. If there is such a connection, switch the LED to GREEN, otherwise switch it to RED.
4. Press the "CHECK" button. If LED positions are correct, the module will disarm. Otherwise the bomb will register a strike.

*To determine the right chart on the next page you will need a character of the bomb's serial number. Use the following rules to find out which character you need. Then, on the next page, search for that character in the codes that label the charts. The chart with a code containing your character is the chart you are looking for.*

If all of the numbers on this module are **distinct**, use the **last** character of the serial number.

Otherwise, if there is **more than one "1"** on the module, look at the **first** character of the serial number.

Otherwise, if there is **more than one "7"** on the module, look at the **last** character of the serial number.

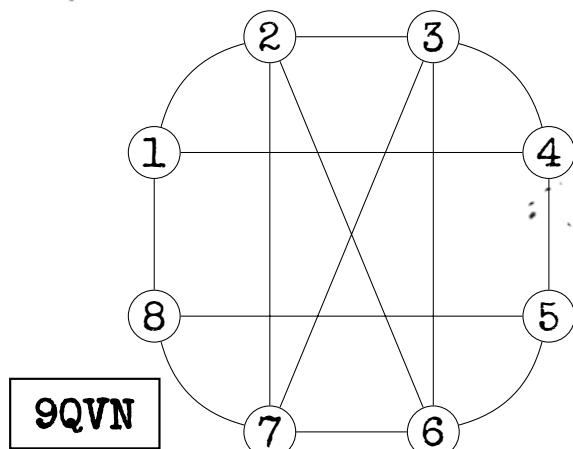
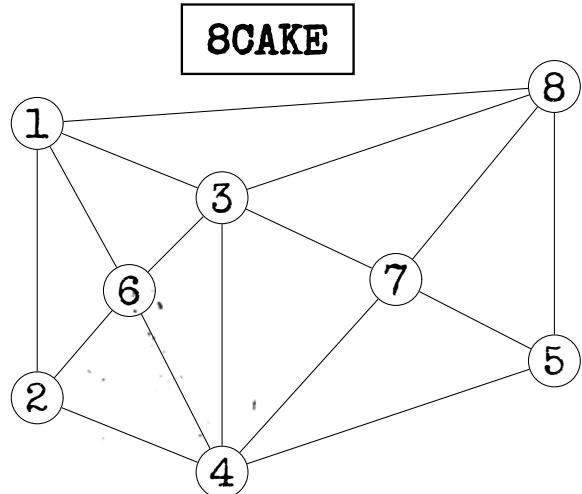
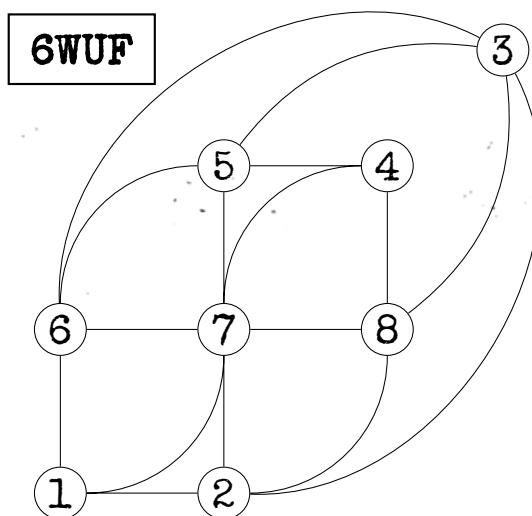
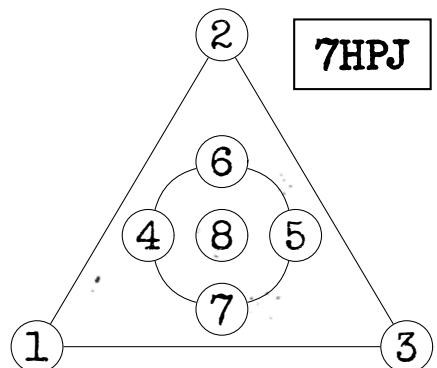
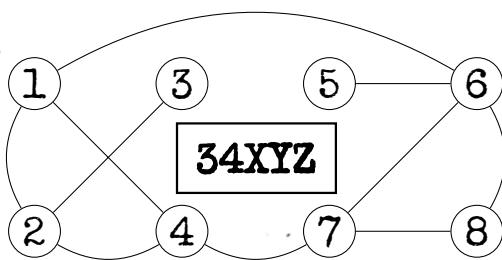
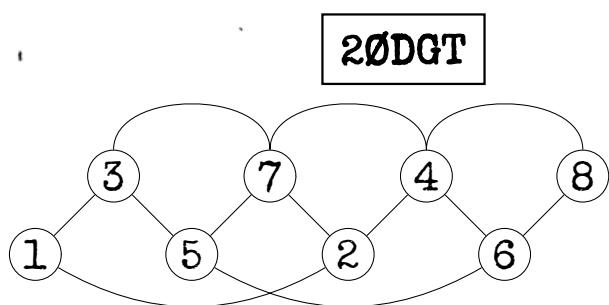
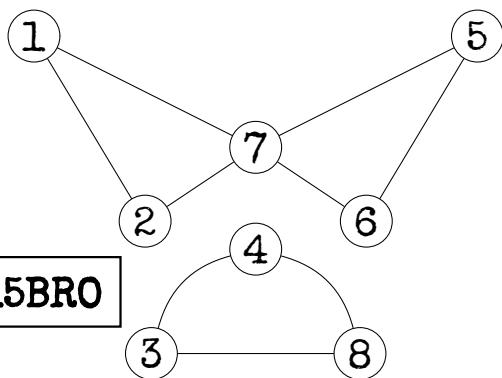
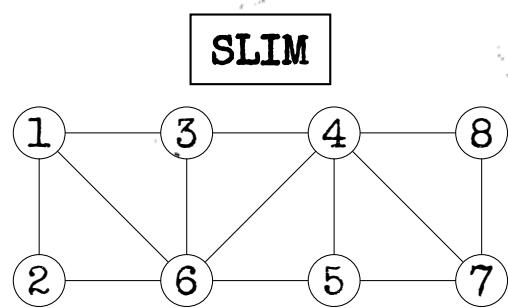
Otherwise, if there are **at least three "2"** on the module, look at the **second** character of the serial number.

Otherwise, if there is **no "5"** on the module, look at the **fifth** character of the serial number.

Otherwise, if there are **exactly two "8"**s on the module, look at the **third** character of the serial number.

Otherwise, if there are **more than 6 batteries** or **no batteries** on the bomb, look at the **last** character of the serial number.

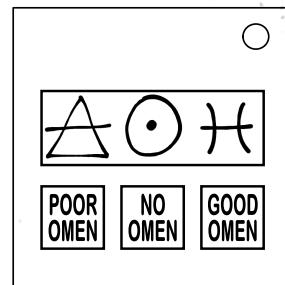
Otherwise, **count the number of batteries** on the bomb. Use that number to decide which character of the serial number you should look at. E.g.: if there are 3 batteries, look at the third character of the serial number.



## On the Subject of Astrology

Sometimes, the stars have it out for you. Is this bomb a good or a poor omen?

- Your fortune reading consists of the alchemical symbols of a classical element, a celestial body, and a zodiac sign.
- Calculate the Omen score of this reading:
- For each pair of symbols, look up their relationship value in the tables below, and add to the Omen score.
- For each symbol, if the english name of the symbol has a letter in common with the serial number of the bomb, add 1 to the Omen score.
- Subtract 1 from the Omen score for each symbol without a letter in common with the serial number.
- If the Omen score is positive, press GOOD OMEN anytime the number of the Omen score is a digit in the timer.
- If the Omen score is negative, press POOR OMEN anytime the number of the Omen score is a digit in the timer.
- If the Omen score is 0, press NO OMEN at any time.



|   | ○  | ☽  | ♀  | ♀  | ♂  | ‡  | ☿  | ✚ | Ψ  | ⊕  |
|---|----|----|----|----|----|----|----|---|----|----|
| △ | 0  | 0  | 1  | -1 | 0  | 1  | -2 | 2 | 0  | -1 |
| ▽ | -2 | 0  | -1 | 0  | 2  | 0  | -2 | 2 | 0  | 1  |
| ▽ | -1 | -1 | 0  | -1 | 1  | 2  | 0  | 2 | 1  | -2 |
| △ | -1 | 2  | -1 | 0  | -2 | -1 | 0  | 2 | -2 | 2  |

|    | ♈  | ♉  | ♊  | ♋  | ♌  | ♍  | ♎  | ♏ | ♐  | ♑  | ♒  | ♓  | ♓ |
|----|----|----|----|----|----|----|----|---|----|----|----|----|---|
| △  | 1  | 0  | -1 | 0  | 0  | 2  | 2  | 0 | 1  | 0  | 1  | 0  |   |
| ▽  | 2  | 2  | -1 | 2  | -1 | -1 | -2 | 1 | 2  | 0  | 0  | 2  |   |
| ▽△ | -2 | -1 | 0  | 0  | 1  | 0  | 1  | 2 | -1 | -2 | 1  | 1  |   |
| △△ | 1  | 1  | -2 | -2 | 2  | 0  | -1 | 1 | 0  | 0  | -1 | -1 |   |

|   | ♈  | ♉  | ♊  | ♋  | ♌  | ♍  | ♎  | ♏  | ♐ | ♑  | ♒  | ♓  | ♓ |
|---|----|----|----|----|----|----|----|----|---|----|----|----|---|
| ● | -1 | -1 | 2  | 0  | -1 | 0  | -1 | 1  | 0 | 0  | -2 | -2 |   |
| ☽ | -2 | 0  | 1  | 0  | 2  | 0  | -1 | 1  | 2 | 0  | 1  | 0  |   |
| ♀ | -2 | -2 | -1 | -1 | 1  | -1 | 0  | -2 | 0 | 0  | -1 | 1  |   |
| ♀ | -2 | 2  | -2 | 0  | 0  | 1  | -1 | 0  | 2 | -2 | -1 | 1  |   |
| ♂ | -2 | 0  | -1 | -2 | -2 | -2 | -1 | 1  | 1 | 1  | 0  | -1 |   |
| ≠ | -1 | -2 | 1  | -1 | 0  | 0  | 0  | 1  | 0 | -1 | 2  | 0  |   |
| ℏ | -1 | -1 | 0  | 0  | 1  | 1  | 0  | 0  | 0 | 0  | -1 | -1 |   |
| ♓ | -1 | 2  | 0  | 0  | 1  | -2 | 1  | 0  | 2 | -1 | 1  | 0  |   |
| ψ | 1  | 0  | 2  | 1  | -1 | 1  | 1  | 1  | 0 | -2 | 2  | 0  |   |
| ♀ | -1 | 0  | 0  | -1 | -2 | 1  | 2  | 1  | 1 | 0  | 0  | -1 |   |

| <u>Symbol</u> | <u>Element</u> | <u>Symbol</u> | <u>Planet</u> | <u>Symbol</u> | <u>Planet</u> |
|---------------|----------------|---------------|---------------|---------------|---------------|
|               | Fire           |               | Sun           |               | Jupiter       |
|               | Water          |               | Moon          |               | Saturn        |
|               | Earth          |               | Mercury       |               | Uranus        |
|               | Air            |               | Venus         |               | Neptune       |
|               |                |               | Mars          |               | Pluto         |

| <u>Symbol</u> | <u>Zodiac</u> | <u>Symbol</u> | <u>Zodiac</u> | <u>Symbol</u> | <u>Zodiac</u> |
|---------------|---------------|---------------|---------------|---------------|---------------|
|               | Aries         |               | Leo           |               | Sagittarius   |
|               | Taurus        |               | Virgo         |               | Capricorn     |
|               | Gemini        |               | Libra         |               | Aquarius      |
|               | Cancer        |               | Scorpio       |               | Pisces        |

## On the Subject of Logic

Logic is easy, but logic AND bomb defusal might not.

- Each row displays 3 letters. Each letter represents a statement which can be found in table 1.
- On each row, solve the statements inside the brackets first.
- Statements are joined with logical connective symbols. Find how each symbol works in table 2.
- Apply negation (NOT gate: false becomes true and true becomes false) to each statement first if the red LED above that statement is lit.
- Find the end result of each row, and then use the T/F button to the right to select True/False. Press “Submit” when done.

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.

**Table 1: Statement list**

| Letter | Statement                                  | Letter | Statement                           |
|--------|--|--------|-------------------------------------|
| A      | Number of batteries = number of indicators | N      | More than 2 battery holders         |
| B      | Serial number has more letters than digits | O      | Has both lit and unlit indicators   |
| C      | Has IND indicator                          | P      | Has parallel port                   |
| D      | Has FRK indicator                          | Q      | Exactly 2 ports                     |
| E      | Exactly 1 unlit indicator                  | R      | Has PS/2 port                       |
| F      | More than 1 port type                      | S      | Sum of digits in serial number > 10 |
| G      | 2 batteries or more                        | T      | Has MSA indicator                   |
| H      | Less than 2 batteries                      | U      | Exactly 1 battery holder            |
| I      | Last digit of serial number is odd         | V      | Serial number contains vowels       |
| J      | More than 4 batteries                      | W      | No indicators                       |
| K      | Exactly 1 lit indicator                    | X      | Exactly 1 indicator                 |
| L      | More than 2 indicators                     | Y      | More than 5 ports                   |
| M      | No duplicate ports                         | Z      | Less than 2 ports                   |

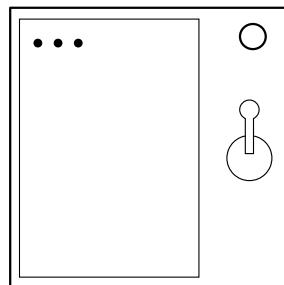
**Table 2: Logical connective symbol list**

| Logical Connective    | Symbol            | Logic Gate Equivalent | Meaning  |
|-----------------------|-------------------|-----------------------|--|
| Conjunction           | $\wedge$          | AND                   | Returns true if all inputs are true.<br>Else returns false.                        |
| Disjunction           | $\vee$            | OR                    | Returns true if any input is true.<br>Else returns false.                          |
| Exclusive Disjunction | $\vee\!\vee$      | XOR                   | Returns true if exactly one input is true. Else returns false.                     |
| Alternative Denial    | !                 | NAND                  | Returns false if all inputs are true.<br>Else returns true.                        |
| Joint Denial          | $\downarrow$      | NOR                   | Returns false if any input is true.<br>Else returns true.                          |
| Biconditional         | $\leftrightarrow$ | XNOR                  | Returns false if exactly one input is true. Else returns true.                     |
| Implication (Left)    | $\rightarrow$     | -                     | Returns false when left input is true and right input is false. Else returns true. |
| Implication (Right)   | $\leftarrow$      | -                     | Returns false when left input is false and right input is true. Else returns true. |

## On the Subject of Crazy Talk

*Nothing. Literally nothing. Blank. Nada.*

1. Text will appear on a display.
2. Find the exact match and the action in the table below.
3. Flip the switch down when the bomb timer has the number before the forward slash in the seconds column.
4. Flip the switch back up when the bomb timer has the number after the forward slash in the seconds column.



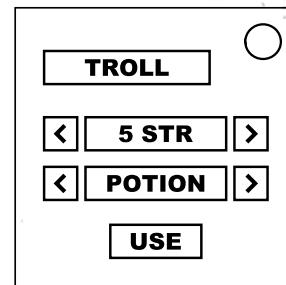
| Display  | Action | Display  | Action |
|--|--------|--|--------|
| ← → ← → ← →  | 5/4    | NO REALLY.   | 5/2    |
| 1 3 2 4  | 3/2    | ← LEFT → LEFT → RIGHT  | 5/6    |
| LEFT ARROW LEFT WORD RIGHT ARROW<br>LEFT WORD RIGHT ARROW RIGHT WORD   | 5/8    | ONE AND THEN 3 TO 4  | 4/7    |
| BLANK  | 1/3    | STOP TWICE   | 7/6    |
| LITERALLY BLANK  | 1/5    | LEFT   | 6/9    |
| FOR THE LOVE OF ALL THAT IS GOOD AND<br>HOLY PLEASE FULLSTOP FULLSTOP.   | 9/0    | ..   | 8/5    |
| AN ACTUAL LEFT ARROW LITERAL PHRASE  | 5/3    | PERIOD PERIOD  | 8/2    |
| FOR THE LOVE OF - THE DISPLAY JUST<br>CHANGED, I DIDN'T KNOW THIS MOD COULD<br>DO THAT. DOES IT MENTION THAT IN THE<br>MANUAL? | 8/7    | THERE ARE THREE WORDS NO<br>PUNCTUATION READY? STOP DOT PERIOD   | 5/0    |
| ALL WORDS ONE THREE TO FOR FOR AS IN<br>THIS IS FOR YOU  | 4/0    | NOVEMBER OSCAR SPACE, LIMA INDIGO<br>TANGO ECHO ROMEO ALPHA LIMA LIMA<br>YANKEE SPACE NOVEMBER OSCAR TANGO<br>HOTEL INDEGO NOVEMBER GOLF | 2/9    |
| LITERALLY NOTHING  | 1/4    | FIVE WORDS THREE WORDS THE<br>PUNCTUATION FULLSTOP   | 1/9    |
| NO, LITERALLY NOTHING  | 2/5    | THE PHRASE: THE PUNCTUATION FULLSTOP   | 9/3    |
| THE WORD LEFT  | 7/0    | EMPTY SPACE  | 1/6    |
| HOLD ON IT'S BLANK   | 1/9    | ONE THREE TWO FOUR   | 3/7    |
| SEVEN WORDS FIVE WORDS THREE WORDS<br>THE PUNCTUATION FULLSTOP   | 0/5    | IT'S SHOWING NOTHING   | 2/3    |
| THE PHRASE THE WORD STOP TWICE   | 9/1    | LIMA ECHO FOXTROT TANGO SPACE ALPHA<br>ROMEO ROMEO OSCAR RISKY SPACE SIERRA<br>YANKEE MIKE BRAVO OSCAR LIMA                              | 1/2    |
| THE FOLLOWING SENTENCE THE WORD<br>NOTHING   | 2/7    | ONE 3 2 4  | 3/4    |
| ONE THREE TO FOR   | 3/9    | STOP.  | 7/4    |
| THREE WORDS THE WORD STOP  | 7/3    | .PERIOD  | 8/1    |
| DISREGARD WHAT I JUST SAID. FOUR<br>WORDS, NO PUNCTUATION. ONE THREE 2 4.  | 3/1    | NO REALLY STOP   | 5/1    |
| 1 3 2 FOR  | 1/0    | 1 3 TOO 4  | 2/0    |
| DISREGARD WHAT I JUST SAID. TWO WORDS<br>THEN TWO DIGITS. ONE THREE 2 4.   | 0/8    | PERIOD TWICE   | 8/3    |
| WE JUST BLEW UP  | 4/2    |  |        |

| Display   | Action | Display  | Action |
|---|--------|--|--------|
| 1 3 TOO WITH 2 OHS FOUR   | 4/2    | THIS ONE IS ALL ARROW SYMBOLS NO WORDS   | 2/8    |
| 1 3 TO 4  | 3/0    | ←  | 6/3    |
| STOP DOT PERIOD   | 5/0    | THE WORD STOP TWICE  | 9/4    |
| LEFT LEFT RIGHT LEFT RIGHT RIGHT  | 6/7    | ← ← RIGHT LEFT → →   | 6/1    |
| IT LITERALLY SAYS THE WORD ONE AND THEN THE NUMBERS 2 3 4   | 4/5    | THE PUNCTUATION FULLSTOP   | 9/2    |
| ONE IN LETTERS 3 2 4 IN NUMBERS   | 3/5    | 1 3 TOO WITH TWO OS 4  | 4/1    |
| WAIT FORGET EVERYTHING I JUST SAID, TWO WORDS THEN TWO SYMBOLS THEN TWO WORDS: ← ← RIGHT LEFT → →                             | 1/6    | THREE WORDS THE PUNCTUATION FULLSTOP   | 9/9    |
| 1 THREE TWO FOUR  | 3/6    | OK WORD FOR WORD LEFT ARROW SYMBOL TWICE THEN THE WORDS RIGHT LEFT RIGHT THEN A RIGHT ARROW SYMBOL | 6/0    |
| PERIOD  | 7/9    | DOT DOT  | 8/6    |
| .STOP   | 7/8    | LEFT ARROW   | 6/8    |
| NOVEBMER OSCAR SPACE, LIMA INDIA TANGO ECHO ROMEO ALPHA LIMA LIMA YANKEE SPACE NOVEMBER OSCAR TANGO HOTEL INDIA NOVEMBER GOLF | 0/7    | AFTER I SAY BEEP FIND THIS PHRASE WORD FOR WORD BEEP AN ACTUAL LEFT ARROW                          | 7/2    |
| LIMA ECHO FOXTROT TANGO SPACE ALPHA ROMEO ROMEO OSCAR WHISKEY SPACE SIERRA YANKEE MIKE BRAVO OSCAR LIMA                       | 6/5    | ONE THREE 2 WITH TWO OHS 4   | 4/3    |
| NOTHING   | 1/2    | LEFT ARROW SYMBOL  | 6/4    |
| THERE'S NOTHING   | 1/8    | AN ACTUAL LEFT ARROW   | 6/2    |
| STOP STOP   | 7/5    | THAT'S WHAT IT'S SHOWING   | 2/1    |
| RIGHT ALL IN WORDS STARTING NOW ONE TWO THREE FOUR  | 4/9    | THE PHRASE THE WORD NOTHING  | 2/6    |
| THE PHRASE THE WORD LEFT  | 7/1    | THE WORD ONE AND THEN THE NUMBERS 3 2 4  | 4/8    |
| LEFT ARROW SYMBOL TWICE THEN THE WORDS RIGHT LEFT RIGHT THEN A RIGHT ARROW SYMBOL   | 5/9    | ONE 3 2 FOUR   | 3/8    |
| LEFT LEFT RIGHT ← RIGHT →   | 5/7    | ONE WORD THEN PUNCTUATION. STOP STOP.  | 0/9    |
| NO COMMA LITERALLY NOTHING  | 2/4    | THE WORD BLANK   | 0/1    |
| HOLD ON CRAZY TALK WHILE I DO THIS NEEDY  | 2/1    | FULLSTOP FULLSTOP  | 8/4    |

## On the Subject of Adventure Games

This appears to be a strange interface for an old text adventure game. All of the inventory management puzzles you have come to know and love, but none of the story.

- The three screens show the enemy you are facing, a list of statistics about your character and the world, and a list of the objects in your inventory.
- In your inventory is three weapons, plus five miscellaneous items.
- You must decide which of the items to use to prepare for the battle, then which weapon to use.
- Use the left and right arrows to scroll through statistics and inventory.
- To use an item or weapon, press "USE" when it is displayed in the inventory.
- Use the item table below to determine whether or not to use each item.
- Items can be used in any order, but all applicable items must be used before a weapon is used to fight the enemy.
- Use the weapon table and the enemy statistic table to determine which weapon to use to fight the enemy.
- For each weapon, compare the player's relevant stat (STR, DEX, or INT), plus any bonus, to the enemy's same stat.
- To defeat the enemy most efficiently, use the weapon which has the highest stat advantage (or lowest disadvantage).
- If two weapons have the same stat advantage, either can be used.



| Statistic            | Description                                    |
|----------------------|--|
| 5 STR                | Strength (STR) of player, used in combat       |
| 5 DEX                | Dexterity (DEX) of player, used in combat      |
| 5 INT                | Intelligence (INT) of player, used in combat   |
| 5' 5"                | Height of player, in feet and inches           |
| 15°C                 | Temperature, in degrees Celsius                |
| 9.8 m/s <sup>2</sup> | Force of gravity, in meters per second squared |
| 101 kPa              | Atmospheric pressure, in kilopascals           |

| Item         | Use if...  |
|--------------|--|
| Balloon      | Gravity is less than $9.3 \text{ m/s}^2$ or pressure is greater than 110 kPa, and not fighting an Eagle.                                       |
| Battery      | There is at most 1 battery on the bomb, and fighting an enemy other than a Golem or a Wizard.  |
| Bellows      | If fighting a Dragon or an Eagle, use if pressure is greater than 105 kPa. If fighting a different enemy, use if pressure is less than 95 kPa. |
| Cheat code   | Cheaters never prosper! Don't use these.   |
| Crystal ball | INT is greater than the last digit of the serial number, and not fighting a Wizard.  |
| Feather      | DEX is greater than either STR or INT.   |
| Hard drive   | There are two or more of the same port on the bomb.  |
| Lamp         | Temperature is less than $12^\circ\text{C}$ , and not fighting a Lizard.   |
| Moonstone    | There are at least two unlit indicators on the bomb.   |
| Potion       | Always use, but note that STR, DEX, and INT may change.  |
| Small dog    | Fighting an enemy other than a Demon, a Dragon, or a Troll.  |
| Stepladder   | The player is shorter than 4', and fighting an enemy other than a Goblin or a Lizard.  |
| Sunstone     | There are at least two lit indicators on the bomb.   |
| Symbol       | Fighting a Demon or a Golem, or if the temperature is greater than $31^\circ\text{C}$ .  |
| Ticket       | The player is 4' 6" or taller, and gravity is at least $9.2 \text{ m/s}^2$ , and at most $10.4 \text{ m/s}^2$ .                                |
| Trophy       | STR is greater than the first numeric digit of the serial number, or if fighting a Troll.  |

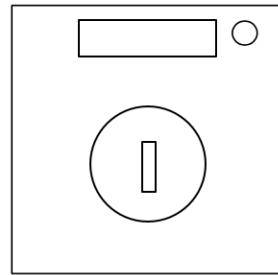
| Enemy  | STR | DEX | INT |
|--------|-----|-----|-----|
| Demon  | 50  | 50  | 50  |
| Dragon | 10  | 11  | 13  |
| Eagle  | 4   | 7   | 3   |
| Goblin | 3   | 6   | 5   |
| Golem  | 9   | 4   | 7   |
| Troll  | 8   | 5   | 4   |
| Lizard | 4   | 6   | 3   |
| Wizard | 4   | 3   | 8   |

| Weapon      | Uses... | Bonus |
|-------------|---------|-------|
| Broadsword  | STR     | +0    |
| Caber       | STR     | +2    |
| Nasty Knife | DEX     | +0    |
| Longbow     | DEX     | +2    |
| Magic orb   | INT     | +0    |
| Grimoire    | INT     | +2    |

## On the Subject of Turn The Key

*How can something so simple be so infuriating?*

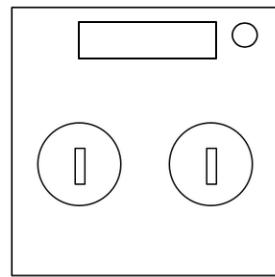
Turn the key when the bomb's timer matches the time on the display, no sooner, no later.



## On the Subject of Turn The Keys

*Order is everything.*

This module has two keys and a display. The display indicates this module's priority.



### LEFT KEY

Turn the left key after you have done all of the following:

- Turned the right key on all 'Turn the Keys' modules.
- Turned all lower priority left keys.
- Solved all Password modules.
- Solved all Who's On First modules.
- Solved all Crazy Talk modules.
- Solved all Keypad modules.
- Solved all Listening modules.
- Solved all Orientation modules.

But before you have done any of the following:

- Turned any higher priority left keys.
- Solved any Maze modules.
- Solved any Memory modules.
- Solved any Complex Wires modules.
- Solved any Wire Sequence modules.
- Solved any Cryptography modules.

### RIGHT KEY

Turn the right key after you have done all of the following:

- Turned all higher priority right keys.
- Solved all Morse Code modules.
- Solved all Wire modules.
- Solved all Two Bits modules.
- Solved all The Button modules.
- Solved all Colour Flash modules.
- Solved all Round Keypad modules.

But before you have done any of the following:

- Turned any left keys.
- Turned any lower priority right keys.
- Solved any Semaphore modules.
- Solved any Combination Lock modules.
- Solved any Simon Says modules.
- Solved any Astrology modules.
- Solved any Switches modules.
- Solved any Plumbing modules.

## On the Subject of Cryptography

WLMY ETGXFD EQCD ED PQKW WT CMFF EZYDFB.

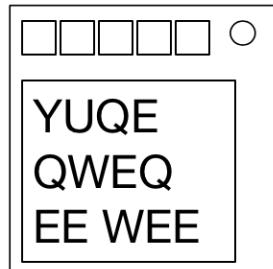
SEE APPENDIX CD43 FOR AN EXCERPT OF "A CHRISTMAS CAROL".

SEE APPENDIX CD44 FOR FREQUENT LETTERS AND WORDS.

This module will display ciphertext which contains a sentence from Charles Dickens' "A Christmas Carol" (aka the plaintext). The plaintext has been encrypted via a substitution cypher, meaning each letter in the alphabet is substituted for a different letter.

- The letter E will always mean the letter E.
- Apart from the letter E, no letter can substitute itself.
- All punctuation has been removed from the ciphertext.
- Above the display are five keys each with a letter that is found in the plaintext.
- Once the ciphertext is decrypted, press each key only once, in order that they appear in the plaintext.
- Entering the incorrect sequence will gain a strike, try the sequence again from the beginning.

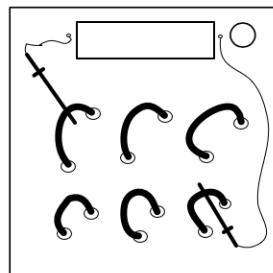
NOTE: The meaning of the word colors is currently unknown, however you can safely ignore them.



## On the Subject of Probing

*Not that kind of probing...*

This module has six wires and two crocodile clips. Each wire carries three alternating currents (AKA 3-phase current), each phase a different frequency. The possible frequencies are 10Hz, 22Hz, 50Hz and 60Hz.



In order to probe the circuit you need to connect the red clip to a wire and the blue clip to a different wire. Common frequencies in both wires will cancel out and the display will show the remaining frequencies, in order from lowest to highest.

If the red and white wire contains a 50Hz current connect the red clip to the wire with the frequencies 10Hz, 22Hz and 60Hz, otherwise if the red and yellow wire does not contain a 10Hz current connect the red clip to the wire with the frequencies 22Hz, 50Hz and 60Hz, otherwise connect the red clip to the wire with the frequencies 10Hz, 22Hz and 50Hz.

If the yellow and red wire contains a 10Hz current connect the blue clip to the wire with the frequencies 10Hz, 50Hz and 60Hz otherwise connect the blue clip to the wire that contains the frequencies 10Hz, 22Hz and 50Hz.

Leave the clips connected for at least six seconds to defuse. Leaving the incorrect wires connected for more than six seconds will cause a strike.

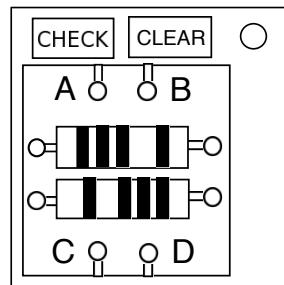
*NOTE: Be aware that each time a strike is gained the frequencies in each wire may change.*

## On the Subject of Resistors

*"It is easier to resist at the beginning than at the end."*

- Leonardo da Vinci, on procrastination

The module contains 2 input pins (**A** and **B**), 2 resistors, and 2 output pins (**C** and **D**). Follow the rules to make the correct connections. To make a connection, click one pin and then another. Press **CLEAR** to remove all connections.



1. Take the first digit of the bomb's serial number (or 0 if there are no digits).  
The *primary input* is **A** if even, **B** if odd.
2. Take the last digit of the bomb's serial number (or 0 if there are no digits).  
The *primary output* is **C** if even, **D** if odd.
3. The *target resistance* in  $\Omega$  is calculated as follows:
  1. Take the first two digits of the bomb's serial number.  
e.g. **2E7X19**  $\rightarrow$  27, **ZJ3MLN**  $\rightarrow$  3, **ABCDEF**  $\rightarrow$  0
  2. For each battery present on the bomb (up to a max of 6), multiply by 10.

4. Connect the primary input to the primary output, with the target resistance.

*Note: all resistance values are checked to be within 5% accuracy.*

5. If a lit **FRK** indicator is present, also connect the primary input to the other (secondary) output, with the target resistance.

*Note: this means C and D will also be connected with some non-infinite resistance. This value is not checked as part of your solution, and so can be anything.*

6. If step 5 did not apply and at least 1 **D cell** battery is present, connect the secondary input to the secondary output, with  $0\Omega$  resistance.

7. Press **CHECK** when finished to check the solution. All input/output pairs not mentioned should be disconnected.

Consult the following page to learn how to produce the target resistance.

## Producing resistance

An input and output can be connected via one of five paths.

1. **No resistors**,  $0\Omega$  of resistance.

2. **Top resistor**.

3. **Bottom resistor**.

4. **Both resistors in serial**.

i.e. input → top resistor → bottom resistor → output

The combined resistance is the sum of the individual resistances.

5. **Both resistors in parallel**.

i.e. input → top resistor, input → bottom resistor,  
top resistor → output, bottom resistor → output

The combined resistance is less than either of the individual resistances.

*For the curious... it's:  $1 / (1 / (\text{top resistance}) + 1 / (\text{bottom resistance}))$*

*Don't worry, this won't be on the test!*

## Reading resistors

Each resistor has a sequence of three colored bands, indicating a two-digit number and a multiplier. A fourth band indicates a tolerance value (not used). The fourth band is separated by a gap from the first three. Resistors can be rotated; take care to read the bands in the correct direction.

| Color  | First Band | Second Band | Multiplier         |
|--------|------------|-------------|--------------------|
| Black  | 0          | 0           | $1\Omega$          |
| Brown  | 1          | 1           | $10\Omega$         |
| Red    | 2          | 2           | $100\Omega$        |
| Orange | 3          | 3           | $1,000\Omega$      |
| Yellow | 4          | 4           | $10,000\Omega$     |
| Green  | 5          | 5           | $100,000\Omega$    |
| Blue   | 6          | 6           | $1,000,000\Omega$  |
| Violet | 7          | 7           | $10,000,000\Omega$ |
| Gray   | 8          | 8           | —                  |
| White  | 9          | 9           | —                  |
| Gold   | —          | —           | $0.1\Omega$        |
| Silver | —          | —           | $0.01\Omega$       |

For example, **Green Violet Yellow** indicates  $57 \times 10,000\Omega = 570,000\Omega$ .

## On the Subject of Skewed Slots

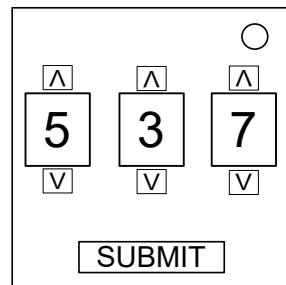
This has to be illegal somehow...

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.

See Appendix Math for a mathematical terms reference.



- A skewed slots module contains 3 numeric displays and a submit button on it.
- Based on the current display on the slots, submit the correct digits based on following sections of rules. Each section is labeled with which slot it applies to.
- After all the rules have been applied, if the number is below 0, add 10. Otherwise if the number is above 9, subtract 10. Repeat this until the number is between 0-9.
- If you submit the incorrect digits, the slots will automatically spin and a strike will be assigned.

**NOTE:** The original digit is the digit before it was modified at all.

### All Slots

Replace any 2 with a 5 and any 7 with a 0.

For every lit indicator add 1 to the number and subtract 1 for every unlit indicator.

If the number is a multiple of 3, add 4 to it.

Otherwise, if the number is greater than 7, multiply it by 2.

Otherwise, if the number is less than 3 and it's an even number, divide it by 2.

Otherwise, if there is an RCA or a PS/2 port on the bomb, skip the rest of the rules in this section.

Otherwise, take the original digit and add the number of batteries on the bomb.

### 1st Slot

If the number is even and greater than 5, divide it by two.

Otherwise, if the number is prime, add the rightmost number in the serial number.

Otherwise, if there is a parallel port on the bomb, multiply it by -1.

Otherwise, if the original digit to the right is odd, leave this number unchanged.

Otherwise, subtract 2 from it.

**2nd Slot**

If there is a unlit BOB indicator, leave this number unchanged.  
Otherwise, if the number is 0, add the original digit from the 1st display.  
Otherwise, if the number is in the Fibonacci sequence, add the next number from the Fibonacci sequence based on the first occurrence of the number.  
Otherwise, if the number is greater than or equal to 7, add 4.  
Otherwise, multiply it by 3.

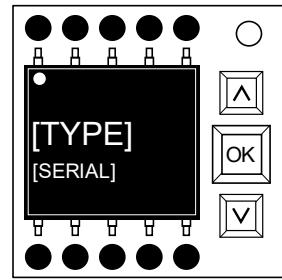
**3rd Slot**

If there is a serial port on the bomb, add the largest number from the serial number.  
Otherwise, if the original digit is the same as any of the other original digits, leave this number unchanged.  
Otherwise, if the number is greater than or equal to 5, add up all the individual digits in the binary form of the original digit for the new number.  
Otherwise, add 1 to the number.

## On the Subject of Microcontrollers

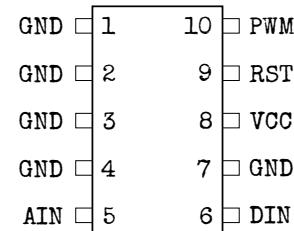
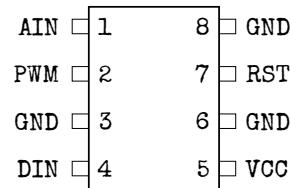
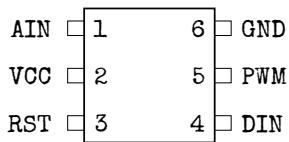
*It's called "micro"-controller yet this thing in there is pretty big. Probably because it can cause a pretty big explosion...*

1. Use the controller's imprinted type and its size to determine its pin configuration with the diagrams below.
2. The white mark on the controller indicates where the pin with the number 1 is located. The other pins are in ascending order on the side with the number 1 and then continued backwards on the other side.
3. Using the table below determine the correct color code for each connected element.
4. For each pin choose the correct element by pressing the UP and DOWN buttons and confirming your input with the OK button (the next pin will be selected automatically).

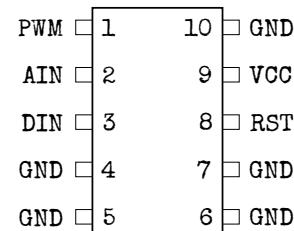
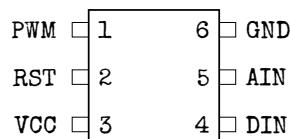
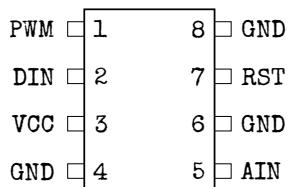


### Pin Configurations

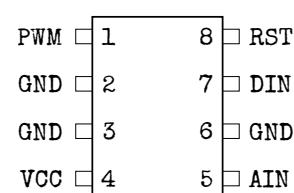
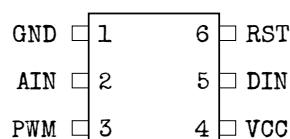
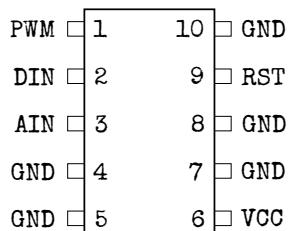
Strike (STRK) Controller:



Diode (LEDS) Controller:

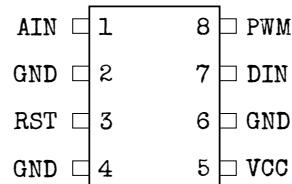
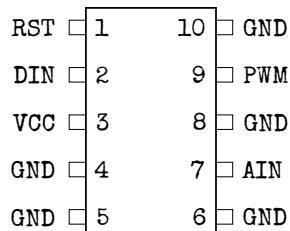
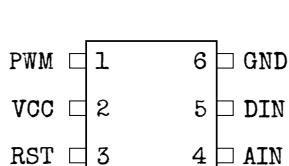


Countdown (CNTD) Controller:



continued on next page ...

## Explosion (EXPL) Controller:



## Component Color Codes

|  | Input Voltage (VCC) | Analog Input (AIN) | Digital Input (DIN) | Pulse Width Modulation (PWM) | Reset (RST) |
|--|---------------------|--------------------|---------------------|------------------------------|-------------|
| If the last digit of the controller's serial number is 1 or 4  | Yellow              | Magenta            | Green               | Blue                         | Red         |
| Otherwise, if there is a lit indicator "SIG" or a RJ-45 port   | Yellow              | Red                | Magenta             | Green                        | Blue        |
| Otherwise, if the bomb's serial number contains C, L, R, X, 1 or 8   | Red                 | Magenta            | Green               | Blue                         | Yellow      |
| Otherwise, if the second numerical digit of the controller's serial number matches the number of batteries on the bomb | Red                 | Blue               | Yellow              | Green                        | Magenta     |
| Otherwise  | Green               | Red                | Yellow              | Blue                         | Magenta     |

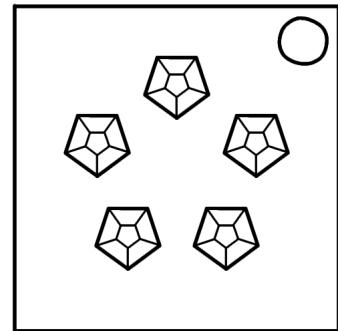
Note: Ground (GND) is always coded with white.

# 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 YY            | B PY      | B PB            | Y BG      | P YB            | R GB      |
| Y PG            | P BR      | YY P            | B RP      | Y RP            | R YR      |
| R GP            | B GR      | G RB            | Y PB      | G YR            | G BP      |
| Y BG            | B YY      | R PY            | G BG      | B YG            | P GR      |
| PP R            | R YP      | Y GG            | P BR      | R PY            | G YB      |
| B GB            | P YG      | G PB            | Y GY      | P PG            | P BR      |
| Y GB            | G PY      | P RP            | B BG      | R YY            | BB R      |
| PG G            | G YR      | R YR            | R PB      | Y GP            | P YY      |

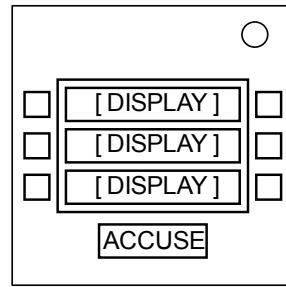
## On the Subject of Murder

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.

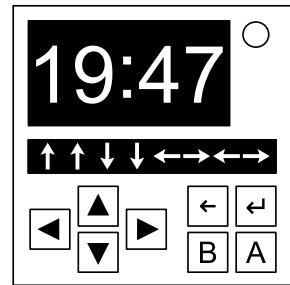
Locations:

|   | 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           | Conservatory  |
| 2 | Study         | Hall           | Billiard Room | Lounge         | Kitchen         | Library       |
| 3 | Kitchen       | Billiard Room  | Ballroom      | Library        | Conservatory    | Dining Room   |
| 4 | Lounge        | Ballroom       | Dining Room   | Conservatory   | Hall            | Kitchen       |
| 5 | Billiard Room | Kitchen        | Study         | Ballroom       | Dining Room     | Hall          |
| 6 | Conservatory  | Lounge         | Library       | Study          | Billiard Room   | Ballroom      |
| 7 | Ballroom      | Conservatory   | Kitchen       | Hall           | Library         | Study         |
| 8 | Hall          | Study          | Conservatory  | Dining Room    | Lounge          | Billiard Room |
| 9 | Library       | Dining Room    | Hall          | Billiard Room  | Ballroom        | Lounge        |

## On the Subject of the Gamepad

*Oh, the layout of the buttons on this thing takes me back to my childhood! Except I didn't expect to see that on a time bomb, even. Play time is over, I suppose.*

See Appendix MathConcepts: Mathematical Concepts for more information.



- Two 2-digit numbers will appear on the top LCD display.
- The bottom has eight keys: the input keys ( $\blacktriangle\blacktriangledown\blacktriangleright\blacktriangleright$  AB), Return, and Backspace.
- Determine the correct command, made of two subcommands, to input, depending on the properties of the two numbers. Use the first match.
- The two numbers are notated  $x$  and  $y$ . Individual digits are notated as  $abcd$ . A number followed by  $n$  means a multiple of that number.

| Global Overrides   |   |
|--|---|
| Apply all matches <u>after</u> determining the two commands. | <ul style="list-style-type: none"> <li>If <math>x = 11n</math>, switch the first keypress with the second, and the fifth with the seventh.</li> <li>If <math>a = 1 + d</math>, switch the third and fourth keypresses, as well as the sixth and eighth.</li> <li>If <math>x</math> or <math>y</math> is a highly composite number, switch the order of the subcommands.</li> <li>If <math>x</math> and <math>y</math> are perfect squares, flip the entire sequence.</li> </ul> |

| First Subcommand                                  | Second Subcommand   |
|---|---|
| $x$ is prime                                      | $\blacktriangle\blacktriangledown\blacktriangleright\blacktriangleright$        |
| $x = 12n$   | $\blacktriangle A \blacktriangleleft\blacktriangleleft$                         |
| $a+b = 10$ AND last digit of serial number is odd | $AB \blacktriangle\blacktriangleright$  |
| $x = 6n + 3$ OR $x = 10n + 5$                     | $\blacktriangledown\blacktriangleleft A \blacktriangleright$                    |
| $x = 7n$ AND $y \neq 7n$                          | $\blacktriangle\blacktriangleleft\blacktriangle A B$                            |
| $x = c \times d$                                  | $A\blacktriangle\blacktriangleleft\blacktriangle$                               |
| $x$ is a perfect square                           | $\blacktriangleright\blacktriangleright A\blacktriangledown$                    |
| $x = 3n - 1$ OR bomb has unlit ind. labeled SND   | $\blacktriangleright A B A$   |
| $60 \leq x < 90$ AND bomb has no batteries        | $BB \blacktriangleright\blacktriangleleft$                                      |
| $x = 6n$  | $ABA \blacktriangleright$   |
| $x = 4n$  | $\blacktriangledown\blacktriangledown\blacktriangleleft\blacktriangle$          |
| else  | $A\blacktriangle\blacktriangleleft B \blacktriangleright$                       |
|   | $y$ is prime  |
|   | $\blacktriangle\blacktriangleright\blacktriangle\blacktriangleright$            |
|   | $y = 8n$  |
|   | $\blacktriangledown\blacktriangleright B A$                                     |
|   | $c-d = 4$ AND bomb has a Stereo RCA   |
|   | $\blacktriangleright A\blacktriangledown\blacktriangleright\blacktriangleright$ |
|   | $y = 4n + 2$ OR bomb has lit ind. labeled FRQ                                   |
|   | $B A\blacktriangleright A$  |
|   | $y = 7n$ AND $x \neq 7n$  |
|   | $\blacktriangle\blacktriangleleft\blacktriangle\blacktriangledown A$            |
|   | $y$ is a perfect square   |
|   | $\blacktriangle\blacktriangledown B \blacktriangleright$                        |
|   | $y = a \times b$  |
|   | $A\blacktriangle\blacktriangleleft\blacktriangledown$                           |
|   | $y = 4n - 1$ OR bomb has a PS/2 port  |
|   | $\blacktriangle BBB$  |
|   | $c > d$ AND bomb has 2 or more batteries  |
|   | $AA\blacktriangle\blacktriangledown$  |
|   | $y = 5n$  |
|   | $B A B \blacktriangleleft$  |
|   | $\blacktriangleright\blacktriangle\blacktriangle\blacktriangle$                 |
|   | else  |
|   | $B\blacktriangle A\blacktriangledown$   |

## Appendix MathConcepts: Mathematical Concepts

This appendix contains a brief overview of some mathematical concepts used in the Gamepad module.

### Prime Numbers

A prime number is a counting number (positive whole number) that can only be divided by 1 and itself. In other words, there is no way to share a prime number of donuts equally among any number of friends (unless you have as many friends as donuts!).

The prime numbers below 100 are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.

### Perfect Squares

A perfect square is any whole number multiplied by itself.

The perfect squares below 100 are: 1, 4, 9, 16, 25, 36, 49, 64, 81.

### Highly Composite Numbers

A highly composite number (HCN) has more divisors than any smaller positive integer. For example, 6 can be divided by 1, 2, 3, and 6, which is more than the last HCN, 4, which has 1, 2, and 4. 8 can be divided by 1, 2, 4, and 8, but a smaller number (6) has an equal number of divisors, so it is not a HCN.

The highly composite numbers below 100 are: 1, 2, 4, 6, 12, 24, 36, 48, 60.

## On the Subject of Tic Tac Toe

*All those years of getting ties in Tic Tac Toe might finally pay off.*

To defuse this module, all nine buttons must be filled with "X"s and "O"s.

The display labeled "Up Next:" shows either an "X" or an "O".

The keypad displays some numbers between 1 and 9 and some already placed "X"s and "O"s. After placing a piece, the displays go blank.

The numbers in the chart on the following page indicate the location on the keypad where each piece should be placed.

Use the rules below to determine the starting row:

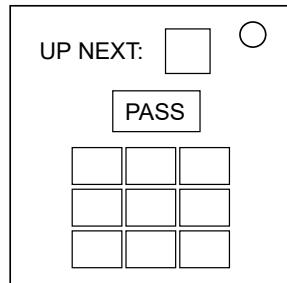
1. If the last digit of the serial number is even, the starting row is either 5, 6, 7, 8, or 9. Otherwise, the starting row is either 1, 2, 3, or 4.
2. If there is at least one parallel port, use the even values. Otherwise, use the odd values.
3. If there are more unlit indicators than lit indicators, the starting row is the lowest remaining value from rule 2.
4. If there are more lit indicators than unlit indicators, the starting row is the highest value remaining from rule 2.
5. If there are an equal number of lit and unlit indicators, the starting row is the average of the remaining values from rule 2.

In the chart, determine the appropriate placement column based on the relative number of "X"s and "O"s already on the board. Begin at the starting row and move down your selected column until you reach a number that corresponds to an unfilled spot on the keypad. If you pass row 9, continue at row 1.

If placing the piece in this location would result in a tic-tac-toe, you MUST press "PASS" and continue in the same row; otherwise, place the piece by pressing the location on the keypad and then move to the next row in the chart.

Two consecutive passes will result in a piece being placed (and displayed) in one of the available spaces. This may result in a tic-tac-toe but will not incur a strike. In such a case, move to the next row in the chart.

Upon a strike, the row resets to the initial starting row and the keypad displays the placed pieces and remaining numbers. All previous placements remain until the module is defused.



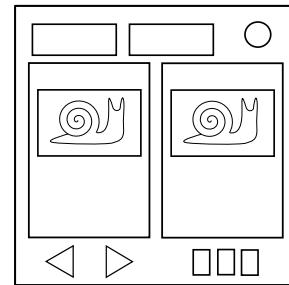
**Table 1**

| More "X"s   |     | "X"s = "O"s |     | More "O"s   |     |
|-------------|-----|-------------|-----|-------------|-----|
| Placing An: |     | Placing An: |     | Placing An: |     |
| ROW         | "X" | "O"         | "X" | "O"         | "X" |
| 1           | 9   | 3           | 3   | 9           | 8   |
| 2           | 5   | 6           | 6   | 7           | 1   |
| 3           | 7   | 8           | 2   | 1           | 5   |
| 4           | 4   | 5           | 7   | 8           | 9   |
| 5           | 1   | 4           | 1   | 6           | 7   |
| 6           | 8   | 7           | 5   | 2           | 4   |
| 7           | 6   | 1           | 8   | 4           | 3   |
| 8           | 2   | 2           | 9   | 5           | 2   |
| 9           | 3   | 9           | 4   | 3           | 6   |

## On the Subject of Monsplode Trading Cards

A Bob in the hand is worth two in... the Buhar?

- Based on the 3 Monsplode™ Trading Cards in your hand, correctly accept or decline 3 trade offers using the “Keep” and “Trade” buttons above the cards.
- Each card will display a Monsplode, a rarity symbol, and a Print Version.
- Your hand is shown on the left. Cycle through the cards using the left/right buttons in order to select the one you wish to trade. The offer is shown on the right.
- An incorrect action will result in a strike, but if you attempted a trade you will still keep the card you received during that action.



### Calculating a Card's Rarity Value

**1. Identify the card's initial value:** Using the “Initial Value Reference Table”, find the row that contains your Monsplode’s™ name. Determine which of the following formats the first two characters of bomb’s serial number are in:  
**XX** (e.g. KT, NE),    **X#** (e.g. C4, H8),    **#X** (e.g. 2A, 5D),    **##** (e.g. 20, 17)  
 This will give you your card’s initial value.

**2. Adjust the card's value:** Look at the “Print Version” at the left side of the card. For each indicator on the bomb that contains the letter of the Print Version, **add 1** to the card’s value if it’s lit and **subtract 1** if it’s unlit.  
 Continue adjusting the card’s value using the rules below:

If the bomb has **no batteries**, keep the card’s **current value**.

Otherwise, if the numeral of the Print Version is **greater** than the amount of batteries on the bomb, **add 1** to the card’s current value.

Otherwise, if the numeral of the Print Version is **less than** the amount of batteries on the bomb, **subtract 1** from the card’s current value.

Otherwise, **add 2** to the card’s current value.

If the Print Version’s numeral is equal to the alphanumeric value of its letter, the card is fake and has 0 value. This overrides **everything**.

**3. Calculate the multiplier:** Use the rules below based on the symbol in the card's bottom-left corner and "Rarity Symbol Reference Table":

If the card is **Common**, the multiplier is **1**.

Otherwise, if the card is **Uncommon**, the multiplier is **1.25**.

Otherwise, if the card is **Rare**, the multiplier is **1.5**.

Otherwise, if the card is **Ultra Rare**, the multiplier is **1.75**.

If the card is a **foil** (has shiny spots on it), add **0.5** to the multiplier.

For each **bent corner** of the card **subtract 0.25** from the multiplier.

Multiply the card's adjusted value by the calculated multiplier.

If the card's value is a negative number, it has **0 value**.

If all of your cards have higher value than the offered card, press "**Keep**".

Otherwise, trade your **least valued card** by pressing "**Trade**".

If there are multiple cards with the least value, you can trade **any of them**.

### Rarity Symbol Reference Table

| Common | Uncommon | Rare | Ultra Rare |
|--------|----------|------|------------|
| •      | ♦        | ★    | ☆          |

**Initial Value Reference Table****Base set**

| Monsplode™ | XX | X# | #X | ## |  | Monsplode™ | XX | X# | #X | ## |
|------------|----|----|----|----|--|------------|----|----|----|----|
| Aluga      | 2  | 3  | 4  | 2  |  | Magmy      | 4  | 3  | 2  | 3  |
| Asteran    | 2  | 5  | 2  | 2  |  | Melbor     | 2  | 4  | 4  | 3  |
| Bob        | 2  | 4  | 2  | 5  |  | Mountoise  | 2  | 4  | 3  | 3  |
| Buhar      | 5  | 2  | 2  | 3  |  | Myrchat    | 2  | 2  | 4  | 3  |
| Caadarim   | 2  | 4  | 3  | 2  |  | Nibs       | 3  | 3  | 2  | 4  |
| Clondar    | 3  | 2  | 4  | 5  |  | Percy      | 3  | 3  | 2  | 4  |
| Cutie Pie  | 2  | 4  | 2  | 4  |  | Pouse      | 2  | 3  | 3  | 3  |
| Docspplode | 2  | 4  | 2  | 5  |  | Ukkens     | 4  | 2  | 3  | 3  |
| Flaurim    | 2  | 3  | 4  | 2  |  | Vellarim   | 4  | 2  | 3  | 2  |
| Gloorim    | 5  | 2  | 2  | 2  |  | Violan     | 3  | 4  | 2  | 2  |
| Lanaluff   | 2  | 3  | 4  | 3  |  | Zapra      | 3  | 4  | 2  | 3  |
| Lugirit    | 3  | 3  | 3  | 2  |  | Zenlad     | 4  | 2  | 2  | 4  |

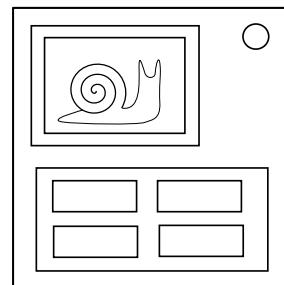
**Heroes expansion**

| Monsplode™            | XX | #X | X# | ## |  | Monsplode™              | XX | #X | X# | ## |
|-----------------------|----|----|----|----|--|-------------------------|----|----|----|----|
| Aluga,<br>The Fighter | 6  | 4  | 5  | 3  |  | Buhar,<br>The Protector | 6  | 5  | 3  | 4  |
| Bob,<br>The Ancestor  | 5  | 6  | 4  | 4  |  | Melbor,<br>The Web Bug  | 4  | 4  | 4  | 6  |

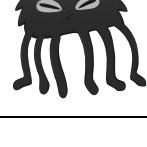
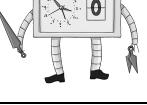
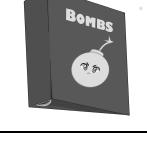
## On the Subject of Monsplode, Fight!

*Are you still a fan of some animated series from your childhood? It looks like you stumbled upon another fan.*

- You encountered a wild Monsplode™.
- You can perform 4 different moves against it.
- Pick a move to deal the highest possible net damage to the opposing Monsplode™.
- A wrong move will incur a strike and the module will reset.
- Each move has a type, damage, and sometimes a special rule. (Special rules can override earlier information.)
- Each Monsplode™ also has a type, and a special rule.
- Net damage of a move is its base damage multiplied by the type advantage/disadvantage multiplier.



| Monsplode™ | Name      | Type   | Special Rules  |
|------------|-----------|--------|--|
|            | Buhar     | WATER  | Takes no damage from ROCK type moves.  |
|            | Lanaluff  | NORMAL | If its name has a common letter with the serial, takes +3 net damage from POISON type moves. |
|            | Bob       | NORMAL | If there is a lit BOB indicator, only takes damage from NORMAL type moves.                   |
|            | Mountoise | ROCK   | Its type is NORMAL if the bomb has a strike.   |
|            | Nibs      | NORMAL | Takes no damage from GRASS type moves.   |

| Monsplode™  | Name       | Type   | Special Rules   |
|---|------------|--------|---|
|    | Aluga      | NORMAL | Takes +2 net damage from FIRE type moves.<br>Takes -1 net damage from WATER type moves. |
|    | Lugirit    | GHOST  | Takes +2 net damage from WATER type moves.<br>Takes -1 net damage from FIRE type moves. |
|    | Caadarim   | NORMAL | If there is at least one port, takes no damage from NORMAL type moves.                  |
|    | Vellarim   | WATER  | If there is a Parallel port, takes no damage from NORMAL type moves.                    |
|   | Flaurim    | FIRE   | If there is a Serial port, takes no damage from NORMAL type moves.                      |
|  | Gloorim    | DARK   | If there is a DVI-D port, takes no damage from NORMAL type moves.                       |
|  | Melbor     | DARK   | If net damage of a move is exactly 6 or 8, it takes 0 damage instead.                   |
|  | Clondar    | ELECTR | Takes +3 net damage from WATER type moves.  |
|  | Docspplode | NORMAL | "Boom" will explode Docspplode instead of the bomb. It must be used if it's present.    |

| Monsplode™  | Name      | Type   | Special Rules   |
|---|-----------|--------|---|
|    | Magmy     | FIRE   | If there are less than 3 batteries on the bomb, its type is ROCK.   |
|    | Pouse     | ELECTR | If net damage of a move is 6 or more, it takes 0 damage instead.    |
|    | Ukkens    | POISON | Takes no damage from WATER type moves.                              |
|    | Asteran   | GRASS  | If there is a CAR indicator present, its type is WATER.             |
|   | Violan    | GRASS  | If there is a CLR indicator present, its type is WATER.             |
|  | Zenlad    | GRASS  | Takes +3 damage from ELECTR type moves.                             |
|  | Zapra     | ELECTR | If there is less than 3 batteries on the bomb, its type is NORMAL.  |
|  | Myrchat   | POISON | If there is no lit indicator on the bomb, its type is DARK.         |
|  | Percy     | WATER  | Percy can't stand silliness. You must use "Splash" if it's present. |
|  | Cutie Pie | NORMAL | Cutie Pie is a friend! Deal the lowest possible damage instead.     |

| Move Name     | Move Type | Base Damage | Special Rules   |
|---------------|-----------|-------------|---|
| Appearify     | NORMAL    | 4           | Damage is 10 if the opponent is a DARK type.  |
| Battery Power | ELECTR    | 0           | Add 2 damage for each battery on the bomb.  |
| Bedrock       | ROCK      | 0           | Damage is number of modules on the bomb.  |
| Boo           | GHOST     | 0           | Add 3 damage for each '0' or '0' in the serial number.  |
| Boom          | FIRE      | 0           | Pressing this will detonate the bomb.   |
| Bug Spray     | POISON    | 2           | Damage is 10 against Melbor and Zenlad.   |
| Countdown     | POISON    | 0           | Damage is time left on the bomb in minutes, rounded down.   |
| Dark Portal   | DARK      | 0           | Damage is the number of ports present.  |
| Fiery Soul    | FIRE      | 0           | Damage is number of batteries multiplied by the number of battery holders.                        |
| Finale        | GRASS     | 2           | Damage is 10 if all other modules are disarmed before this one.                                   |
| Freak Out     | GHOST     | 1           | Damage is 5 if there is a "FRK" or "FRQ" indicator. 10 if any of them are lit.                    |
| Glyph         | NORMAL    | 0           | Damage is letter count of the opponent's name.  |
| Last Word     | GHOST     | 0           | Damage is last digit of the serial number.  |
| Sendify       | NORMAL    | 2           | Damage is 10 if the opponent is a ROCK or GRASS type.   |
| Shock         | ELECTR    | 3           | Damage is 8 if there is an RJ-45 port on the bomb.  |
| Shrink        | NORMAL    | 0           | Damage is the smallest digit of the serial number.  |
| Sidestep      | NORMAL    | 0           | Damage is the letter count of the move displayed to the left or right of this move on the module. |
| Stretch       | NORMAL    | 0           | Damage is the largest digit of the serial number.   |
| Void          | DARK      | 2           | Damage is 10 if no other module is disarmed before this one.                                      |
| Defuse        | ???       | ???         | Defuses the module.   |

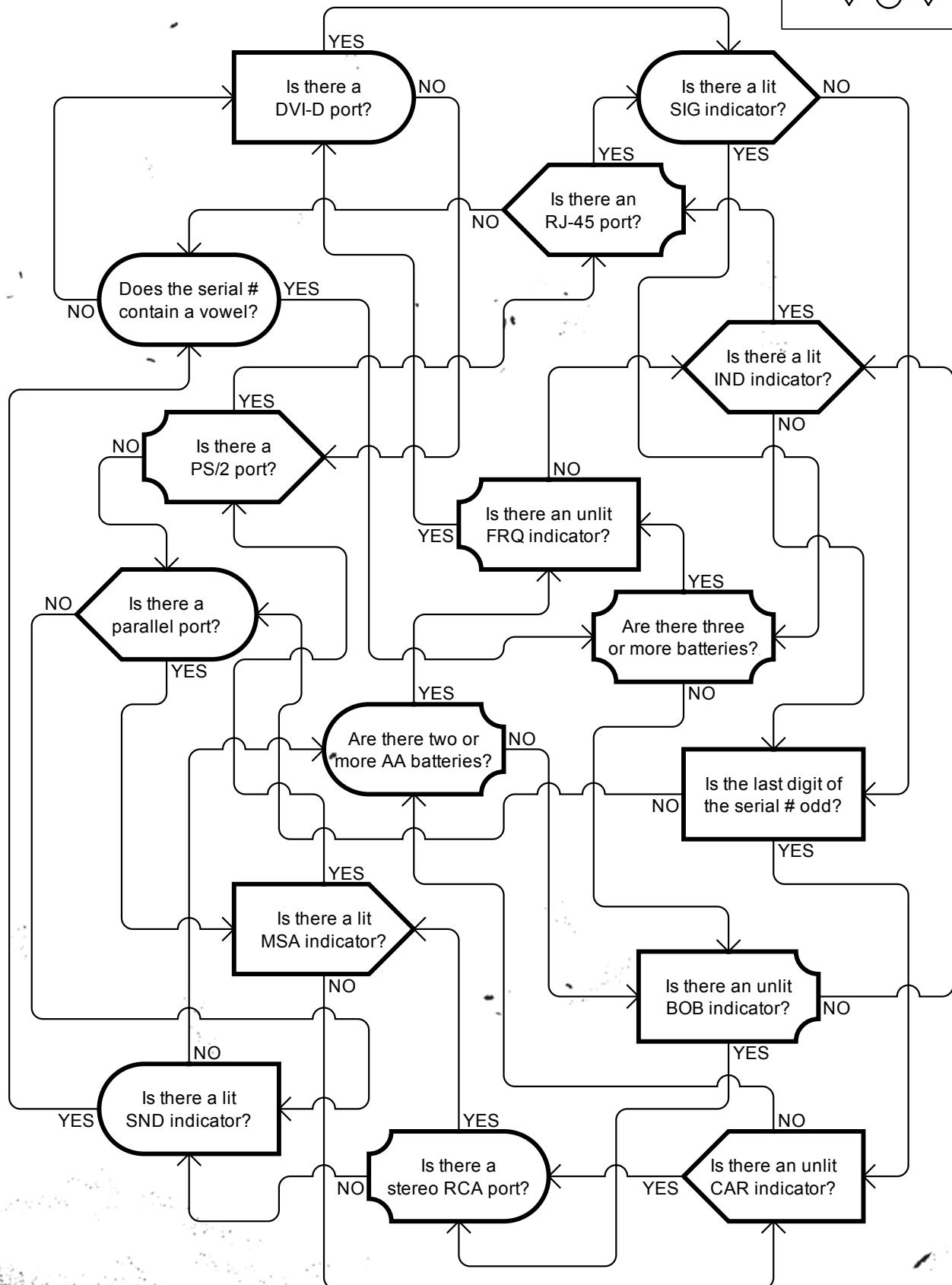
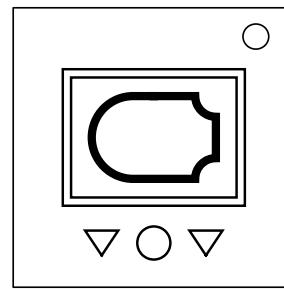
| Move Name    | Move Type | Base Damage |  | Move Name   | Move Type | Base Damage |
|--------------|-----------|-------------|--|-------------|-----------|-------------|
| Candle       | FIRE      | 2           |  | Spectre     | GHOST     | 5           |
| Cave In      | ROCK      | 3           |  | Splash      | WATER     | 0           |
| Double Zap   | ELECTR    | 4           |  | Tac         | NORMAL    | 5           |
| Earthquake   | ROCK      | 5           |  | Tangle      | GRASS     | 2           |
| Flame Spear  | FIRE      | 6           |  | Tic         | NORMAL    | 3           |
| Fountain     | WATER     | 6           |  | Toe         | NORMAL    | 1           |
| Grass Blade  | GRASS     | 4           |  | Torchlight  | FIRE      | 4           |
| Heavy Rain   | WATER     | 4           |  | Toxic Waste | POISON    | 5           |
| High Voltage | ELECTR    | 6           |  | Venom Fang  | POISON    | 3           |
| Hollow Gaze  | DARK      | 4           |  | Zap         | ELECTR    | 2           |
| Ivy Spikes   | GRASS     | 6           |  | -           | -         | -           |

| Opposing Type → | N<br>O<br>R<br>M<br>A<br>L | P<br>O<br>I<br>S<br>O<br>N | R<br>O<br>C<br>K | G<br>H<br>O<br>S<br>T | F<br>I<br>R<br>E | W<br>A<br>T<br>E<br>R | G<br>R<br>A<br>S<br>S | E<br>L<br>E<br>C<br>T<br>R | D<br>A<br>R<br>K |
|-----------------|----------------------------|----------------------------|------------------|-----------------------|------------------|-----------------------|-----------------------|----------------------------|------------------|
| Move Type ↓     |                            |                            |                  |                       |                  |                       |                       |                            |                  |
| <b>NORMAL</b>   | x1                         | x1                         | <b>x1/2</b>      | x0                    | x1               | x1                    | x1                    | x1                         | x1               |
| <b>POISON</b>   | x1                         | <b>x1/2</b>                | <b>x1/2</b>      | <b>x1/2</b>           | x1               | x1                    | <b>x2</b>             | x1                         | x1               |
| <b>ROCK</b>     | x1                         | x1                         | x1               | x1                    | <b>x2</b>        | x1                    | x1                    | x1                         | x1               |
| <b>GHOST</b>    | <b>x0</b>                  | x1                         | x1               | <b>x2</b>             | x1               | x1                    | x1                    | x1                         | <b>x1/2</b>      |
| <b>FIRE</b>     | x1                         | x1                         | <b>x1/2</b>      | x1                    | <b>x1/2</b>      | <b>x1/2</b>           | <b>x2</b>             | x1                         | x1               |
| <b>WATER</b>    | x1                         | x1                         | <b>x2</b>        | x1                    | <b>x2</b>        | <b>x1/2</b>           | <b>x1/2</b>           | x1                         | x1               |
| <b>GRASS</b>    | x1                         | <b>x1/2</b>                | <b>x2</b>        | x1                    | <b>x1/2</b>      | <b>x2</b>             | <b>x1/2</b>           | x1                         | x1               |
| <b>ELECTR</b>   | x1                         | x1                         | x1               | x1                    | x1               | <b>x2</b>             | <b>x1/2</b>           | <b>x1/2</b>                | x1               |
| <b>DARK</b>     | x1                         | x1                         | x1               | <b>x2</b>             | x1               | x1                    | x1                    | x1                         | <b>x1/2</b>      |

## On the Subject of Shape Shift

The concept is simple: change a shape into another shape according to certain rules. The rules, however, are not so simple.

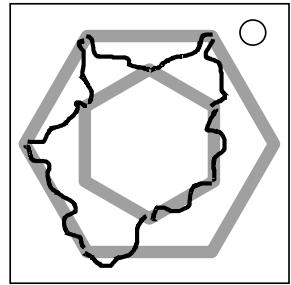
Starting at the shape displayed on the module, follow the flowchart and submit the first shape which is visited twice.



## On the Subject of Follow the Leader

*Child's play. Just follow the leader. Only if you fail to follow, the penalty is somewhat more explosive.*

This module contains 8-12 wires connecting numerically labeled plugs in a loop. Each wire leads from one plug to another plug in clockwise order. In this manual, wires are numbered according to the plug they lead from; a wire from plug 1 to plug 2 is considered to be "wire 1", while a wire from plug 12 to plug 1 is considered to be "wire 12".



Progress through the module by first cutting the starting wire, then cutting each applicable wire in the order of the sequence. Each wire will need to be either cut or left uncut based on the state of the previous wire(s) in the sequence. Avoid cutting wires out of sequence.

### Determining the starting wire

Follow the first rule below that applies:

1. If an RJ-45 port is present and there is a wire leading from plug 4 directly to plug 5, begin at that wire.
2. Otherwise, if there is a wire that begins at a plug matching the number of batteries on the bomb, begin with that wire.
3. Otherwise, if there is a wire that begins at a plug matching the first numeral of the serial number, begin at that wire.
4. Otherwise, if there is a lit indicator with the label CLR, disregard all further instructions and cut all wires present on this module in descending numerical order.
5. If none of the above apply, the starting wire is the wire earliest in numerical order.

## Cutting wires

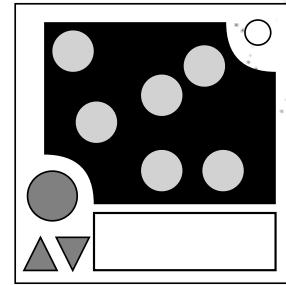
- Always cut the wire at the starting plug. Then progress to the next wire.
- From this position, cut the wires as directed by the steps in the following table. The starting step corresponds to the first letter in the serial number. If the serial number contains no letters, begin at step A.
- When progressing to the next wire, also progress to the next step alphabetically in the table to determine whether to cut the wire.
- “Previous wire(s)” may refer to wires beyond the original starting position in the sequence.
- If the wire at the starting plug is red, green or white, progress through the steps in reverse alphabetical order instead.

| Step   | Cut this wire if:   |
|--------|---|
| A or N | The previous wire is not yellow or blue or green.                     |
| B or O | The previous wire leads to an even numbered plug.                     |
| C or P | The previous wire should be cut.                                      |
| D or Q | The previous wire is red or blue or black.                            |
| E or R | At least two of the previous three wires share a color.               |
| F or S | Exactly one of the previous two wires is the same color as this wire. |
| G or T | The previous wire is yellow or white or green.                        |
| H or U | The previous wire should not be cut.                                  |
| I or V | The previous wire skips a plug.                                       |
| J or W | The previous wire is not white or black or red.                       |
| K or X | The previous two wires are different colors.                          |
| L or Y | The previous wire does not lead to a position labeled 6 or less.      |
| M or Z | Exactly one or neither of the previous two wires are white or black.  |

# Magic On the Subject of Friendship

*Hey. I could defuse this bomb in ten seconds flat.*

- Locate the friendship symbols from the display in the following table.
- Out of the symbols indicating columns, disregard the one furthest left on the display that isn't exactly above or below any other friendship symbol on the display.
- Out of the symbols indicating rows, disregard the one furthest up on the display that isn't on the same height as any other friendship symbol on the display.
- Select one of the Elements of Harmony located at the intersections of the remaining rows and columns.



|  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|  | J | G | U | K | V | 8 | L | C | H | 4 | W | P | M | R |
|  | 7 | S | 8 | U | N | J | 9 | Y | F | P | Q | C | R | 4 |
|  | Q | R | H | 4 | F | 7 | J | E | 8 | T | N | 9 | A | X |
|  | D | 3 | S | H | U | E | T | P | V | J | L | A | 4 | 7 |
|  | A | F | 3 | T | M | P | R | W | S | X | U | N | G | B |
|  | V | K | G | P | Q | D | U | L | 3 | H | M | R | E | C |
|  | 4 | 9 | T | F | B | X | D | U | Y | 3 | R | L | H | M |
|  | G | 4 | 9 | J | 8 | 3 | X | K | A | Y | S | W | 7 | D |
|  | K | T | F | B | J | Q | 3 | S | E | C | P | U | W | L |
|  | S | M | A | C | 7 | H | E | B | G | F | V | X | L | N |
|  | 8 | 7 | V | L | 9 | R | K | D | T | Q | B | Y | X | A |
|  | W | 8 | 4 | Q | G | Y | V | T | 7 | N | 3 | B | C | P |
|  | M | A | W | 9 | H | K | Y | J | N | D | X | E | 8 | F |
|  | Y | N | B | G | W | S | M | Q | K | 9 | C | V | D | E |
|  |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

A = Altruism

H = Conscientiousness

Q = Honesty

X = Resoluteness

B = Amicability

J = Consideration

R = Inspiration

Y = Selflessness

C = Authenticity

K = Courage

S = Kindness

3 = Sincerity

D = Benevolence

L = Fairness

T = Laughter

4 = Solidarity

E = Caring

M = Flexibility

U = Loyalty

7 = Support

F = Charitableness

N = Generosity

V = Open-mindedness

8 = Sympathy

G = Compassion

P = Helpfulness

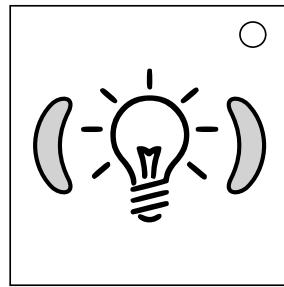
W = Patience

9 = Thoughtfulness

## On the Subject of The Bulb

*How many bomb defusal experts does it take to screw in a light bulb?*

This module has two buttons labeled **I** and **O** and a light bulb, which is either see-through (translucent) or opaque, and is one of six colors: blue, green, purple, red, white or yellow.



If you incur a strike because you pushed a wrong button, ignore it and continue. If you incur a strike because you unscrewed or screwed in the bulb at an incorrect time, you must undo that before continuing.

Begin at Step 1 below.

While the bulb is screwed in, a long press on either button will reset the module back to Step 1. Attempting this while the bulb is out will incur a strike.

**Step 1** • If the light is on and the bulb is see-through, press **I** and go to **Step 2**.

- If the light is on and the bulb is opaque, press **O** and go to **Step 3**.
- Otherwise, unscrew the bulb and go to **Step 4**.

**Step 2** • If the bulb is red, press **I**, then unscrew it and go to **Step 5**.

- If the bulb is white, press **O**, then unscrew it and go to **Step 6**.
- Otherwise, unscrew the bulb and go to **Step 7**.

**Step 3** • If the bulb is green, press **I**, then unscrew it and go to **Step 6**.

- If the bulb is purple, press **O**, then unscrew it and go to **Step 5**.
- Otherwise, unscrew the bulb and go to **Step 8**.

**Step 4** • If the bomb has any of the following indicators: CAR, IND, MSA or SND, press **I** and go to **Step 9**.

- Otherwise, press **O** and go to **Step 10**.

**Step 5** • If the light went off at Step 1, press the same button again, then screw the bulb back in.

- Otherwise, press the button you haven't yet pressed, then screw the bulb back in.

**Step 6** • If the bulb went off when you pressed **I**, press the button that you pressed in Step 1, then screw the bulb back in.

- Otherwise, press the button that you pressed in Step 2 or 3, then screw the bulb back in.

- Step 7**
- If the bulb is green, press **I**, remember SIG and go to **Step 11**.
  - If the bulb is purple, press **I**, then screw it back in and go to **Step 12**.
  - If the bulb is blue, press **O**, remember CLR and go to **Step 11**.
  - Otherwise, press **O**, then screw the bulb back in and go to **Step 13**.
- Step 8**
- If the bulb is white, press **I**, remember FRQ and go to **Step 11**.
  - If the bulb is red, press **I**, then screw it back in and go to **Step 13**.
  - If the bulb is yellow, press **O**, remember FRK and go to **Step 11**.
  - Otherwise, press **O**, then screw the bulb back in and go to **Step 12**.
- Step 9**
- If the bulb is blue, press **I** and go to **Step 14**.
  - If the bulb is green, press **I**, then screw it back in and go to **Step 12**.
  - If the bulb is yellow, press **O** and go to **Step 15**.
  - If the bulb is white, press **O**, then screw it back in and go to **Step 13**.
  - If the bulb is purple, screw it back in, then press **I** and go to **Step 12**.
  - Otherwise, screw the bulb back in, then press **O** and go to **Step 13**.
- Step 10**
- If the bulb is purple, press **I** and go to **Step 14**.
  - If the bulb is red, press **I**, then screw it back in and go to **Step 13**.
  - If the bulb is blue, press **O** and go to **Step 15**.
  - If the bulb is yellow, press **O**, then screw it back in and go to **Step 12**.
  - If the bulb is green, screw it back in, then press **I** and go to **Step 13**.
  - Otherwise, screw the bulb back in, then press **O** and go to **Step 12**.
- Step 11**
- If the bomb has the remembered indicator, press **I**, then screw the bulb back in.
  - Otherwise, press **O**, then screw the bulb back in.
- Step 12**
- If the light is now on, press **I**.
  - Otherwise, press **O**.
- Step 13**
- If the light is now on, press **O**.
  - Otherwise, press **I**.
- Step 14**
- If the bulb is opaque, press **I**, then screw the bulb back in.
  - Otherwise, press **O**, then screw the bulb back in.
- Step 15**
- If the bulb is see-through, press **I**, then screw the bulb back in.
  - Otherwise, press **O**, then screw the bulb back in.

## On the Subject of the Blind Alley

What? Where?

The module appears blank, but has eight touch-sensitive regions laid out as in the following diagram. Touch the regions that have the most conditions met in any order.



|   |  |  |
|---|--|--|
| <ul style="list-style-type: none"> <li>• There is an unlit BOB indicator.</li> <li>• There is a lit CAR indicator.</li> <li>• There is a lit IND indicator.</li> <li>• There is an even number of battery holders.</li> </ul> | <ul style="list-style-type: none"> <li>• There is an unlit CAR indicator.</li> <li>• There is an unlit NSA indicator.</li> <li>• There is a lit FRK indicator.</li> <li>• There is an RJ-45 port.</li> </ul>               |  |
| <ul style="list-style-type: none"> <li>• There is an unlit FRQ indicator.</li> <li>• There is an unlit IND indicator.</li> <li>• There is an unlit TRN indicator.</li> <li>• There is a DVI-D port.</li> </ul>                | <ul style="list-style-type: none"> <li>• There is an unlit SIG indicator.</li> <li>• There is an unlit SND indicator.</li> <li>• There is a lit NSA indicator.</li> <li>• There is an even number of batteries.</li> </ul> | <ul style="list-style-type: none"> <li>• There is a lit BOB indicator.</li> <li>• There is a lit CLR indicator.</li> <li>• There is a PS/2 port.</li> <li>• There is a serial port.</li> </ul>                   |
| <ul style="list-style-type: none"> <li>• There is a lit FRQ indicator.</li> <li>• There is a lit SIG indicator.</li> <li>• There is a lit TRN indicator.</li> <li>• There is an even digit in the serial number.</li> </ul>   | <ul style="list-style-type: none"> <li>• There is an unlit FRK indicator.</li> <li>• There is a lit MSA indicator.</li> <li>• There is a parallel port.</li> <li>• There is a vowel in the serial number.</li> </ul>       | <ul style="list-style-type: none"> <li>• There is an unlit CLR indicator.</li> <li>• There is an unlit MSA indicator.</li> <li>• There is a lit SND indicator.</li> <li>• There is a stereo RCA port.</li> </ul> |

## On the Subject of English Tests

You've lived all your life writing however you wanted without giving a second thought to who would be reading what you misspelled. But now, your life depends on your grammar and orthography, and this bomb is very nitpicky. You should of paid more attention in you're English class.

...Oh, carp.

See Appendix: Grammar for more information.

- An English sentence with one *italic* word or phrase will be displayed on the large LCD display.
- Your goal is to select the correct word that fills in the blank.
- If multiple words appear to complete the sentence correctly, remember that this module is a pedantic prescriptivist!
- There are three rounds. Correctly complete all the sentences to disarm the module.
- If a mistake is made during the course of the test, the question number will reset to 1.

Question 1/3

We need to *diffuse* this bomb quickly.

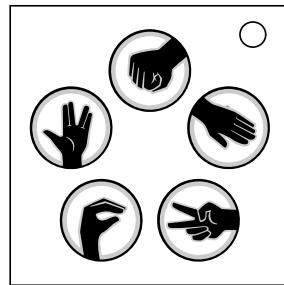
diffuse defuse



## On the Subject of Rock-Paper-Scissors-Lizard-Spock

Anecdotal evidence suggests that in the game of Rock-Paper-Scissors, players familiar with each other will tie 75 to 80% of the time due to the limited number of outcomes. Rock-Paper-Scissors-Lizard-Spock was created by Internet pioneer Sam Kass as an improvement on the classic game. All hail Sam Kass. Hail.

To disarm this module, determine the correct signs to press.



First, determine the decoy. If the five signs are arranged in a regular pentagon, there is no decoy. Otherwise, the decoy is the one that is in the middle of the arrangement or in the middle in a line of three (horizontal, diagonal or vertical).

Next, go through the rows of the following table and determine the highest-scoring sign in each row. Stop at the first row in which there's no tie and the highest-scoring sign is not the decoy. Then press the signs on the module that beat this sign. If no row applies, press all signs except the decoy.

Which sign beats which? It's very simple. Scissors cuts paper. Paper covers rock. Rock crushes lizard. Lizard poisons Spock. Spock smashes scissors. Scissors decapitates lizard. Lizard eats paper. Paper disproves Spock. Spock vaporizes rock. And, as it always has, rock crushes scissors.

| # of occurrences of:  | Rock     | Paper    | Scissors | Lizard   | Spock      |
|---|----------|----------|----------|----------|------------|
| <b>serial number letter</b><br>Skip this row if the serial number contains an X or Y. | R, O     | P, A     | S, I     | L, Z     | C, K       |
| <b>port</b><br>Skip this row if a PS/2 port is present.                               | RJ-45    | Parallel | Serial   | DVI-D    | Stereo RCA |
| <b>lit indicator</b><br>Skip this row if a lit TRN indicator is present.              | FRK, FRQ | BOB, IND | CAR, SIG | CLR, NSA | SND, MSA   |
| <b>unlit indicator</b><br>Skip this row if an unlit TRN indicator is present.         | FRK, FRQ | BOB, IND | CAR, SIG | CLR, NSA | SND, MSA   |
| <b>serial number digit</b>  | 0, 5     | 3, 6     | 1, 9     | 2, 8     | 4, 7       |

## On the Subject of the Mystic Square

*O knight in shining armour, deliver us from the evils of the skull!*

1. “row”/“column” on this page always refers to the table below.

2. Do not uncover the skull before uncovering the knight.

3. 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 diagram on the right, use rows. Otherwise, use columns.

|   |   |   |
|---|---|---|
| X |   | X |
|   | X |   |
| X |   | X |

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 shown on the next page.

|                   |                                    | last serial digit does not lie 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.



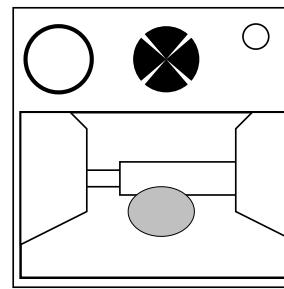
|   |   |   |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 |   |

|            | C1 > C2,C3              | C2 > C1,C3              | C3 > C1,C2              | else                    |
|------------|-------------------------|-------------------------|-------------------------|-------------------------|
| R1 > R2,R3 | 1 ? 2<br>? ? ?<br>4 ? 3 | 1 ? 2<br>? ? ?<br>3 ? 4 | 1 ? 3<br>? ? ?<br>7 ? 5 | 1 ? 3<br>? ? ?<br>5 ? 7 |
|            | ? 1 ?<br>4 ? 2<br>? 3 ? | ? 1 ?<br>3 ? 2<br>? 4 ? | ? 2 ?<br>8 ? 4<br>? 6 ? | ? 2 ?<br>6 ? 4<br>? 8 ? |
|            | 1 ? ?<br>? 2 ?<br>? ? 3 | ? ? 3<br>? 2 ?<br>1 ? ? | 3 ? ?<br>? 2 ?<br>? ? 1 | ? ? 1<br>? 2 ?<br>3 ? ? |
| else       | 1 2 3<br>? 4 ?<br>? ? ? | 1 ? ?<br>2 4 ?<br>3 ? ? | ? ? ?<br>? 4 ?<br>1 2 3 | ? ? 1<br>? 4 2<br>? ? 3 |

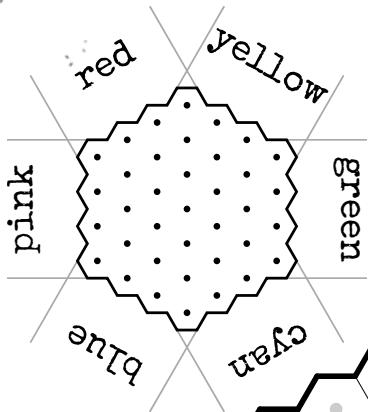
## On the Subject of the Mouse In The Maze

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.

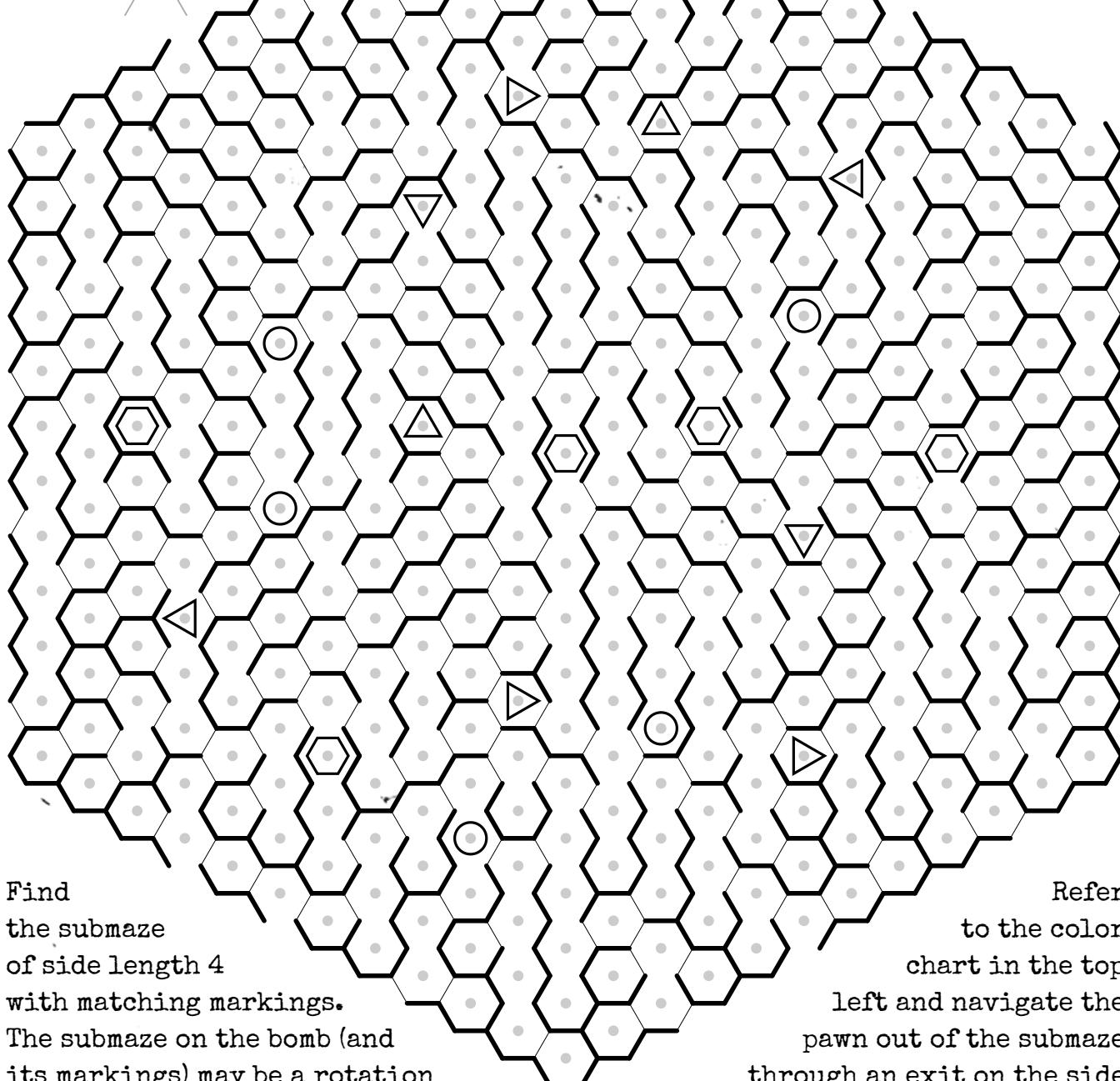
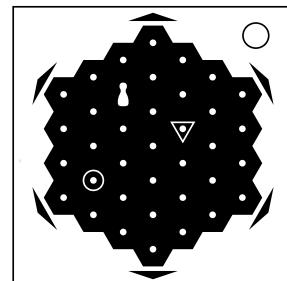


| Maze | Torus color | Sphere color | Maze | Torus color | Sphere color |
|------|-------------|--------------|------|-------------|--------------|
|      | blue        | white        |      | yellow      | blue         |
|      | yellow      | yellow       |      | white       | yellow       |
|   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



## On the Subject of Hexamazes

*Dammit Jim, I'm a doctor, not a honeybee!*



Find  
the submaze  
of side length 4  
with matching markings.

The submaze on the bomb (and  
its markings) may be a rotation  
of the maze as it is shown above.

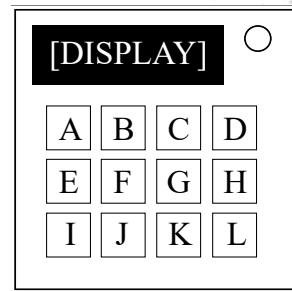
Refer  
to the color  
chart in the top  
left and navigate the  
pawn out of the submaze  
through an exit on the side  
indicated by the pawn's color.

**Warning:** Do not cross the lines shown in the  
maze. These lines are invisible on the bomb.

## On the Subject of Caesar Cipher

*Communication was dangerous back in the days. Can you figure out what the original message was?*

Decipher the characters on the display with the help of Caesar's tactics. There's no delete button, so press those buttons carefully!



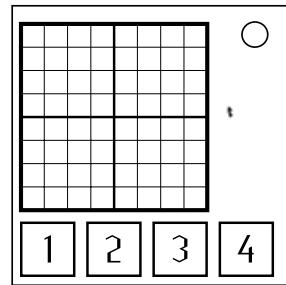
For example: if the offset is -2, **D** becomes **B** and **L** becomes **J**. The table below can be used to calculate the required offset. If the offset column contains an = sign, that value should be used, regardless of other rules that apply.

| Condition   | Offset         |
|---|----------------|
| Serial number contains a vowel                            | -1             |
| Number of batteries                                       | +1 per battery |
| The last digit of the serial number is even               | +1             |
| Indicator with label CAR is present                       | +1             |
| Parallel port and lit indicator with label NSA is present | =0             |

## On the Subject of Bitmaps

Over 18 quintillion combinations, only some of them actually matter.

- The module displays a bitmap of 64 pixels divided into four “quadrants”. Each pixel is bright (which we call “white” although it may be colored) or dark (“black”).
- There are 4 buttons underneath, labeled 1, 2, 3, and 4.
- In the following table, start at the rule whose number equals the last digit of the serial number.
- Keep going through the rules (wrapping around if necessary) until you encounter a condition that applies.
- Calculate the answer for the applicable rule. Repeatedly add or subtract 4 until the answer is between 1 and 4 and press the corresponding button to disarm the module.



| # | Rule   |
|---|--|
| 0 | If exactly one quadrant has 5 or fewer white pixels, the answer is the number of white pixels in the other 3 quadrants.  |
| 1 | If there are exactly as many mostly-white quadrants as there are lit indicators, the answer is the number of batteries.  |
| 2 | If exactly one row or column is completely white or completely black, the answer is its x-/y-coordinate (starting from 1 in the top/left).                                       |
| 3 | If there are fewer mostly-white quadrants than mostly-black quadrants, the answer is the number of mostly-black quadrants.   |
| 4 | If the entire bitmap has 36 or more white pixels, the answer is the total number of white pixels.  |
| 5 | If there are more mostly-white quadrants than mostly-black quadrants, the answer is the smallest number of black pixels in any quadrant.   |
| 6 | If exactly one quadrant has 5 or fewer black pixels, the answer is the number of black pixels in the other 3 quadrants.  |
| 7 | If there are exactly as many mostly-black quadrants as there are unlit indicators, the answer is the number of ports.  |
| 8 | If there is a 3x3 square that is completely white or completely black, the answer is the x-coordinate (starting from 1) of the center of the first such square in reading order. |
| 9 | If there are exactly as many mostly-white quadrants as mostly-black quadrants, the answer is the first numeric digit of the serial number.                                       |

## On the Subject of Colored Squares

*There is order in chaos. A pattern in the colors. Find it, and all will become clear.*

*See Appendix for identifying modules in Colored Squares family.*

| Color | Color | Color | Color |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

- Press all squares in the correct group to progress the module.
- Pressing a square will cause it to light up white. Make all squares white to disarm the module.
- To begin, press the color group containing the fewest squares. If there is a tie, you are looking at a different module. Refer to the appendix below.
- Then use the table to determine the next group to press in each stage.
- “Group” refers to all squares of a particular color, or all non-white squares in the topmost row or leftmost column containing non-white squares.
- Pressing an incorrect square will result in a strike and reset the module.
- White squares will remain white for the duration of the module, but non-white squares may change color in each stage.

| Currently<br>White<br>Squares | Previous Group of Squares Pressed |         |         |         |         |         |         |
|-------------------------------|-----------------------------------|---------|---------|---------|---------|---------|---------|
|                               | Red                               | Blue    | Green   | Yellow  | Magenta | Row     | Column  |
| 1                             | Blue                              | Column  | Red     | Yellow  | Row     | Green   | Magenta |
| 2                             | Row                               | Green   | Blue    | Magenta | Red     | Column  | Yellow  |
| 3                             | Yellow                            | Magenta | Green   | Row     | Blue    | Red     | Column  |
| 4                             | Blue                              | Green   | Yellow  | Column  | Red     | Row     | Magenta |
| 5                             | Yellow                            | Row     | Blue    | Magenta | Column  | Red     | Green   |
| 6                             | Magenta                           | Red     | Yellow  | Green   | Column  | Blue    | Row     |
| 7                             | Green                             | Row     | Column  | Blue    | Magenta | Yellow  | Red     |
| 8                             | Magenta                           | Red     | Green   | Blue    | Yellow  | Column  | Row     |
| 9                             | Column                            | Yellow  | Red     | Green   | Row     | Magenta | Blue    |
| 10                            | Green                             | Column  | Row     | Red     | Magenta | Blue    | Yellow  |
| 11                            | Red                               | Yellow  | Row     | Column  | Green   | Magenta | Blue    |
| 12                            | Column                            | Blue    | Magenta | Red     | Yellow  | Row     | Green   |
| 13                            | Row                               | Magenta | Column  | Yellow  | Blue    | Green   | Red     |
| 14                            | Red                               | Blue    | Magenta | Row     | Green   | Yellow  | Column  |
| 15                            | Column                            | Row     | Column  | Row     | Column  | Row     | Column  |

## Appendix: Identifying brethren of Colored Squares

If one color occurs fewer times than any other (no tie):

### (Not) Colored Squares

Upon a successful button press, the pressed button will turn white in Colored Squares and black in Not Colored Squares.

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

If two colors occur fewer times than the rest (two-way tie):

### Uncolored Squares

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

If three colors occur exactly twice each and two occur exactly 5 times each:

### Decolored Squares

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

If four colors occur exactly once each:

### Discolored Squares

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

If four colors occur exactly three times each:

### Varicolored Squares

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

If there are 16 different colors:

### Juxtapcolored Squares

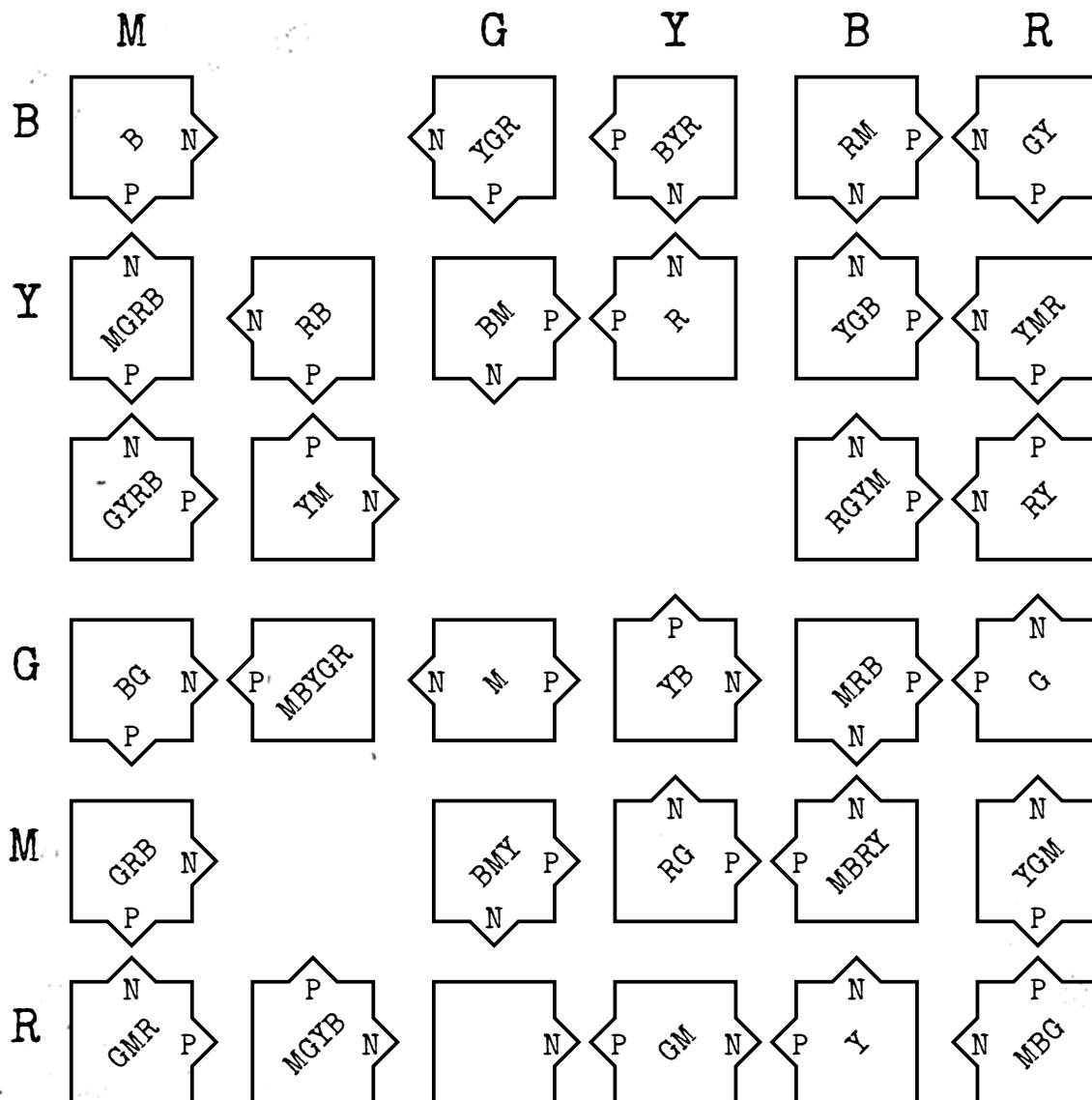
|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

## On the Subject of Decolored Squares

*A structure cannot stand without a foundation. Logic is the foundation of function. Function is the essence of control.*

- At the start, if there are not three colors that occur exactly twice each and two that occur exactly 5 times each, you are looking at a different module.
- Find your starting position in the following flowchart. The column is the color of B1, the row that of B4 (letters are columns from left to right, numbers rows from top to bottom). Re-assess this in case of strikes.
- Examine the top-left square. If its color is listed in your current flowchart cell, follow the “P” arrow and tap the square; otherwise, follow the “N” arrow. Then move on to the next square.
- The “next square” is the one to the right of the current square. After each full row, continue processing the remaining rows from top to bottom.
- The colors are **B** (blue), **G** (green), **M** (magenta), **R** (red) and **Y** (yellow).

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |



## On the Subject of Discolored Squares

Order gives way to entropy. Entropy is the disappearance of order. Welcome... to the real chaos.

- At the start, if there are not four colors that occur exactly once each, you are looking at a different module.
- Begin by pressing those four colors. Remember their positions and colors in the order you pressed them. Then stage 1 begins. If none of the squares in stage 1 are of the first remembered color, you are looking at a different module.
- At each stage, look at the below table and read the cell in the respective remembered position to obtain an instruction.

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

### Instructions

|  |                   |  |                   |  |                   |  |                   |
|--|-------------------|--|-------------------|--|-------------------|--|-------------------|
|  | Move NW<br>(wrap) |  | Move NE<br>(wrap) |  | Move N<br>(wrap)  |  | Rotate<br>180°    |
|  | Mirror<br>about \ |  | Move SW<br>(wrap) |  | Mirror<br>about   |  | Stay in<br>place  |
|  | Mirror<br>about / |  | Move E<br>(wrap)  |  | Rotate<br>90° CW  |  | Move W<br>(wrap)  |
|  | Mirror<br>about — |  | Move S<br>(wrap)  |  | Rotate<br>90° CCW |  | Move SE<br>(wrap) |

- Take all the squares of the respective remembered color in the order specified below and do the following for each such square:
  - Modify its position as instructed by the table cell.
  - If the modification takes you to an already white square, keep applying the modification.
  - Press the first non-white square you land on.
  - If the square you pressed is of the current remembered color, remove that square from future consideration for the remainder of this stage.
- Process the squares in the following order:

| Stage 1 |    |   |    |
|---------|----|---|----|
| 5       | 12 | 1 | 15 |
| 14      | 13 | 7 | 3  |
| 9       | 4  | 6 | 10 |
| 16      | 2  | 8 | 11 |

| Stage 2 |    |    |    |
|---------|----|----|----|
| 1       | 14 | 6  | 7  |
| 12      | 15 | 3  | 10 |
| 16      | 4  | 2  | 11 |
| 9       | 8  | 13 | 5  |

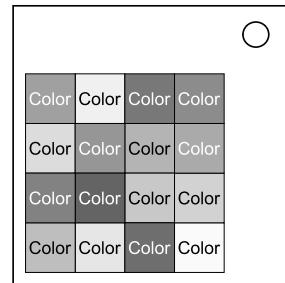
| Stage 3 |    |    |    |
|---------|----|----|----|
| 16      | 9  | 7  | 12 |
| 6       | 15 | 3  | 5  |
| 11      | 8  | 13 | 14 |
| 2       | 10 | 1  | 4  |

| Stage 4 |    |    |    |
|---------|----|----|----|
| 4       | 11 | 3  | 14 |
| 16      | 12 | 7  | 8  |
| 5       | 2  | 6  | 9  |
| 1       | 13 | 15 | 10 |

## On the Subject of Juxtacolored Squares

You are influenced by the ones around you. You are but a product of your surroundings. Let your surroundings become a product of you.

- This module contains a  $4 \times 4$  grid of differently colored squares. If any squares share the same color, you are looking at a different module.
- Referring to the table on the next page, each color in the “color” column that has one of the colors in the “left/right” column directly left or right of it on the colored square grid must be pressed.
- Each color in the “color” column that has one of the colors in the “above/below” column directly above or below it on the colored square grid must be pressed.
- If an incorrect square is pressed, the grid will blank out and regenerate a different grid.
- Press every correct color on the grid to solve the module. Correct squares will turn white when pressed.
- There should always be at least one correct square to press.
- The colors present on the module are shown below. The parenthesized letter is used in color-blind mode (black has no letter).
- NOTE:** Even when a square is white, the original color of that square still counts for checking the validity of other squares.



|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

| Red<br>(R)      | Blue<br>(B)   | Yellow<br>(Y) | Green<br>(G)  |
|-----------------|---------------|---------------|---------------|
| Magenta<br>(M)  | Orange<br>(O) | Cyan<br>(C)   | Purple<br>(P) |
| Chestnut<br>(H) | Brown<br>(N)  | Mauve<br>(V)  | Azure<br>(Z)  |
| Jade<br>(J)     | Forest<br>(F) | Gray<br>(A)   | Black         |

| Color    | Left/Right               | Above/Below            |
|----------|--------------------------|------------------------|
| Azure    | Black, Mauve, Chestnut   | Jade, Gray, Blue       |
| Black    | Brown, Azure, Magenta    | Chestnut, Orange, Gray |
| Blue     | Green, Jade, Azure       | Black, Forest, Gray    |
| Brown    | Cyan, Azure, Magenta     | Forest, Mauve, Blue    |
| Chestnut | Azure, Brown, Mauve      | Black, Orange, Blue    |
| Cyan     | Yellow, Mauve, Magenta   | Forest, Chestnut, Blue |
| Forest   | Purple, Jade, Mauve      | Gray, Blue, Red        |
| Green    | Magenta, Chestnut, Azure | Yellow, Purple, Blue   |
| Gray     | Purple, Magenta, Black   | Chestnut, Jade, Blue   |
| Jade     | Brown, Chestnut, Black   | Magenta, Green, Cyan   |
| Magenta  | Jade, Orange, Black      | Gray, Mauve, Brown     |
| Mauve    | Gray, Orange, Chestnut   | Purple, Azure, Jade    |
| Orange   | Blue, Cyan, Azure        | Forest, Black, Jade    |
| Purple   | Gray, Brown, Mauve       | Orange, Green, Yellow  |
| Red      | Brown, Orange, Black     | Mauve, Green, Chestnut |
| Yellow   | Magenta, Gray, Chestnut  | Jade, Mauve, Blue      |

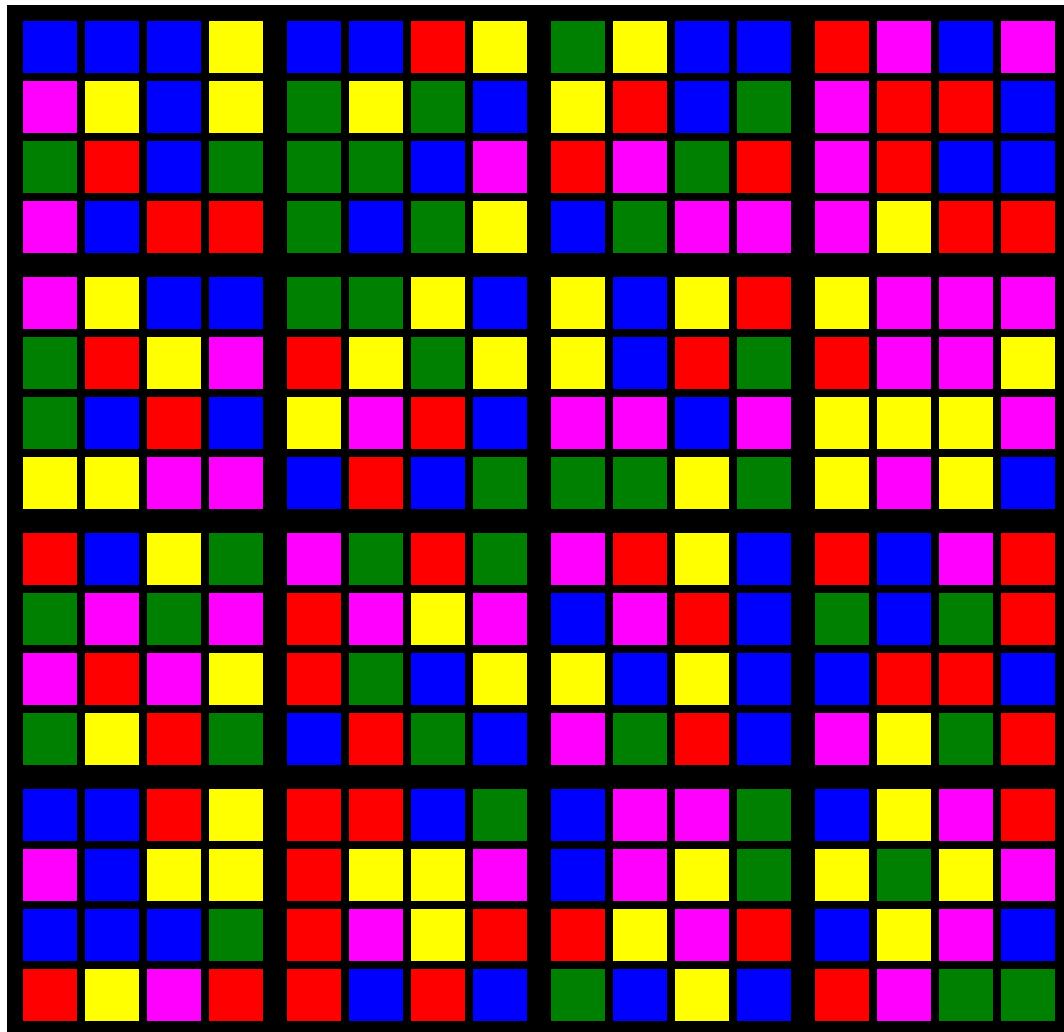
## On the Subject of Not Colored Squares

*There is chaos in order. A color in the patterns. Find clear, and all will become it.*

See Appendix of [Colored Squares](#) for identifying modules in Colored Squares family.

| Color | Color | Color | Color |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

- Follow the instructions in the [Colored Squares](#) manual for exactly one stage. You will only ever press one button.
- Use the position of the button in the table below to select a grid of colors. Press the black button when every non-black button on the module matches that grid.
- Press a button in the same row or column as the black button to swap those buttons' colors.

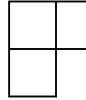
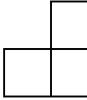
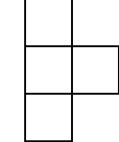
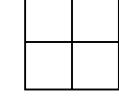
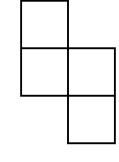
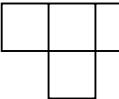
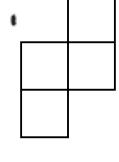
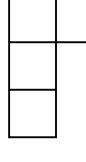
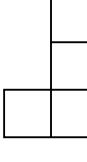
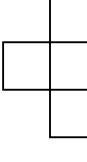
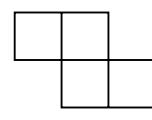
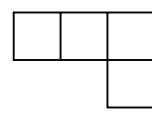
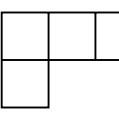


## On the Subject of Uncolored Squares

A pattern is more than the sum of its parts. Find the parts, and let the pattern emerge.

- Press squares in specific patterns to progress the module.
- At each stage, find the two colors that occur fewer times than any other colors. If there is no such two-way tie at the start, you are looking at a different module.
- Using those two colors, determine the pattern to press below. Press any set of lit squares in that pattern.
- Once completed, the squares making up the pattern become unlit and the next stage is generated. Repeat this process until the module is disarmed.

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

| Other color ↓ | First color in reading order  |   |   |   |   |
|---------------|---|---|---|---|---|
|               | Red   | Green   | Blue  | Yellow  | Magenta   |
| Red           |   |   |   |   |   |
| Green         |  |   |  |  |  |
| Blue          |  |  |   |  |  |
| Yellow        |  |  |  |   |  |
| Magenta       |  |  |  |  |   |

## On the Subject of Varicolored Squares

*Conformity is key. Patterns encourage conformity. Find the pattern, and conformity will naturally arise.*

- Pressing a square will cause it to flash white and may cause other squares to change color. Make all squares have the same color to disarm the module.
- Pressing any square of the valid color will progress the module by causing all squares connected to the square pressed first which match its color to change to the pressed color. If this does not increase in size after three presses, the color of the pressed square will change.
- To begin, press a square of the color occurring 4 times. If the remaining colors aren't in 4 groups of 3, you are looking at a different module.
- Then use Table A to determine the next valid color.
- Pressing an incorrect square will result in a strike and reset the module.

|       |       |       |       |
|-------|-------|-------|-------|
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |
| Color | Color | Color | Color |

Table A

Consider the list of distinct colors adjacent to the flashing square and use the table below. Note that “adjacent” squares are the squares immediately above, below, left, and right of a given square.

| Colors  | Rule   |
|---|--|
| 1   | The next valid color is the color which is clockwise from the adjacent color in the correct pentagon in Table B.                                     |
| 2   | If the two colors are adjacent in the correct pentagon in Table B, the next valid color is the color which is opposite those two colors.             |
|   | Otherwise, the next valid color is the color which is between those two colors.  |
| 3   | If the three colors are adjacent in the correct pentagon in Table B, the next valid color is the color which is opposite the two colors not present. |
|   | Otherwise, the next valid color is the color which is between the two colors not present.  |
| 4   | The next valid color is the color which is not present.  |
| <p><i>Note: if, at any point, the valid color is the same as the color pressed previously or no squares are present of the valid color, the valid color changes to the color counter-clockwise from the valid color in the correct pentagon in Table B.</i></p> |  |

**Table B**

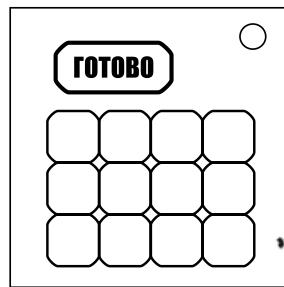
Consider the color of the currently flashing square and use the table below.  
 Each letter refers to the color starting with that letter.

| Blue    | Red    |
|---------|--------|
|         |        |
| Magenta | Yellow |
|         |        |
| Green   |        |
|         |        |

## Смежные буквы (Русский)

ВЕРХ, низ, лево, право, ВЕРХ, низ, лево, право...!

Убедитесь, что на кнопке вверху модуля написано "ГОТОВО", а не "SUBMIT". В противном случае, это неправильная инструкция.



- На каждой клавише написана буква.
- С помощью таблицы определите, какие клавиши нажать.
- Каждая из букв в колонке "Буква", граничащая слева или справа с одной из букв из колонки "Слева/Справа", должна быть нажата.
- Каждая из букв в колонке "Буква", граничащая сверху или снизу с одной из букв из колонки "Сверху/Снизу", должна быть нажата.
- Нажмите кнопку "ГОТОВО", чтобы подтвердить ответ. **Важно:** Если нужно нажать несколько клавиш, их можно нажимать в любом порядке.

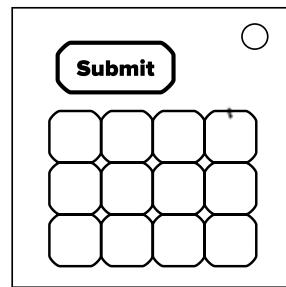
| Буква | Слева/Справа | Сверху/Снизу |
|-------|--------------|--------------|
| А     | БГМНТ        | ДМПТШ        |
| Б     | АЦЫЮЯ        | ЖХЩЭ         |
| В     | ИЫЭЮЯ        | БГЬЭЮ        |
| Г     | ВДЕИК        | ЕЖИКР        |
| Д     | ВИХЩЬ        | АИМОХ        |
| Е     | АДЛУЬ        | АЙМНТ        |
| Ж     | АДЙТУ        | ЦЩЬЮЯ        |
| З     | ВМРЧЫ        | БОУЩЬ        |
| И     | ЖКРФХ        | БРЬЫЬ        |
| Й     | НПСЬЭ        | ВДСХЩ        |
| К     | ЕЖЛУФ        | ДЖМОЦ        |
| Л     | ЖЙШЬ         | ЕЖЭЮЯ        |
| М     | ОФХЧШ        | НСЦЧЫ        |
| Н     | ЙЛОФЬ        | ЛУЦЩЬ        |
| О     | ГДЖЬЭ        | ГЖЗКР        |
| П     | ВОРЦЫ        | ГДНРУ        |

| Буква | Слева/Справа | Сверху/Снизу |
|-------|--------------|--------------|
| Р     | БЭКСЬ        | ВГЙНЦ        |
| С     | БВЗЛЦ        | БГЕЭИ        |
| Т     | ЕИМСЯ        | ВЕЙЛФ        |
| У     | ИПЦЩЬ        | АКЛПШ        |
| Ф     | АОПЦШ        | АВДЗО        |
| Х     | ГЭСФЧ        | ВЛТФӘ        |
| Ц     | КЛОХЩ        | ЛПСХЬ        |
| Ч     | ЕРЩЭЮ        | БНПРУ        |
| Ш     | КМСУЧ        | ОЧЬЮЯ        |
| Щ     | ГИМТХ        | АЕИЙП        |
| Ъ     | БДЖИН        | МФЧШЯ        |
| Ы     | БПЩЮЯ        | ЗКСХЧ        |
| Ь     | ЕУЭЮЯ        | ИЙСТУ        |
| Ә     | АГЗПТ        | ФШЬЮЯ        |
| ҃     | НРЧШЬ        | ЗФШҮЭ        |
| ҂     | ЗНТШЫ        | КЧЬЫЬ        |

## On the Subject of Adjacent Letters

UP, down, left, right, UP, down, left, right...!

- Every button will have a different letter on it.
- Check the table to determine which buttons to press.
- Each letter in the “letter” column that has one of the letters in the “left/right” column directly left or right of it on the keypad must be pressed.
- Each letter in the “letter” column that has one of the letters in the “above/below” column directly above or below it on the keypad must be pressed.
- Press Submit to submit your answer. **Notes:** Multiple buttons can be pressed and they can be in **any** order.



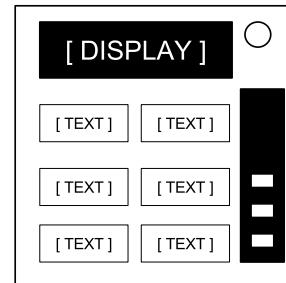
| Letter | Left/right | Above/below |
|--------|------------|-------------|
| A      | GJMOY      | HKPRW       |
| B      | IKLRT      | CDFYZ       |
| C      | BHIJW      | DEMTU       |
| D      | IKOPQ      | CJT UW      |
| E      | ACGIJ      | KSUWZ       |
| F      | CERVY      | AGJPQ       |
| G      | ACFNS      | HOQYZ       |
| H      | LRTUX      | DKMPS       |
| I      | DLOWZ      | EFNUV       |
| J      | BQT UW     | EHIOS       |
| K      | AFPXY      | DIORZ       |
| L      | GKPTZ      | ABRVX       |
| M      | EILQT      | BFPWX       |

| Letter | Left/right | Above/below |
|--------|------------|-------------|
| N      | PQRSV      | AFGHL       |
| O      | HJLUZ      | IQSTX       |
| P      | DMNOX      | CFHKR       |
| Q      | CEOPV      | BDIKN       |
| R      | AEGSU      | BNOXY       |
| S      | ABEKQ      | GMVYZ       |
| T      | GVXYZ      | CJLSU       |
| U      | FMVXZ      | BILNY       |
| V      | DHMNW      | AEJQX       |
| W      | DFHMN      | GLQRT       |
| X      | BDFKW      | AJNOV       |
| Y      | BCHSU      | EGMTW       |
| Z      | JNRSY      | CLMPV       |

## On the Subject of Third Base

This module is identical to Who's On First, except with four characters on each button instead of confusing words and phrases. This should be easy... right?

1. Read the display and use step 1 to determine which button label to read.
2. Using this button label, use step 2 determine which button to push.
3. Repeat until the module has been disarmed.



### Step 1:

Based on the display, read the label of a particular button and proceed to step 2:

| NHXS |
|------|
|      |
|      |
| eye  |

| IH6X |
|------|
|      |
| eye  |
|      |

| XI8Z |
|------|
|      |
|      |
|      |
| eye  |

| I809 |
|------|
|      |
|      |
|      |
| eye  |

| XOHZ |
|------|
|      |
|      |
|      |
| eye  |

| H68S |
|------|
|      |
| eye  |
|      |

| 80XN |
|------|
|      |
|      |
| eye  |

| Z8IX |
|------|
|      |
|      |
| eye  |

| SXHN |
|------|
|      |
|      |
| eye  |

| 6NZH |
|------|
|      |
| eye  |
|      |

| H6SI |
|------|
|      |
|      |
| eye  |

| 608I |
|------|
|      |
|      |
| eye  |

| NX08 |
|------|
|      |
|      |
| eye  |

| 66I8 |
|------|
|      |
|      |
| eye  |

| S89H |
|------|
|      |
|      |
| eye  |

| SNZX |
|------|
|      |
|      |
| eye  |

| 9NZS |
|------|
|      |
|      |
| eye  |

| 8I99 |
|------|
|      |
|      |
| eye  |

| ZHOX |
|------|
|      |
|      |
| eye  |

| SI9X |
|------|
|      |
|      |
| eye  |

| SZN6 |
|------|
|      |
| eye  |
|      |

| ZSN8 |
|------|
|      |
|      |
| eye  |

| HZN9 |
|------|
|      |
|      |
| eye  |

| X9HI |
|------|
|      |
|      |
| eye  |

| IS9H |
|------|
|      |
| eye  |
|      |

| XZNS |
|------|
|      |
|      |
| eye  |

| X6IS |
|------|
|      |
|      |
| eye  |

| 8NSZ |
|------|
|      |
|      |
| eye  |

**Step 2:**

Using the label from step 1, push the first button that appears in its corresponding list:

|                |  |
|----------------|--|
| <b>"XI8Z":</b> | NHXS, I809, XOHZ, 608I, 6NZH, 66I8, H6SI, Z8IX, XI8Z, SXHN, H68S, 80XN, IH6X, NX08 |
| <b>"H68S":</b> | 6NZH, I809, NHXS, 608I, SXHN, H6SI, IH6X, 80XN, NX08, XI8Z, Z8IX, XOHZ, 66I8, H68S |
| <b>"SXHN":</b> | Z8IX, 80XN, NX08, H68S, XOHZ, XI8Z, H6SI, NHXS, IH6X, 6NZH, 66I8, I809, SXHN, 608I |
| <b>"Z8IX":</b> | NX08, H6SI, I809, 608I, Z8IX, 66I8, XI8Z, IH6X, SXHN, XOHZ, 6NZH, 80XN, NHXS, H68S |
| <b>"IH6X":</b> | 80XN, H6SI, I809, 608I, NHXS, Z8IX, SXHN, 66I8, 6NZH, XOHZ, NX08, H68S, IH6X, XI8Z |
| <b>"NHXS":</b> | I809, H6SI, 80XN, 608I, H68S, XOHZ, 66I8, XI8Z, IH6X, NHXS, 6NZH, Z8IX, SXHN, NX08 |
| <b>"XOHZ":</b> | 80XN, XOHZ, 6NZH, IH6X, XI8Z, Z8IX, 608I, SXHN, I809, H68S, NX08, NHXS, 66I8, H6SI |
| <b>"80XN":</b> | XI8Z, IH6X, 6NZH, XOHZ, I809, NHXS, H6SI, SXHN, 66I8, Z8IX, 80XN, 608I, NX08, H68S |
| <b>"6NZH":</b> | H6SI, 6NZH, H68S, SXHN, 608I, NHXS, Z8IX, XOHZ, 80XN, NX08, 66I8, XI8Z, I809, IH6X |
| <b>"H6SI":</b> | NHXS, IH6X, XI8Z, 66I8, SXHN, NX08, XOHZ, H6SI, 608I, 6NZH, 80XN, Z8IX, I809, H68S |
| <b>"608I":</b> | Z8IX, XI8Z, I809, XOHZ, IH6X, 66I8, SXHN, NX08, 6NZH, 608I, H6SI, H68S, 80XN, NHXS |
| <b>"I809":</b> | 608I, SXHN, H68S, NHXS, 80XN, IH6X, NX08, I809, 6NZH, XI8Z, Z8IX, 66I8, XOHZ, H6SI |
| <b>"NX08":</b> | 80XN, SXHN, Z8IX, I809, NHXS, 6NZH, H68S, 66I8, XOHZ, NX08, IH6X, XI8Z, H6SI, 608I |
| <b>"66I8":</b> | H6SI, 608I, NHXS, XI8Z, 66I8, I809, IH6X, 80XN, Z8IX, 6NZH, H68S, XOHZ, SXHN, NX08 |
| <b>"9NZS":</b> | 8NSZ, 8I99, ZHOX, HZN9, IS9H, SNZX, SZN6, XZNS, SI9X, 9NZS, ZSN8, X6IS, X9HI, S89H |
| <b>"8I99":</b> | ZHOX, IS9H, X6IS, SNZX, SI9X, X9HI, ZSN8, XZNS, 9NZS, S89H, HZN9, 8NSZ, SZN6, 8I99 |
| <b>"ZHOX":</b> | ZSN8, 8I99, SNZX, ZHOX, IS9H, SZN6, 8NSZ, S89H, HZN9, 9NZS, SI9X, XZNS, X6IS, X9HI |
| <b>"HZN9":</b> | 9NZS, HZN9, SZN6, IS9H, ZSN8, 8I99, S89H, ZHOX, SI9X, SNZX, 8NSZ, X9HI, X6IS, XZNS |
| <b>"SZN6":</b> | X9HI, S89H, SZN6, SNZX, SI9X, 8NSZ, ZHOX, XZNS, HZN9, X6IS, IS9H, ZSN8, 8I99, 9NZS |
| <b>"S89H":</b> | SNZX, 8NSZ, IS9H, SI9X, HZN9, SZN6, ZSN8, X9HI, S89H, 9NZS, X6IS, XZNS, 8I99, ZHOX |
| <b>"SNZX":</b> | SNZX, ZHOX, 8I99, 9NZS, X9HI, XZNS, ZSN8, IS9H, 8NSZ, X6IS, HZN9, SZN6, S89H, SI9X |
| <b>"ZSN8":</b> | SZN6, S89H, 8I99, HZN9, IS9H, ZSN8, X9HI, 9NZS, SNZX, X6IS, ZHOX, 8NSZ, XZNS, SI9X |
| <b>"SI9X":</b> | 9NZS, XZNS, HZN9, ZHOX, S89H, X9HI, ZSN8, X6IS, 8I99, SNZX, SZN6, IS9H, SI9X, 8NSZ |
| <b>"X9HI":</b> | 8NSZ, SNZX, IS9H, SI9X, ZHOX, SZN6, HZN9, XZNS, X6IS, 9NZS, S89H, 8I99, ZSN8, X9HI |
| <b>"IS9H":</b> | SI9X, SNZX, ZSN8, ZHOX, XZNS, 8NSZ, IS9H, X6IS, X9HI, 8I99, SZN6, HZN9, S89H, 9NZS |
| <b>"XZNS":</b> | 8I99, S89H, X9HI, ZSN8, 9NZS, SZN6, 8NSZ, SI9X, HZN9, IS9H, XZNS, SNZX, ZHOX, X6IS |
| <b>"8NSZ":</b> | 8I99, X9HI, X6IS, HZN9, 9NZS, XZNS, SNZX, SZN6, 8NSZ, S89H, SI9X, IS9H, ZHOX, ZSN8 |
| <b>"X6IS":</b> | HZN9, IS9H, S89H, SZN6, XZNS, X9HI, ZSN8, SI9X, SNZX, 9NZS, X6IS, 8NSZ, 8I99, ZHOX |

## On the Subject of Souvenir

*Something to remember your explosion by.*

Souvenir asks questions about the state of other modules that you solved prior. Answer all the questions correctly.

If a module reset itself upon a strike, the question about it is assumed to refer only to successful runs or stages.

### Questions that may come up:

|   |  |  |   |
|---|--|--|---|
| ❖   | <b>Accumulation</b><br>What were the background and border colors on each stage?                                 | <b>Alphabet Tiles</b><br>What were the letters shown during each cycle?              | <b>Bamboozled Again</b><br>What were the text and color of each correct button? |
| <b>1000 Words</b>   | <b>Adventure Game</b><br>Which correct items did you use?  | <b>What was the missing letter?</b>  | <b>What were the decrypted text and color of each displayed message?</b>        |
| What were the words shown?                                  | Which enemy were you fighting?   | <b>Alpha-Bits</b><br>What characters were displayed on each screen?                  | <b>Bamboozling Button</b><br>What color was the button in each stage?           |
| <b>100 Levels of Defusal</b>                                | <b>Affine Cycle</b><br>What were the message and response?   | <b>Ángel Hernández</b><br>What letter was shown by the raised buttons in each stage? | What were the labels on the button in each stage?                               |
| What were the displayed letters?                            | <b>Alfa-Bravo</b><br>What final letter was pressed?<br>What letters were to the left and right of the final one? | <b>Arithmologic</b><br>What was the symbol on the submit button?                     | What were the displays and their colors in each stage?                          |
| <b>1D Chess</b>   | What was the last digit on the small display?  | <b>ASCII Maze</b><br>What characters were selectable on the screens?                 | <b>Barcode Cipher</b><br>What was the screen number?                            |
| What were your and Rustmate's moves?                        | <b>Algebra</b><br>What were the first two equations?   | <b>A Square</b><br>What were the index colors?                                       | What was the edgework represented by each barcode?                              |
| <b>3D Maze</b>  | <b>Algorithmia</b><br>What were the starting and goal positions?   | What were the submitted colors?  | What was the answer for each barcode?   |
| What were the markings?<br>What was the cardinal direction? | What color was the bulb?<br>Which numbers were present in the seed?  | <b>Azure Button (The)</b><br>What were T and the other displayed cards?              | <b>Bartending</b><br>Which ingredient was in which position?                    |
| <b>3D Tap Code</b>  | <b>Alphabetical Ruling</b><br>What were the letters and numbers displayed in each stage?                         | What was M?<br>What were the arrows?   | <b>Big Circle</b><br>Which colors were in the solution?                         |
| What was the received word?                                 | What were the letters and numbers displayed in each stage?   | <b>Bakery</b><br>Which menu items were present?                                      | <b>Binary</b><br>What word was displayed?                                       |
| <b>3D Tunnels</b>   |  |  | <b>Binary LEDs</b><br>At which numeric value did you cut the correct wire?      |
| What were the goal symbols?                                 |  |  |   |
| <b>3 LEDs</b>   |  |  |   |
| What was the initial state of the LEDs?                     |  |  |   |
| <b>7</b>  |  |  |   |
| What were the LED colors for each stage?                    |  |  |   |
| What was each channel's initial value?                      |  |  |   |
| <b>9-Ball</b>   |  |  |   |
| What were the numbers on each ball?                         |  |  |   |

[Question]

[Answer 1] [Answer 3]  
[Answer 2] [Answer 4]

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|  |   |  |  |
|--|---|--|--|
| <b>Binary Shift</b>  | <b>Breakfast Egg</b>                            | <b>Chess</b>   | <b>Color Morse</b>                                   |
| What were the initial numbers?                                       | Which colors appeared on the egg?               | What were the coordinates?                                 | What were the colors of the LEDs?                    |
| What number was selected at each stage?                              |   | <b>Chinese Counting</b>                                    | What characters were flashed by the LEDs?            |
| <b>Bitmaps</b>   | <b>Broken Buttons</b>                           | <b>Chord Qualities</b>                                     | <b>Colors Maximization</b>                           |
| How many pixels were black/white in each quadrant?                   | What were the correct buttons you pressed?      | What was the given chord quality?                          | What was the submitted score?                        |
| <b>Black Cipher</b>  | <b>Brown Cipher</b>                             | What notes were in the given chord?                        | What colors were submitted?                          |
| What was on each screen?   | What was on each screen?                        | <b>Code (The)</b>  | How many buttons were there of each color?           |
| <b>Blind Maze</b>  | <b>Brush Strokes</b>                            | What was the displayed number?                             | <b>Colour Flash</b>                                  |
| What colors were the buttons?  | What was the color of the middle contact point? | Which words were submitted?                                | What was the color of the last word in the sequence? |
| Which maze did you solve the module on?                              |   | <b>Coffeebucks</b>   | <b>Connection Check</b>                              |
| <b>Blockbusters</b>  | <b>Burglar Alarm</b>                            | What was the last served coffee?                           | What number pairs were present?                      |
| What was the last letter pressed?                                    | What were the displayed digits?                 | <b>Coinage</b>   | <b>Coordinates</b>                                   |
| <b>Blue Arrows</b>   | <b>Button (The)</b>                             | Which coin was flipped?                                    | What was the grid size?                              |
| What were the letters on the screen?                                 | What color did the light glow?                  | <b>Color Braille</b>                                       | What was the solution you selected first?            |
| <b>Blue Button (The)</b>   | <b>Button Sequence</b>                          | What was the mangling applied?                             | <b>Coral Cipher</b>                                  |
| What were D, E, F, G, H, M, N, P, Q, and X?                          | How many times did each color occur?            | What were the red, green, and blue words?                  | What was on each screen?                             |
| <b>Blue Cipher</b>   | <b>Caesar Cycle</b>                             | <b>Color Decoding</b>                                      | <b>Corners</b>                                       |
| What was on each screen?   | What were the message and response?             | What were the indicator patterns and colors in each stage? | What were the colors of the corners?                 |
| <b>Bob Barks</b>   | <b>Calendar</b>                                 | <b>Colored Keys</b>  | <b>Cornflower Cipher</b>                             |
| What were the indicator labels?                                      | What was the color of the LED?                  | What was the displayed word and its color?                 | What was on each screen?                             |
| Which buttons flashed in sequence?                                   |   | What were the colors and letters on each key?              | <b>Cosmic</b>  |
| <b>Boggle</b>  | <b>Cartinese</b>                                | <b>Colored Squares</b>                                     | What was the number initially shown?                 |
| Which letters were initially visible?                                | What lyrics were played by each button?         | What was the first color group?                            | <b>Cream Cipher</b>                                  |
| <b>Boxing</b>  | What color was each button?                     | <b>Colored Switches</b>                                    | What was on each screen?                             |
| Which contestants and substitutes (first and last names) were shown? | <b>Challenge &amp; Contact</b>                  | What was the initial position of the switches?             | <b>Creation</b>                                      |
| Who had which punch strength rating?                                 | What were the submitted answers?                | What was the switches' position when the LEDs came on?     | What were the weather conditions on each day?        |
| <b>Braille</b>   | <b>Character Codes</b>                          |  | <b>Crimson Cipher</b>                                |
| What was the solution word?  | What were the characters?                       |  | What was on each screen?                             |
|  | <b>Cheap Checkout</b>                           |  | <b>Critters</b>                                      |
|  | What were the paid amounts?                     |  | What was the alteration color?                       |
|  | <b>Cheep Checkout</b>                           |  |  |
|  | Which birds were present?                       |  |  |

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**Cryptic Cycle**

What were the message and response?

**Cryptic Keypad**

What were the labels and cardinal directions of each key?

**Cube (The)**

What were the cube rotations?

**Cyan Button (The)**

Where was the button at each stage?

**DACH Maze.**

Which region did you depart from?

**Deaf Alley**

What was the shape generated?

**Deck of Many Things (The)**

What deck did the first card belong to?

**Decolored Squares**

What were the colors defining the starting row and column?

**Decolour Flash**

What were the words and colours of each goal?

**Devilish Eggs**

What were the rotations?

What were the numbers and letters shown on the prism?

**Digisibility**

What were the numbers on the buttons?

**Discolored Squares**

What was the remembered position for each color?

**Divisible Numbers**

What were the correct button presses?

What were the numbers in each stage?

**Double Arrows**

What was the starting position? Which buttons moved in which directions in the grid?

**Double Color**

What was the screen color in each stage?

**Double Digits**

What were the most recent numbers on the displays?

**Double-Oh**

Which button was the submit button?

**Dr. Doctor**

Which diseases and symptoms were listed?

**Dreamcipher**

What was the decrypted word?

**Dumb Waiters**

Which players were present?

**eeB gnillepS**

What word was asked to be spelled?

**Eight**

What was the last digit on the small display?

What was the position of the last broken digit?

What were the last resulting digits?

What was the last displayed number?

**Elder Futhark**

What were the runes shown?

**DNA Cipher**

What were the keyword, the transposition key and the encrypted word?

**Encrypted Equations**

What were the main shapes of the three operands?

**Encrypted Hangman**

What was the encrypted module name and encryption method?

**Encrypted Maze**

Which symbol was spinning which way?

**Encrypted Morse**

What were the received call and sent response?

**Encryption Bingo**

What was the first encoding used?

**Enigma Cycle**

What were the message and response?

**Entry Number Four**

What were the numbers shown, the expected fourth entry and the constant coefficient?

**Entry Number One**

What were the numbers shown, the expected first entry and the constant coefficient?

**Equations X**

What was the displayed symbol?

**Etterna**

What beat was the input for each arrow?

**Exoplanets**

What were the starting and final target planet and digit?

**Factoring Maze**

What were the prime numbers used?

**Factory Maze**

What room did you start in?

**Fast Math**

What was the last pair of letters?

**Faulty RGB Maze**

Where were the exit and keys of the maze?

What was the maze number for each maze?

**Flags**

What were the country flags, the main flag, and the displayed number?

**Flashing Arrows**

What was the number shown on the display?

What were the relevant arrow's colors?

**Flashing Lights**

How many times did each LED flash each color?

**Flyswatting**

Which flies were present, but not in the solution?

**Forest Cipher**

What was on each screen?

**Forget Any Color**

What colors were the cylinders in the first 5 stages?

Which figure was used for the first 5 stages?

**Forget Me**

What numbers were in which positions in the initial puzzle?

**Forget's Ultimate Showdown**

What was the initial number?

What was the bottom number?

What was the answer?

What were the encryption methods used?

**Forget The Colors**

What was the large display and gear and the sine number's last digit in Stage 0?

Which edgework-based rule was applied in Stage 0?

**Free Parking**

What was the player token?

**Functions**

What was the last digit of the first query result?

What were the numbers and letter shown at the bottom?

**Game Of Life Cruel**

Which color combinations occurred?

**Gamepad (The)**

What were the numbers?

**Glitched Button (The)**

What was the cycling bit sequence?

**Gray Button (The)**

What were the coordinates on the display?

**Gray Cipher**

What was on each screen?

**Great Void (The)**

What were the digits and colors?

**Green Arrows**

What was the last number on the display?

**Green Button (The)**

What was the submitted word?

**Green Cipher**

What was on each screen?

**Gridlock**

What was the starting color?

What were the starting and ending location?

**Grocery Store**

What was the first item shown?

**Gryphons**

What were the gryphon's name and age?

**Guess Who?**

Who was the person recalled?

**Hereditary Base Notation**

What was the number on the bottom display?

**Hexabutton (The)**

What label was printed on the button?

**Hexamaze**

What was the color of the pawn?

**hexOS**

What were the deciphered letters or phrase?

What were the 3-digit numbers cycled by the screen?

What were the rhythm values?

**Hidden Colors**

What was the main LED's color?

**Hill Cycle**

What were the message and response?

**Hogwarts**

Which House was each module solved for?

**Hold Ups**

What was the name of each shadow shown?

**Homophones**

What were the displayed phrases?

**Horrible Memory**

What were the positions, labels, and colors of the buttons pressed in each stage?

**Human Resources**

Which employees were hired and fired?

Which descriptors were shown in red and green?

**Hunting**

Which stages had the column or row symbol first?

**Hypercube (The)**

What were the rotations?

**Hyperlink (The)**

What was the hyperlink?

Which module was referenced?

**Ice Cream**

Who were the customers?

Which flavors were on offer to each customer?

**Identification Crisis**

What were the shapes and identification modules used?

**Identity Parade**

What were the hair colors, builds and attires listed on the module?

**Indigo Cipher**

What was on each screen?

**Infinite Loop**

What was the selected word?

**Ingredients**

Which ingredients were listed and which were used?

**Inner Connections**

What color was the LED?

What was the digit flashed in Morse?

**Interpunct**

What was the symbol displayed in each stage?

**IPA**

What was the correct symbol?

**iPhone (The)**

What was the PIN?

**Jenga**

What symbols were on the first correctly pulled block?

**Jewel Vault (The)**

What number were wheels A-D?

**Jumble Cycle**

What were the message and response?

**Kanye Encounter (The)**

What food items were displayed?

**Keypad Magnified**

What was the position of the LED?

**Kudosudoku**

Which squares were initially pre-filled?

**Labyrinth (The)**

Where were the portals, and which layers were they on?

**Ladders**

Which colors were present on the second ladder?

What color was missing on the third ladder?

**Lasers**

What number was on each hatch?

**LED Encryption**

What were the correct button presses?

**LED Math**

What were the LED colors?

**LEDs**

What was the initial color of the changed LED?

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|   |  |  |   |
|---|--|--|---|
| <b>LEGOs</b><br>What were the dimensions of each color piece?   | <b>Maroon Cipher</b><br>What was on each screen?   | <b>Memorable Buttons</b><br>What were the symbols on the correct buttons?  | <b>Monsplode, Fight!</b><br>Which creature was displayed?<br>Which moves were selectable?   |
| <b>Letter Math</b><br>What were the letters on the display?   | <b>Mashematics</b><br>What were the numbers in the equation?<br>What was the answer?   | <b>Memory</b><br>What was the display in each stage?   | <b>Monsplode Trading Cards</b><br>What were the names and print versions of the three cards in your hand and the card on offer before the final trade/keep? |
| <b>Linq</b><br>What were the functions?   | <b>Math 'em</b><br>What were the color and design of each tile before the shuffle?   | <b>Metamorse</b><br>What were the positions and labels of the buttons you pressed?                                 | <b>Moon (The)</b><br>Which sets were initially lit/unlit?   |
| <b>Lion's Share</b><br>Which year was displayed?<br>Which lions were present but removed?   | <b>Matrix (The)</b><br>Which word was part of the latest access code?  | <b>Microcontroller</b><br>In which order did the LEDs light up?  | <b>More Code</b><br>What was the flashing word?   |
| <b>Listening</b><br>What was the correct code you entered?  | <b>Maze</b><br>What was the starting position?   | <b>Minesweeper</b><br>What was the color of the starting cell?   | <b>Morse-A-Maze</b><br>What were the starting and ending location?<br>What was the morse code word played?  |
| <b>Logical Buttons</b><br>What were the colors and labels of each button in each stage?<br>What were the final operators in each stage? | <b>Maze<sup>3</sup></b><br>What was the color of the starting face?  | <b>Mirror</b><br>What was the second word written by the original ghost?   | <b>Morse Buttons</b><br>What were the characters and colors flashed by each button?   |
| <b>Logic Gates</b><br>What were the logic gates?  | <b>Maze Identification</b><br>What was the seed?<br>What function did each button have?  | <b>Mister Softee</b><br>Where was the SpongeBob Bar?<br>Which treats were present?                                 | <b>Morsematics</b><br>What were the received letters?   |
| <b>Lombax Cubes</b><br>What were the letters on the button?   | <b>Mazematics</b><br>What were the initial and goal values?  | <b>M&amp;Ms</b><br>What were the labels on the buttons and their colors?   | <b>Morse War</b><br>What were the LEDs?<br>What code was transmitted?   |
| <b>London Underground (The)</b><br>What were the departure and destination stations?  | <b>Maze Scrambler</b><br>What was the starting position?<br>What was the goal position?<br>Which positions were the maze markings? | <b>M&amp;Ns</b><br>What were the colors of the labels on the buttons?<br>What was the label of the correct button? | <b>Mouse in the Maze</b><br>What color was the torus?<br>Which color sphere was the goal?   |
| <b>Mafia</b><br>Who was a player, but not the Godfather?  | <b>Mazeseeker</b><br>How many walls surrounded each cell?<br>What were the starting and goal positions?                            | <b>Modern Cipher</b><br>What were the decrypted words?   | <b>M-Seq</b><br>What were the obtained digits?<br>What was the final number from the iteration process?   |
| <b>Magenta Cipher</b><br>What was on each screen?   | <b>Mega Man 2</b><br>What were the robot master and weapon shown?  | <b>Module Listening</b><br>Which module did the sound played by each button belong to?                             | <b>Multicolored Switches</b><br>What were the colors of the LEDs in both cycles?  |
| <b>Mahjong</b><br>What were the first two matched pairs?<br>What was the bottom-left tile?  | <b>Melody Sequencer</b><br>Which part was in which slot at the start?  | <b>Module Maze</b><br>What was the starting icon?  | <b>Murder</b><br>Which were the suspects and weapons?<br>Where was the body found?  |
| <b>Maritime Flags</b><br>What bearing was signaled?<br>What callsign was signaled?  |  |  |   |

|  |   |  |   |
|--|---|--|---|
| <b>Mystery Module</b>  | <b>Not Keypad</b>   | <b>Not The Screw</b>   | <b>Orange Arrows</b>  |
| Which module was hidden?   | Which colours flashed in the final sequence?                          | What was the initial position?   | What were the first three arrows on the display in each stage?  |
| Which module was the first requested to be solved?                 | Which symbols were on the buttons that flashed in the final sequence? | <b>Not Who's on First</b>  | <b>Orange Cipher</b>  |
| <b>Mystic Square</b>   |   | What were the positions and labels of the correct buttons you pressed and the reference buttons? | What was on each screen?  |
| What was the position of the skull?                                |   | What was the calculated number in the second stage?  | <b>Ordered Keys</b>   |
| <b>Name Codes</b>  | <b>Not Maze</b>   | <b>Not Word Search</b>   | What were the labels, their colors, and the colors of the keys in each stage?   |
| What were the left and right indices?                              | What was the starting distance?                                       | Which consonants were missing?   | <b>Order Picking</b>  |
| <b>Navinums</b>  | <b>Not Morse Code</b>   | What was the first correctly pressed letter?   | What were the order ID, product ID and pallet for each order?   |
| Which directional buttons were pressed?                            | What was the sequence of words you submitted?                         | <b>Not X01</b>   | <b>Orientation Cube</b>   |
| What was the initial middle digit?                                 | <b>Not Morsematics</b>  | What were the sector values?   | What was the observer's initial position?   |
| <b>Navy Button (The)</b>   | <b>Not Murder</b>   | <b>Not X-Ray</b>   | <b>Palindromes</b>  |
| Which Greek letters appeared?                                      | What room were the suspects in initially?                             | What table were we in?   | What number was X, Y, Z, and the screen display?  |
| What were the coordinates and value of the given?                  | What weapons did the suspects possess initially?                      | Which button went which direction?   | <b>Parity</b>   |
| <b>Necronomicon (The)</b>  | <b>Not Number Pad</b>   | What was the scanner color?  | What was shown on the display?  |
| What was the chapter number of each page?                          | Which numbers flashed at each stage?                                  | <b>Numbered Buttons</b>  | <b>Partial Derivatives</b>  |
| <b>Negativity</b>  | <b>Not Perspective Pegs</b>   | Which numbers were correctly pressed?  | What were the terms of the function?  |
| What was the submitted value (in base 10 and in balanced ternary)? | What were the positions, perspectives, and colors of each flash?      | <b>Numbers</b>   | What were the LED colors in each stage?   |
| <b>Neutralization</b>  | <b>Not Piano Keys</b>   | What two-digit number was given?   | <b>Passport Control</b>   |
| What was the acid's color/volume?                                  | What were the displayed symbols?                                      | <b>Numpath</b>   | What were the passport expiration years of each passenger?  |
| <b>N&amp;Ms</b>  | <b>Not Simaze</b>   | What was the number and its color?   | <b>Password Destroyer</b>   |
| What was the label of the correct button?                          | Which maze was used?  | <b>Object Shows</b>  | What were the starting value, increase factor, TFA <sub>1</sub> , TFA <sub>2</sub> and 2FAST™ values, and the percentage of solved modules used in the final calculation? |
| <b>Not Colored Switches</b>  | What were the starting and goal positions?                            | What contestants were shown?   | <b>Pattern Cube</b>   |
| What was the encrypted word?                                       | <b>Not Text Field</b>   | <b>Octadecayotton (The)</b>  | Which symbol was highlighted?   |
| <b>Not Connection Check</b>  | Which letter appeared 9 times at the start?                           | What was the starting sphere?  | <b>Perspective Pegs</b>   |
| What were the flashing symbols?                                    | Which letters were pressed in the first stage?                        | What were the subrotations in each rotation?   | What was the initial color sequence?  |
| What were the button values?                                       | <b>Not The Bulb</b>   | <b>Odd One Out</b>   |   |
| <b>Not Coordinates</b>   | What was the transmitted word?  | What were the correct button presses?  |   |
| What were the vertices of the square?                              | <b>Not the Button</b>   | <b>Only Connect</b>  |   |
|  | What color did the light glow?  | What were the positions of the Egyptian hieroglyphs?   |   |

|  |  |  |  |
|--|--|--|--|
| <b>Phosphorescence</b><br>What were the button presses and the offset?   | <b>Purple Arrows</b><br>What was the target word?  | <b>Regular Crazy Talk</b><br>What was the displayed digit that corresponded to the solution phrase?  | <b>Samsung (The)</b><br>Where was each app?  |
| <b>Pie</b><br>What were the digits shown?  | <b>Purple Button (The)</b><br>What were the numbers in the cyclic sequence?                              | <b>Scavenger Hunt</b><br>Which tile was correctly submitted in the first stage?  | <b>Scavenger Hunt</b><br>Where were the red, green, and blue tiles in the first stage?                       |
| <b>Pigpen Cycle</b><br>What were the message and response?   | <b>Puzzle Identification</b><br>What game did each puzzle come from?                                     | <b>Retirement</b><br>Which houses were on offer, but not chosen by Bob?  | <b>Schlag den Bomb</b><br>What were the contestant's name and both scores?                                   |
| <b>Pink Button (The)</b><br>What were the displayed words and their colors?  | <br>What was the name and number of each puzzle?   | <b>Reverse Morse</b><br>What were the characters in each message?  | <b>Scramboozled Eggain</b><br>What were the encrypted words?   |
| <b>Pixel Cipher</b><br>What was the keyword?   | <b>Quaver</b><br>What was each sequence's answer?  | <b>Reverse Polish Notation</b><br>What characters were used in each round?   | <b>Sea Shells</b><br>What were the phrases?  |
| <b>Placeholder Talk</b><br>What was the entire first phrase?   | <b>Quintuples</b><br>What were the numbers and colors in every slot?                                     | <b>RGB Maze</b><br>Where were the exit and keys of the maze?   | <b>Semamorse</b><br>What were Morse and semaphore letters and color used for the starting value?             |
| What was the calculated value for second phrase?   | How many numbers were there of each color?   | What was the maze number for each maze?  | <b>Seencyclopedia (The)</b><br>What sequence was used?   |
| <b>Placement Roulette</b><br>What were the character, drift type, track, track type, vehicle, and vehicle type listed? | <b>Railway Cargo Loading</b><br>What were the coupled cars?<br>Which freight table rules applied?        | <b>Rhythms</b><br>What was the color?  | <b>Shapes And Bombs</b><br>What was the initial letter?  |
| <b>Planets</b><br>What was the planet shown?<br>What was the correct color for each strip?                             | <b>Rainbow Arrows</b><br>What was the displayed number?  | <b>Robo-Scanner</b><br>Where was the empty cell?   | <b>Shape Shift</b><br>What was the initial shape?  |
| <b>Playfair Cycle</b><br>What were the message and response?   | <b>Recolored Switches</b><br>What were the LED colors?   | <b>Roger</b><br>What four-digit number was given?  | <b>Shifted Maze</b><br>What were the colors of the markers?  |
| <b>Poetry</b><br>What were the answers you pressed in each stage?  | <b>Red Arrows</b><br>What was the starting number?   | <b>Role Reversal</b><br>What was the condition digit that solved the module?   | <b>Shifting Maze</b><br>What was the seed?   |
| <b>Polyhedral Maze</b><br>What was the starting position?  | <b>Red Cipher</b><br>What was on each screen?  | What colors were the internal wires?   | <b>Shogi Identification</b><br>What was the displayed piece?   |
| <b>Prime Encryption</b><br>What was the displayed number?  | <b>Red Herring</b><br>What was the first color flashed?  | <b>Rule (The)</b><br>What was the rule number?   | <b>Silly Slots</b><br>What were the slots in each stage?   |
| <b>Probing</b><br>What were the missing frequencies in each wire?  | <b>Reformed Role Reversal</b><br>What did the solving condition state?<br><br>What were the final wires? | <b>Rule of Three</b><br>What were the positions of each sphere on each axis in each cycle?<br><br>What were the coordinates of the vertices? | <b>Silo Authorization</b><br>What were the message type, encrypted message, and received authorization code? |

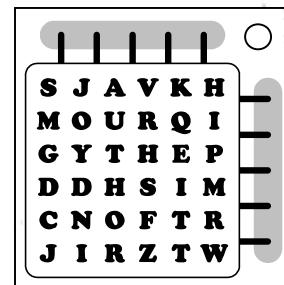
|  |   |  |  |
|--|---|--|--|
| <b>Simon Said</b>  | <b>Simon Sounds</b>   | <b>Small Circle</b>  | <b>State of Aggregation</b>                          |
| What was the final sequence of presses?  | Which sample buttons sounded in each stage?   | How much did the sequence shift by?                                  | What element was shown?                              |
| <b>Simon Samples</b>   | <b>Simon Speaks</b>   | Which wedge made the different noise in the beginning?               | <b>Stellar</b>                                       |
| What were the call samples in each stage?                                      | What were the relevant attributes of the flashing bubbles?                                      | Which colors were in the solution?                                   | What were the letters?                               |
| <b>Simon Says</b>  | <b>Simon's Star</b>   | <b>Snooker</b>   | <b>Stupid Slots</b>                                  |
| Which colors flashed in the final sequence?                                    | Which colors flashed in each stage?   | How many reds were there initially?                                  | What were the values of each arrow?                  |
| <b>Simon Scrambles</b>   | <b>Simon Stages</b>   | <b>Sonic The Hedgehog</b>  | <b>Subscribe to Pewdiepie</b>                        |
| What was the flashing color sequence?  | Which colors flashed in each stage?   | Which sound was played by each screen?                               | How many subscribers do Pewdiepie and T-Series have? |
| <b>Simon Screams</b>   | What color was the indicator in each stage?   | What were the pictures?  | <b>Sugar Skulls</b>                                  |
| What flashing color was used in each stage?                                    | <b>Simon States</b>   | Which positions were involved in the final swap?                     | What skulls were shown?                              |
| Which rules applied in which stage(s)?   | Which color(s) flashed in the first three stages?   | <b>Souvenir</b>  | <b>Superparsing</b>                                  |
| <b>Simon Selects</b>   | <b>Simon Stops</b>  | What was the first module the other Souvenir asked a question about? | What was the displayed word?                         |
| Which colors flashed in each stage?  | Which colors flashed in the output sequence?  | <b>Space Traders</b>   | <b>Switch (The)</b>                                  |
| <b>Simon Sends</b>   | <b>Simon Stores</b>   | What was the maximum tax amount per vessel?                          | What color were the LEDs?                            |
| What were the red, green, and blue received letters?                           | Which colors flashed in the final sequence?   | <b>Spelling Bee</b>  | <b>Switches</b>                                      |
| <b>Simon Shapes</b>  | What were the numerical answers in each stage?  | What word was asked to be spelled?                                   | What was the initial position of the switches?       |
| What was the shape submitted at the end?                                       | <b>Simon Subdivides</b>   | <b>Sphere (The)</b>  | <b>Switching Maze</b>                                |
| <b>Simon Shouts</b>  | What colors were the cells that subdivided?   | What were the flashed colors?  | What was the seed?                                   |
| What letters flashed on each button?   | <b>Simon Supports</b>   | <b>Splitting The Loot</b>  | What was the starting maze color?                    |
| <b>Simon Shrieks</b>   | What were the 3 topics?   | Which bag was initially colored?                                     | <b>Symbol Cycle</b>                                  |
| How many spaces clockwise from the arrow was each flash in the final sequence? | <b>Skewed Slots</b>   | <b>Stability</b>   | How many symbols were cycling on each screen?        |
| <b>Simon Simons</b>  | What were the original numbers?   | What were the lit LEDs' colors?                                      | <b>Symbolic Coordinates</b>                          |
| Which buttons flashed in each stage?   | <b>Skyrim</b>   | What was the identification number?                                  | What symbols were present on each stage?             |
| <b>Simon Sings</b>   | Which races, weapons, enemies, cities, and dragon shouts were selectable, but not the solution? | <b>Stacked Sequences</b>   | <b>Symbolic Tasha</b>                                |
| Which keys' colors flashed in each stage?                                      | <b>Slow Math</b>  | What were the lengths of the sequences?                              | What symbols were on the buttons?                    |
|  | What was the last triplet of letters?   | <b>Stars</b>   | Which buttons flashed?                               |
|  |   | What was the digit in the center?                                    | <b>SYNC-125 [3]</b>                                  |
|  |   |  | What was displayed on the screen in each stage?      |
|  |   |  | <b>Synonyms</b>                                      |
|  |   |  | Which number was displayed?                          |
|  |   |  | <b>Sysadmin</b>                                      |
|  |   |  | What error code did you fix?                         |

|  |   |   |   |
|--|---|---|---|
| <b>Tap Code</b>                                      | <b>Transmitted Morse</b>                      | <b>USA Maze</b>                                     | <b>Wire Ordering</b>                                    |
| What was the received word?                          | What were the received messages?              | Which state did you depart from?                    | What were the colors and numbers on the displays?       |
| <b>Tasha Squeals</b>                                 | <b>Triple Term</b>                            | <b>V</b>  | What were the colors of the wires?                      |
| What were the flashed colors?                        | What were the passwords?                      | Which words were shown?                             |   |
| <b>Tasque Managing</b>                               | <b>Turtle Robot</b>                           | <b>Varicolored Squares</b>                          | <b>Wire Sequence</b>                                    |
| What was the starting position?                      | What were the commented out code lines?       | What was the initially pressed color?               | How many wires of each color were there?                |
| <b>Ten-Button Color Code</b>                         | <b>Two Bits</b>                               | <b>Varicolour Flash</b>                             | <b>Wolf, Goat, and Cabbage</b>                          |
| What were the buttons' initial colors in each stage? | What were the correct three query responses?  | What were the words and colours of each goal?       | Which creatures were present?                           |
| <b>Tenpins</b>                                       | <b>Ultimate Cipher</b>                        | <b>Vcrcs</b>  | What size was the boat?                                 |
| What were the splits?                                | What was on each screen?                      | What was the displayed word?                        | <b>Working Title</b>                                    |
| <b>Text Field</b>                                    | <b>Ultimate Cycle</b>                         | <b>Vectors</b>                                      | What was the label shown?                               |
| What was the displayed letter?                       | What were the message and response?           | What were the colors of the vectors?                | <b>Xenocryst (The)</b>                                  |
| <b>Thinking Wires</b>                                | <b>Ultracube (The)</b>                        | <b>Vexillology</b>                                  | What was the color of each flash?                       |
| Which was the first wire needing to be cut?          | What were the rotations?                      | What were the flagpole colors?                      | <b>XmORse Code</b>                                      |
| What color was the second valid wire to cut?         | <b>UltraStores</b>                            | <b>Violet Cipher</b>                                | What were the displayed letters?                        |
| What was the display number?                         | What were the rotations?                      | What was on each screen?                            | What word did you decrypt?                              |
| <b>Third Base</b>                                    | <b>Uncolored Squares</b>                      | <b>Visual Impairment</b>                            | <b>xobekuJ ehT</b>                                      |
| What were the display words?                         | What were the colors used in the first stage? | What were the desired colors?                       | What song was played?                                   |
| <b>Tic Tac Toe</b>                                   | <b>Uncolored Switches</b>                     | <b>Wavetapping</b>                                  | <b>Yahtzee</b>  |
| What was the initial state of the field?             | What was the initial switch state?            | What was the correct pattern in each stage?         | What was the first roll?                                |
| <b>Timezone</b>                                      | What were the LED colors?                     | What was the color in the first two stages?         | <b>Yellow Arrows</b>                                    |
| What were the departure and destination city?        | <b>Unfair Cipher</b>                          | <b>What's on Second</b>                             | What was the starting row letter?                       |
| <b>Topsy Turvy</b>                                   | What were the received instructions?          | What were the display text and color in each stage? | <b>Yellow Button (The)</b>                              |
| What was the word initially shown?                   | <b>Unfair's Revenge</b>                       | <b>White Cipher</b>                                 | What were the colors?                                   |
| <b>Touch Transmission</b>                            | What were the decrypted instructions?         | What was on each screen?                            | <b>Yellow Cipher</b>                                    |
| What was the transmitted word?                       | <b>Unicode</b>                                | <b>Who's on First</b>                               | What was on each screen?                                |
| In what order was the Braille read?                  | What were the submitted codes?                | What were the display words?                        | <b>Zero, Zero</b>                                       |
| <b>Trajectory</b>                                    | <b>Unown Cipher</b>                           | <b>Wire (The)</b>                                   | What were the colors and number of points on each star? |
| What functions did each button perform?              | What were the submitted letters?              | What were the colors of the dials?                  | Where were the colored squares?                         |
|  | <b>USA Cycle</b>                              | What was the displayed number?                      | <b>Zoni</b>   |
|  | Which states were displayed?                  |   | What were the deciphered words?                         |

## Odnośnie Wykreślanki

LZIEAJDTRUDNIEJSZEBNCOJWNIŽPQIEYBZSIEWYDAJEYWH

Na module znajduje się pole z 36 literami. Niektóre z tych liter tworzą słowa, które mogą być odczytane od tyłu i pojawić się w dowolnym kierunku.



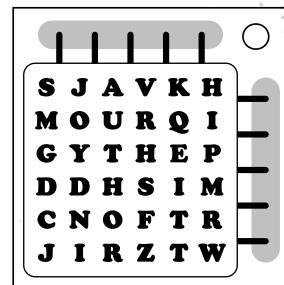
- Poniższa siatka zawiera kwadraty z literami w narożnikach. Dla każdej z czterech liter w rogach wyświetlacza, znajdź kwadrat na siatce, które zawiera tę literę w tym samym narożniku.
- Gdy już wszystkie odpowiednie kwadraty zostaną odnalezione, użyj ostatniej cyfry numeru seryjnego (parzystej lub nieparzystej), aby zdecydować których słów należy szukać.
- Tylko jedno z tych słów pojawi się na wyświetlaczu. Zaznacz pierwszą i ostatnią literę poprawnego słowa, aby unieszkodliwić moduł. Bomba odnotuje pomyłkę, jeśli zaznaczone zostanie jakiekolwiek inne słowo.

|            |        |        |        |        |        |       |
|------------|--------|--------|--------|--------|--------|-------|
| [parzyste] | CHEŁM  | JERZYK | LĄD    | MAGNES | BATUTA |       |
| —          | —      | —      | —      | —      | —      |       |
| [nieparz.] | CHOĆ   | DRÓŻKA | WRZÓD  | ROMB   | GRAD   |       |
| —          | V      | U      | S      | Z      |        |       |
| BÓG        | BOOM   | HART   | LITERA | JERZY  | DRUŻKA | SMOG  |
| —          | —      | —      | —      | —      | —      | —     |
| MORZE      | TRUDNE | CZAT   | BRÓD   | CHODŹ  | ALARM  | LUTY  |
| —          | P      | Q      | N      | X      | F      | Y     |
| HUK        | AGENT  | MAGNEZ | BUK    | KABOOM | WRZUT  | PRÓG  |
| —          | —      | —      | —      | —      | —      | —     |
| MIEDŹ      | BATUT  | GRAT   | JEZYK  | MINI   | KOD    | CHART |
| —          | T      | I      | M      | E      | D      | A     |
| TRUDNO     | STÓG   | LUT    | AJENT  | BOMBA  | PUK    | TEST  |
| —          | —      | —      | —      | —      | —      | —     |
| HEŁM       | PUSTE  | SMOK   | BUM    | ATUT   | JEZYK  | MAG   |
| —          | K      | B      | W      | H      | J      | O     |
| LONT       | CZAD   | DALEJ  | MIEĆ   | BUG    | LÓD    | KURDE |
| —          | —      | —      | —      | —      | —      | —     |
| SŁOWO      | MÓW    | SERIAL | STUK   | METR   | MOŻE   | BRUD  |
| —          | R      | L      | C      | G      |        |       |
| RZUT       | LITR   | NIC    | RĄB    | KOS    |        |       |
| —          | —      | —      | —      | —      |        |       |
| MILI       | KOT    | COFNIJ | LUD    | MAK    |        |       |

## On the Subject of Word Search

LZIEAJDHARDERBNCOJWTHANPQIEYBZITLOOKSYWH

A field of 36 letters will appear on the screen within the module. Some of these letters will spell out words, which may be spelled backwards and appear in any direction.



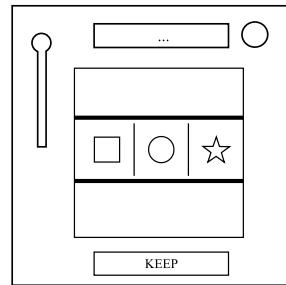
1. The chart below contains boxes with letters in the corners. For each of the four letters in the corners of the display, find a box on the chart that has that letter in the same corner.
2. Once all the relevant boxes have been located, use the last digit of the serial number (even or odd) to determine the correct words to reference.
3. Only one of those words will appear on the display. Select the first and last letter of the correct word to disarm the module. The bomb will record a strike if any other words are selected.

|        |        |        |        |        |        |        |
|--------|--------|--------|--------|--------|--------|--------|
| [even] | HOTEL  | SEARCH | ADD    | SIERRA | FINISH |        |
| —      | —      | —      | —      | —      | —      |        |
| [odd]  | DONE   | QUEBEC | CHECK  | FIND   | EAST   |        |
| —      | V      | U      | S      | Z      |        |        |
| POR    | BOOM   | LINE   | KABOOM | PANIC  | MANUAL | DECOY  |
| —      | —      | —      | —      | —      | —      | —      |
| COLOR  | SUBMIT | BLUE   | ECHO   | FALSE  | ALARM  | CALL   |
| P      | Q      | N      | X      | F      | Y      |        |
| SEE    | INDIA  | NUMBER | ZULU   | VICTOR | DELTA  | HELP   |
| —      | —      | —      | —      | —      | —      | —      |
| TWENTY | NORTH  | LOOK   | GREEN  | XRAY   | YES    | LOCATE |
| T      | I      | M      | E      | D      | A      |        |
| ROMEO  | TRUE   | MIKE   | FOUND  | BOMBS  | WORK   | TEST   |
| —      | —      | —      | —      | —      | —      | —      |
| BEEP   | EXPERT | EDGE   | RED    | WORD   | UNIQUE | JINX   |
| K      | B      | W      | H      | J      | O      |        |
| GOLF   | TALK   | BRAVO  | SEVEN  | MODULE | LIST   | YANKEE |
| —      | —      | —      | —      | —      | —      | —      |
| LETTER | SIX    | SERIAL | TIMER  | SPELL  | TANGO  | SOLVE  |
| R      | L      | C      | G      |        |        |        |
| CHART  | MATH   | READ   | LIMA   | COUNT  |        |        |
| —      | —      | —      | —      | —      |        |        |
| OSCAR  | NEXT   | LISTEN | FOUR   | OFFICE |        |        |

## On the Subject of Silly Slots

*Sassy Sally said sorry since soggy Steven slurped soup.*

Only press the KEEP button when the slots are in a **LEGAL** state. Only pull the lever when the slots are in an **ILLEGAL** state. The module will automatically defuse after 4 pulls of the lever.



The slots are in an **ILLEGAL** state if any of these statements are true:

- There is a single Silly Sausage.
- There is a single Sassy Sally, unless the slot in the same position 2 stages ago was Soggy.
- There are 2 or more Soggy Stevens.
- There are 3 Simons, unless any of them are Sassy.
- There is a Sausage adjacent to a Sally, unless every adjacent Sally is Soggy.
- There are exactly 2 Silly slots, unless they are both Steven.
- There is a single Soggy slot, unless the previous stage had any number of Sausage slots.
- All 3 slots are the same symbol and colour, unless there has been a Soggy Sausage in any previous stage.
- All 3 slots are the same colour, unless any of them are Sally or there was a Silly Steven in the last stage.
- There are any number of Silly Simons, unless there has been a Sassy Sausage in any previous stage.

UNDERLINED words are placeholders, substitute them for the correct word using the matrix below and the keyword found on the module's display. This keyword changes when the lever is pulled.

|          |         | Placeholder |       |       |        |        |         |        |
|----------|---------|-------------|-------|-------|--------|--------|---------|--------|
|          |         | Sassy       | Silly | Soggy | Sally  | Simon  | Sausage | Steven |
| Key Word | Sassy   | Blue        | Red   | Green | Cherry | Grape  | Bomb    | Coin   |
|          | Silly   | Blue        | Green | Red   | Coin   | Bomb   | Grape   | Cherry |
|          | Soggy   | Green       | Blue  | Red   | Coin   | Cherry | Bomb    | Grape  |
|          | Sally   | Red         | Blue  | Green | Grape  | Cherry | Bomb    | Coin   |
|          | Simon   | Red         | Green | Blue  | Bomb   | Grape  | Cherry  | Coin   |
|          | Sausage | Red         | Blue  | Green | Grape  | Bomb   | Coin    | Cherry |
|          | Steven  | Green       | Red   | Blue  | Cherry | Bomb   | Coin    | Grape  |

## On the Subject of Broken Buttons

How did they get invisible ink to even work like that?

- A broken buttons module will have 2 submit buttons at the top of it and 12 buttons below them.
- Depending on the 12 buttons, follow the first rule that applies.
- Repeat the rules until it tells you to press the correct submit button, which will defuse the module.
- Every time a button is successfully pressed, the button's text will change.
- If the defuser presses an incorrect button, it will give a strike.
- By default the correct submit button is the left one.
- After successfully pressing 5 buttons, press the correct submit button.

|        |        |                       |
|--------|--------|-----------------------|
| SUBMIT | SUBMIT | <input type="radio"/> |
| THIS   | ONE    | BOMB                  |
| DVI-D  |        | SUBMIT                |
| BOOM   | SWITCH | SEA                   |
| WIRE   | THING  | BOB                   |

### Rules:

If the defuser sees the word *sea*, press a button labeled *sea*.

Otherwise, if any button on the third or first row starts with the letter T, press it.

Otherwise, if the word *one* and *submit* appear on buttons, the correct submit button will be the first one and press the button labeled *one*.

Otherwise, if a button is literally blank, press that button.

Otherwise, if the word *other* is on a button, the correct submit button changes to the other submit button and press the button labeled *other*.

Otherwise, if there are any duplicate words, click one of the buttons labeled with the duplicate word.

Otherwise, if a port name and the word *port* or *module* appear on the buttons, press a button labeled a port name.

Otherwise, if a button has less than 3 characters on it, press that button.

Otherwise, if the words *bomb* and *boom* are present, press the button labeled *boom*.

Otherwise, if the words *submit* and *button* appear on buttons, press the correct submit button at the top.

Otherwise, if the words *column* and either *seven* or *two* appear on buttons, press any button in the same row as a button labeled *column*.

Otherwise, if a button hasn't been correctly pressed yet, press the 3rd button in the 2nd row.

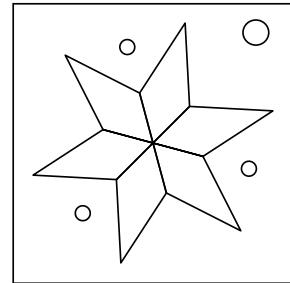
Otherwise, if the first button you pressed had the letter E in the word, the right submit is actually correct.

Lastly, press the correct submit button.

## On the Subject of Simon Screams

*He's angry! He's furious! He's enraged! He's had it!*

- This module has six lights colored red, orange, yellow, green, blue and purple. These will flash in a sequence that grows longer with each stage. There are 3 stages.
- At each stage, consider the whole sequence of flashes. In the large table, find the first applicable row and the correct column. From that entry, take the letter in the position corresponding to the current stage and look at its corresponding column in the smaller table.
- Go through that column from top to bottom and press every color whose condition applies. The colors are (R)ed, (O)range, (Y)ellow, (G)reen, (B)lue, (P)urple, and "#" means "serial number".
- Every time the sequence flashes again, your current stage's input is reset.



|                       | A | C | D | E | F | H |
|-----------------------|---|---|---|---|---|---|
| $\geq 3$ indicators   | Y | O | G | R | B | P |
| $\geq 3$ ports        | P | Y | R | B | O | G |
| $\geq 3$ digits in #  | O | G | B | P | R | Y |
| $\geq 3$ letters in # | G | B | O | Y | P | R |
| $\geq 3$ batteries    | R | P | Y | O | G | B |
| $\geq 3$ bat. holders | B | R | P | G | Y | O |

Stage 1: first flashing color  
Stage 2: second flashing color  
Stage 3: third flashing color

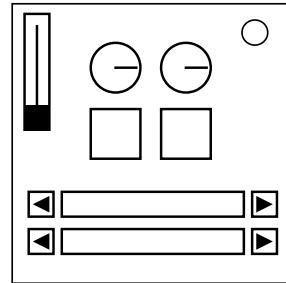
| red | orange | yellow | green | blue | purple |
|-----|--------|--------|-------|------|--------|
|     |        |        |       |      |        |

|   |     |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|-----|
| If three adjacent colors flashed in clockwise order                         | FFC | CEH | HAF | ECD | DDE | AHA |
| Otherwise, if a color flashed, then an adjacent color, then the first again | AHF | DFC | ECH | CDE | FEA | HAD |
| Otherwise, if at most one color flashed out of red, yellow, and blue        | DED | ECF | FHE | HAA | AFH | CDC |
| Otherwise, if there are two colors opposite each other that didn't flash    | HCE | ADA | CFD | DHH | EAC | FEF |
| Otherwise, if two adjacent colors flashed in clockwise order                | CAH | FHD | DDA | AEC | HCF | EEF |
| Otherwise   | EDA | HAE | AEC | FFF | CHD | DCH |

## On the Subject of Laundry

*Sorting and folding are the least of your worries.*

All the messes from the previous explosions must be cleaned up. Using the Laundry Symbol Reference L4UHDR9 and the rules below, determine the correct setting on the machine panel. Once satisfied, insert a coin. On error, a sock will be lost, and a strike gained.



Determine the piece of clothing that has to be cleaned with the tables below. For all values higher than 5, subtract 6 from the total until the new number is less than 6. For all negative values, add 6 until you have a value between 0-5.

- The **Clothing Item** (table L41) is determined by the number of unsolved modules (excluding needy modules) + total amount of indicators.
- The **Item Material** (table L42) is determined by the total number of ports + the number of solved modules - battery holders.
- The **Item Color** (table L43) is determined by the last digit of serial number + batteries.

Use washing instructions based on the material, drying instructions based on the color, and use ironing and special instructions based on the item. But, prioritize the following rules from top to bottom:

- If the color is Clouded Pearl ALWAYS use non-chlorine bleach.
- If the item is made out of leather, or in the color Jade Cluster, it can't go above 120°F. To be safe ALWAYS wash at 80°F.
- If the item is a corset or the material is corduroy then use special instructions based on material.
- If the material is wool or the color is Star Lemon Quartz ALWAYS dry with high heat.
- If a letter of the clothing material matches a letter in your serial code, then the color takes over the special instructions.
- BUT if there are exactly 4 batteries in 2 holders and a there is a lit BOB indicator, ignore all other rules. Bob did the work for you. Just throw in the coin. Thanks BOB.

Input the solution through putting The Washing Symbol top-left, The Drying top-right, Ironing on the top display and Special on the bottom display.

Table L41: Clothing Item Reference

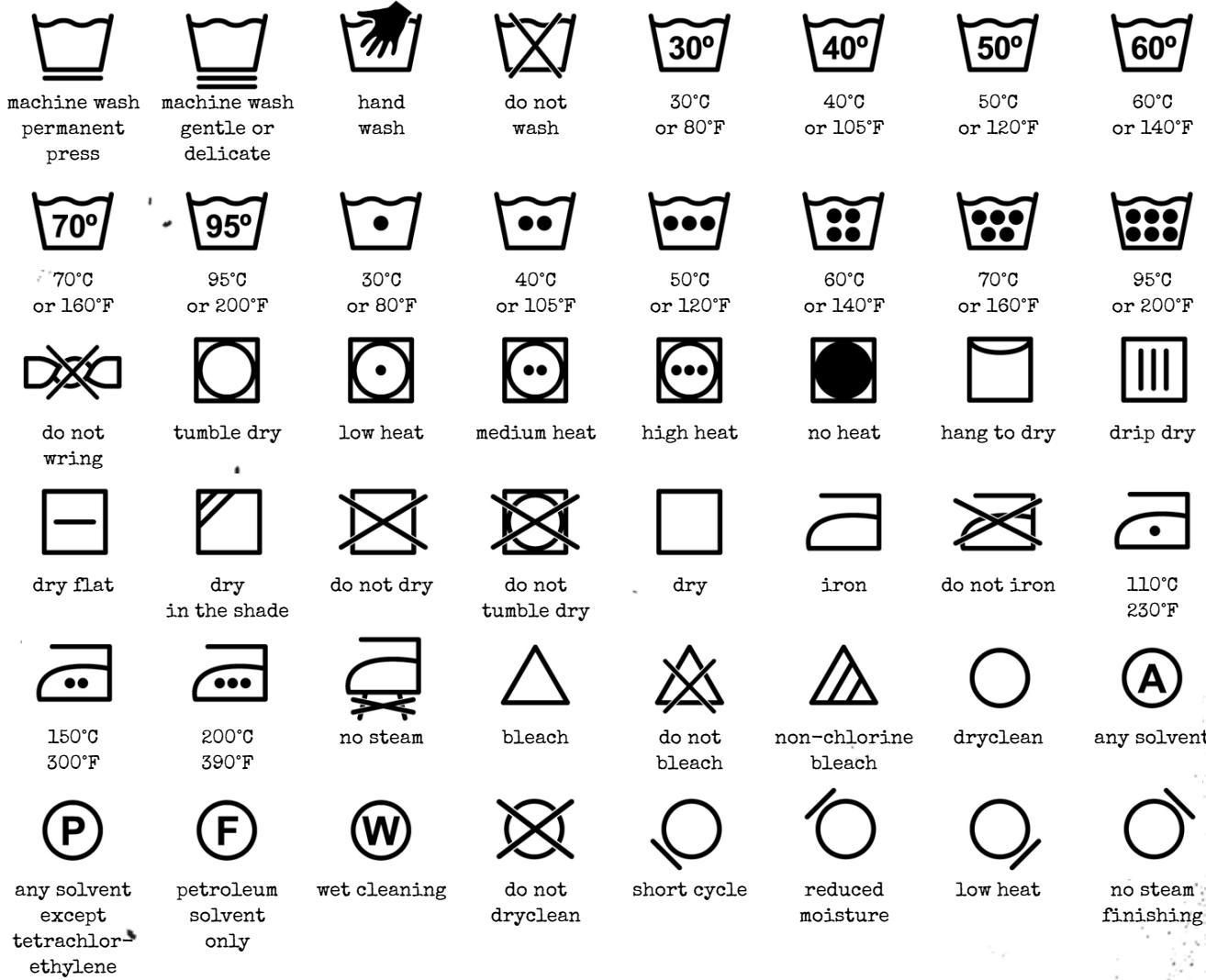
|   | CLOTHING ITEM | WASHING      | DRYING      | IRONING  | SPECIAL               |
|---|---------------|--------------|-------------|----------|-----------------------|
| 0 | Corset        | 140°F        | Dry Flat    | 2 dots   | △                     |
| 1 | Shirt         | 105°F        |             | No steam | No Tetrachlorethylene |
| 2 | Skirt         | 30°C         | Hang To Dry |          | Reduced Moisture      |
| 3 | Skort         |              | Tumble Dry  | 3 Dots   | Circle Top Left       |
| 4 | Shorts        | Do Not Wring | Shade       | 150°C    |                       |
| 5 | Scarf         | 95°C         | Dry         |          | Do not Dry Clean      |

Table L42: Clothing Material Reference

|   | CLOTHING MATERIAL | WASHING     | DRYING      | IRONING     | SPECIAL          |
|---|-------------------|-------------|-------------|-------------|------------------|
| 0 | Polyester         | 50°C        | No Heat     | 2 dots      | (F)              |
| 1 | Cotton            |             | Medium Heat | Iron        | Do Not Dry Clean |
| 2 | Wool              | Handwash    |             | 390°F       | Reduced Moisture |
| 3 | Nylon             | 30°C        | Drip Dry    |             | Low Heat         |
| 4 | Corduroy          | 105°F       |             | 110°C       | W                |
| 5 | Leather           | Do Not Wash | Do Not Dry  | Do Not Iron | (P)              |

Table L43: Clothing Color Reference

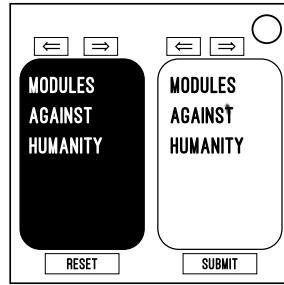
|   | CLOTHING COLOR    | WASHING | DRYING      | IRONING     | SPECIAL |
|---|-------------------|---------|-------------|-------------|---------|
| 0 | Ruby Fountain     | 140°F   |             | Do Not Iron |         |
| 1 | Star Lemon Quartz |         | Dry Flat    | Iron        |         |
| 2 | Sapphire Springs  | 80°F    | Tumble Dry  |             |         |
| 3 | Jade Cluster      | 30°C    |             | 300°F       |         |
| 4 | Clouded Pearl     |         | Low Heat    | No steam    |         |
| 5 | Malinite          | 60°C    | Medium Heat |             |         |

Laundry Symbol Reference

## On the Subject of Modules Against Humanity

*Some of these modules are really inhumane. What should you do then? Just laugh in their faces.*

This module includes two sets of cards, 10 cards in each set. The first two cards that you see (one black, one white) are referred to as initial cards and they both are considered to be set at number 1. Each card can be set to a number between 1 and 10.



### To get the secondary cards:

If you can spell the word POOP from the letters of one of the initial cards, set that card (or both, if applicable) to number 2.

Otherwise, the secondary black card's position is determined by number of unlit indicators + number of ports; and the secondary white card's position is determined by number of lit indicators + number of batteries.

### To get the final cards:

If only the secondary black card refers to a module that you have on the bomb, adjust the secondary white card by +2.

If only the secondary white card refers to a module that you have on the bomb, adjust the secondary black card by +1.

If both secondary cards refer to modules that you have on the bomb, adjust the secondary black card by +4 and the secondary white card by +3.

If neither of the secondary cards refers to a module that you have on the bomb:

- If the serial number contains M, A or H, adjust both secondary cards by -2;
- Otherwise, if the black card is on the left, the final black card's position is number of unique ports and the final white card's position is number of indicators;
- Otherwise, the final black card's position is number of modules on the bomb and the final white card remains at the secondary position.

Once you have the final cards, press the submit button.

### Notes:

Black cards have black background and white letters; white cards have white background and black letters.

Adjusting by a positive value means cycling the card to the right by the specified number. Adjusting by a negative value means cycling the card to the left by the specified number.

If the number of a card value is 0, set the card to the number 10. If it is above 10, subtract 10. If it is less than 1, add 10.

Pressing the reset button will return the module to the initial state.

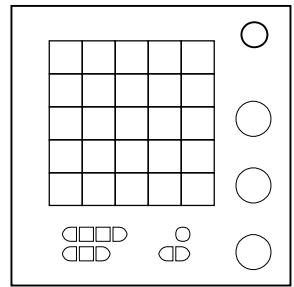
Pressing the reset button will not cause a strike.

Upon a strike, the module will reset itself to the initial state. All the cards on the module will remain the same.

## On the Subject of Battleship

FIRE! ... (splash) Missed.

**Attention, Cadet.** We've narrowed the enemy's locations to within this  $5 \times 5$  grid. The targets in this area are concealed, but we do have a fair bit of intelligence on them.



We suspect this information may not be enough to determine with accuracy where the enemy forces are deployed. This is where you come in. We need you to figure out which locations within the battle arena we can safely survey without being seen:

- Take the first letter and the first digit of the serial number. Add or subtract 5 to the letter or digit until it is in the range A-E or 1-5. This is the first safe location.
- Do the same for the second letter and the second digit. Keep going until you run out of either letters or digits.
- Finally, convert the number of ports into a letter A-E and the number of indicators plus batteries into a digit 1-5 in the same manner. This is your final safe location.
- In each case, the letter indicates columns (left to right), the number indicates rows (top to bottom).

**Attention, Ensign.** We need you to ascertain the locations of all enemy vessels. When you have done so, the module is disarmed. The following tools are at your disposal:

- Survey the safe locations by using the radar tool. Using the radar on any unsafe location reveals our position to the enemy, so don't do that.
- Use the water tool to mark locations that definitely have no enemy vessel in them. You may also click the number above a column or beside a row to mark every unmarked location in that row/column as water.
- Use the torpedo to attack the enemy. Do not waste torpedos on water!

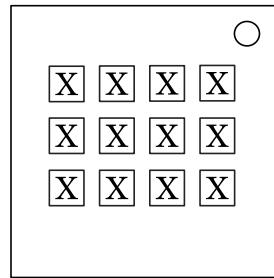
Our intelligence indicates that:

- Every enemy ship is either horizontal or vertical.
- None of the vessels are directly adjacent, not even diagonally.
- We know how many squares in each row and each column have a piece of a ship in them. This is indicated by the numbers along the edges of the grid.
- We also know how many ships of each size there are. This is indicated by the symbols below the grid.

Good luck. Make us proud.

## On the Subject of Text Field

*It's trivial. Just 6 letters out there! Wait, what did you say? Each letter has 5 rules to check? Never mind then.*



- This module contains a  $3 \times 4$  letter field. All letters in the field are the same and in the range A-F.
- Based on the letter, see **Section A** and follow the ruleset for that letter from top to bottom. Obtain a table name from the first rule that applies.
- Find the corresponding table in **Section B** based on the previous step.
- Select all letters in the field that match the table. The module is disarmed when all matching letters have been selected.
- **Careful:** Pressing a button before the light comes on or repeating the same button will result in a strike!

*See Appendix A for indicator identification reference.*

*See Appendix C for port identification reference.*

### Section A: Letter rulesets

#### **Letter A**

- Has CLR lit indicator: 1459
- Has more than 2 batteries: BBFF
- Has exactly 1 battery: 7F67
- Has FRK lit indicator: DC52
- Otherwise: AOC1

#### **Letter B**

- No batteries: 965A
- Last digit of serial number is odd: 1459
- No serial port: DC52
- Has TRN lit indicator: AOC1
- Otherwise: 7F67

#### **Letter C**

- Has DVI-D port: AA12
- Has exactly 2 batteries: FB01
- No vowels in serial number: DC52
- Has CAR lit indicator: 1459
- Otherwise: 7F67

#### **Letter D**

- Has parallel port: FB01
- Has less than 2 batteries: AA12
- Has SIG lit indicator: BBFF
- No PS/2 port: 965A
- Otherwise: 1459

#### **Letter E**

- Has less than 3 batteries: 7F67
- No stereo RCA port: AA12
- Has BOB lit indicator: AOC1
- Has RJ-45 port: BBFF
- Otherwise: DC52

#### **Letter F**

- No serial port: DC52
- Has vowels in serial number: AOC1
- Has IND lit indicator: 1459
- Last digit of serial number is even: FB01
- Otherwise: AA12

**Section B: Table listings****Table FB01**

|   |   |   |   |
|---|---|---|---|
| D | C | F | A |
| B | E | F | F |
| B | B | B | C |

**Table DC52**

|   |   |   |   |
|---|---|---|---|
| C | B | D | E |
| A | F | D | C |
| B | E | B | D |

**Table 965A**

|   |   |   |   |
|---|---|---|---|
| C | B | E | F |
| E | B | F | E |
| D | C | A | A |

**Table 7F67**

|   |   |   |   |
|---|---|---|---|
| A | D | C | B |
| A | C | B | C |
| A | E | F | A |

**Table 1459**

|   |   |   |   |
|---|---|---|---|
| B | A | B | B |
| C | D | F | D |
| D | F | C | E |

**Table A0C1**

|   |   |   |   |
|---|---|---|---|
| E | C | F | A |
| C | F | B | D |
| F | F | B | C |

**Table BBFF**

|   |   |   |   |
|---|---|---|---|
| D | A | B | F |
| D | F | B | E |
| C | E | B | A |

**Table AA12**

|   |   |   |   |
|---|---|---|---|
| B | E | A | B |
| E | D | F | A |
| B | C | E | C |

## On the Subject of Wire Placement

Sometimes, the wire may look like a face, calming you down... and then you explode.

- This module contains a grid of wires.
- There are always 8 wires on it.
- Wires can be red, blue, yellow, black or white.
- In the following table, use only the column corresponding to the color of the wire connected to C3.
- Cut a wire if it is a specific color and is connected to a specific spot on the grid as indicated in the table.

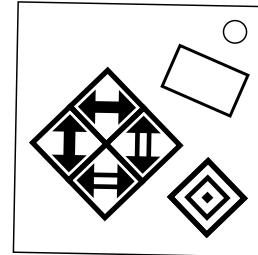
| A | B | C       | D |  |
|---|---|---------|---|--|
| 1 | ~ | { } { } |   |  |
| 2 |   | { }     |   |  |
| 3 |   |         |   |  |
| 4 | ~ | { } { } |   |  |

|              |  | Wire connected to C3 is |      |     |       |        |
|--------------|--|-------------------------|------|-----|-------|--------|
|              |  | Black                   | Blue | Red | White | Yellow |
| Cut if color |  | is connected to:        |      |     |       |        |
| Yellow       |  | D2                      | D1   | D2  | A2    | D1     |
| Blue         |  | A2                      | C4   | A1  | C4    | D4     |
| White        |  | D3                      | D2   | D4  | B3    | B2     |
| White        |  | B2                      | C1   | B4  | A1    | C1     |
| Red          |  | A1                      | B3   | C4  | B2    | B3     |
| Blue         |  | C3                      | C2   | C1  | D3    | B1     |
| Black        |  | B1                      | D4   | A4  | D2    | B4     |
| Red          |  | C4                      | D3   | B1  | C1    | C2     |
| Yellow       |  | A3                      | C3   | A2  | A4    | A3     |
| Yellow       |  | D1                      | A1   | B2  | B4    | A4     |

## On the Subject of Double-Oh

A module, please. Shaken, not stirred. Stupid piece of junk; broken display, broken buttons...

- A display is shown with a two digit number, as well as five buttons. Using the buttons, toggle the display to 00 (located in the center of the below table), then hit the submit button.
- Four of the five buttons toggle the number in the display. Based on the table below, consisting of a  $3 \times 3$  grid of smaller  $3 \times 3$  grids, the buttons will behave in the following fashion:
- The “↑” button moves to the next position up or down within the current smaller grid, looping if reaching the edge (example: 00 to 85 to 14 to 00)
- The “↔” button moves to the next position left or right within the current smaller grid, looping if reaching the edge (example: 00 to 56 to 21 to 00)
- The “↕” button moves to the same position in the next large  $3 \times 3$  grid up or down, looping if reaching the edge (example: 00 to 22 to 58 to 00)
- The “↔” button moves to the same position in the next large  $3 \times 3$  grid left or right, looping if reaching the edge (example: 00 to 44 to 65 to 00)
- The “□” button is the submit button. Pressing it will disarm the module if 00 is displayed and cause a strike otherwise.



**NOTE:** This module is old, and the last digit glitches out when the first digit is zero. In addition, the wiring for the buttons is acting up, so the functions of the buttons may be swapped. Fortunately, the strikes from the submit button are only registered by the bomb if the displayed number is less than 10.

|    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|
| 60 | 02 | 15 | 57 | 36 | 83 | 48 | 71 | 24 |
| 88 | 46 | 31 | 70 | 22 | 64 | 07 | 55 | 13 |
| 74 | 27 | 53 | 05 | 41 | 18 | 86 | 30 | 62 |
| 52 | 10 | 04 | 43 | 85 | 37 | 61 | 28 | 76 |
| 33 | 65 | 78 | 21 | 00 | 56 | 12 | 44 | 87 |
| 47 | 81 | 26 | 68 | 14 | 72 | 50 | 03 | 35 |
| 06 | 38 | 42 | 84 | 63 | 20 | 75 | 17 | 51 |
| 25 | 73 | 67 | 16 | 58 | 01 | 34 | 82 | 40 |
| 11 | 54 | 80 | 32 | 77 | 45 | 23 | 66 | 08 |

## On the Subject of Cheap Checkout

*Who in the world is purchasing something at a time like this?*

- There is a shopping list of items that are being purchased and can be viewed with the arrow buttons.
- Above that, it shows the amount the customer paid.
- Add up the amount of money it costs for all the items, applying the sale to each item based on the day of the week.
- Weighted items must have their weight applied before applying the sale.
- If the customer has paid enough money, simply input the correct amount of change the customer should receive using the buttons on the module and then press submit.
- Otherwise if the customer hasn't paid enough, press submit without any change to alert the customer. Wait for the new amount of money from the customer and then figure out how much change to give.
- After pressing the submit button, the change will be cleared.

|         |                       |     |     |
|---------|-----------------------|-----|-----|
| \$17.23 | <input type="radio"/> |     |     |
| <       | Potato Chips          | >   |     |
| .01     | .05                   | .10 | .25 |
| 1       | 5                     | 10  | 25  |
| SUBMIT  | CLEAR                 |     |     |

### Glossary

- Item price refers to the price before the sale has been applied.
- Fixed price items don't have their prices change based on their weight.
- A digital root is calculated by adding all the digits of a number together and repeating the process on the new number until you have a single digit.
- Commercial rounding is when the digit checked for rounding is 5 or greater, the number is rounded up, otherwise you round down.

### Sales:

*The day of the week is the date listed on the defuser's computer when the module is activated.*

#### Special Sunday

All fixed price items that contain an S in them are \$2.15 more.

#### Malleable Monday

The 1st, 3rd and 6th items on the shopping list are 15% off.

#### Troublesome Tuesday

Calculate the digital root of the item price without the decimal point. Add that many dollars to the item price. Only applies to fixed price items.

#### Wacky Wednesday

Change each occurrence of the largest digit in the price with the smallest digit in the price, and vice versa.

#### Thrilling Thursday

All of the odd positioned items on the shopping list are half off.

#### Fruity Friday

All fruits are 25% more per pound.

#### Sweet Saturday

All sweet items are 35% off.

**Item Prices:**

Prices should always be kept in terms of dollars, for example, \$0.68 instead of 68¢. All item prices are rounded to the 2nd decimal. You must commercially round after calculating the item price as well as after applying the sale.

| Item           | Price         | Category     |
|----------------|---------------|--------------|
| Bananas        | \$0.87 per lb | Fruit        |
| Broccoli       | \$1.39 per lb | Vegetable    |
| Candy Canes    | \$3.51        | Sweet        |
| Canola Oil     | \$2.28        | Oil          |
| Cereal         | \$4.19        | Grain        |
| Cheese         | \$4.49        | Dairy        |
| Chicken        | \$1.99 per lb | Protein      |
| Chocolate Bar  | \$2.10        | Sweet        |
| Chocolate Milk | \$5.68        | Dairy        |
| Coffee Beans   | \$7.85        | Other        |
| Cookies        | \$2.00        | Sweet        |
| Deodorant      | \$3.97        | Care Product |
| Fruit Punch    | \$2.08        | Sweet        |
| Grape Jelly    | \$2.98        | Sweet        |
| Grapefruit     | \$1.08 per lb | Fruit        |
| Gum            | \$1.12        | Sweet        |
| Honey          | \$8.25        | Sweet        |

| Item          | Price         | Category     |
|---------------|---------------|--------------|
| Mints         | \$6.39        | Sweet        |
| Mustard       | \$2.36        | Other        |
| Oranges       | \$0.80 per lb | Fruit        |
| Paper Towels  | \$9.46        | Care Product |
| Pasta Sauce   | \$2.30        | Vegetable    |
| Peanut Butter | \$5.00        | Protein      |
| Pork          | \$4.14 per lb | Protein      |
| Potato Chips  | \$3.25        | Oil          |
| Potatoes      | \$0.68 per lb | Vegetable    |
| Shampoo       | \$4.98        | Care Product |
| Socks         | \$6.97        | Other        |
| Soda          | \$2.05        | Sweet        |
| Spaghetti     | \$2.92        | Grain        |
| Steak         | \$4.97 per lb | Protein      |
| Sugar         | \$2.08        | Sweet        |
| Tea           | \$2.35        | Water        |
| Tissues       | \$3.94        | Care Product |

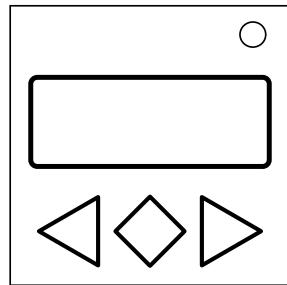
|            |               |              |
|------------|---------------|--------------|
| Ketchup    | \$3.59        | Other        |
| Lemons     | \$1.74 per lb | Fruit        |
| Lettuce    | \$1.10 per lb | Vegetable    |
| Lollipops  | \$2.61        | Sweet        |
| Lotion     | \$7.97        | Care Product |
| Mayonnaise | \$3.99        | Oil          |

|               |               |              |
|---------------|---------------|--------------|
| Tomatoes      | \$1.80 per lb | Fruit        |
| Toothpaste    | \$2.50        | Care Product |
| Turkey        | \$2.98 per lb | Protein      |
| Water Bottles | \$9.37        | Water        |
| White Bread   | \$2.43        | Grain        |
| White Milk    | \$3.62        | Dairy        |

## On the Subject of Coordinates

Column first or row first?

Picture a two-dimensional grid of rows and columns. To disarm this module, determine the size of the grid, determine the positions on the grid that are indicated by the module, and find out which position is duplicated.



Use the left and right arrows on the module to cycle through the clues. One of the clues indicates the size of the grid, the rest is a set of positions on the grid. Select one of the two clues that refer to the same grid position and use the middle button to submit it. Then select the other of those two clues and submit it.

To determine the size of the grid, find the clue that is represented in any of the formats described in Table 1. The italicized letters in the table stand in for a number on the module.

The grid locations may be notated in any of the formats listed in Table 2. The module may also describe locations using words such as “top”, “bottom”, “left”, “right”, “up”, “down”, “center”, “middle”, cardinal directions or clockface directions.

**Table 1: grid size formats**

| Format        | How to interpret  |
|---------------|---|
| <b>x</b>      | The number <i>x</i> is a product of two primes. The grid's width is the larger prime, the height the smaller. |
| <b>(x)</b>    | Same as <i>x</i> , but width and height are swapped.  |
| <b>x*y</b>    | <i>x</i> is the width, <i>y</i> the height of the grid.   |
| <b>x by y</b> | <i>x</i> is the height, <i>y</i> the width of the grid.   |
| <b>x*y</b>    | <i>x</i> is the total size of the grid, <i>y</i> the height.  |
| <b>x:y</b>    | <i>x</i> is the total size of the grid, <i>y</i> the width.   |

**Table 2: grid location formats**

|                      |  |
|----------------------|--|
| <b>[x,y]</b>         | Column, then row; top-left is [0,0].   |
| <b>letter number</b> | Column, then row; top-left is A1.  |
| <b>&lt;x, y&gt;</b>  | Row, then column; top-left is <0, 0>.  |
| <b>x, y</b>          | Row, then column; top-left is 1, 1.  |
| <b>(x,y)</b>         | Column, then row; bottom-left is (0,0).  |
| <b>letter-number</b> | Column, then row; bottom-left is A-1.  |
| <b>"x, y"</b>        | Row, then column; bottom-left is "0, 0".   |
| <b>x/y</b>           | Row, then column; bottom-left is 1/1.  |
| <b>[x]</b>           | Cell number in scanline order <sup>[1]</sup> ; top-left is [0].  |
| <b>xth</b>           | Cell number in scanline order <sup>[1]</sup> ; top-left is 1st.  |
| <b>#x</b>            | Cell number in Cartesian order <sup>[2]</sup> ; bottom-left is #1.   |
| 四十七                  | Cell number in Chinese reading order <sup>[3]</sup> ; top-right is —. See Table 3 for Chinese numerals reference. The example shown here represents the number 47. |

**Table 3: Chinese numerals**

|   |   |   |    |
|---|---|---|----|
| 一 | 1 | 六 | 6  |
| 二 | 2 | 七 | 7  |
| 三 | 3 | 八 | 8  |
| 四 | 4 | 九 | 9  |
| 五 | 5 | 十 | 10 |

[1] Scanline order, also known as reading order, starts at the top-left, moves right across the row, and then continues likewise with each row from top to bottom.

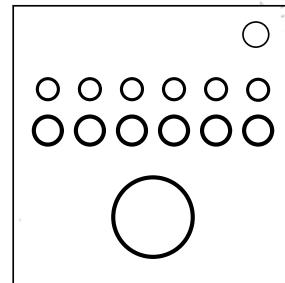
[2] Cartesian order, also known as geometric order, starts at the bottom-left, moves right across the row, and then continues likewise with each row from bottom to top.

[3] Traditional Chinese reading order starts at the top-right, moves down the column, and then continues likewise with each column from right to left.

## On the Subject of Light Cycles

The name "blitzenlights" was taken.

There are six colored LEDs in a row which continuously flash in sequence from left to right. To disarm this module, determine a sequence of colors, then input that sequence by pressing the button when each color is lit. (For example, to enter the color red, press the button when the red LED is lit.)



Determine the correct sequence of colors as follows:

- Start with the order of the LEDs on the module. This is a sequence of six colors.
- Take the first and last character of the serial number, then the second and second-last, etc. up to the last and first character, resulting in a list of 6 pairs.
- For each such pair of characters, look up the information in the following table. Use the first in the pair for the row, the second for the column. A letter in the table refers to a color (R = red, Y = yellow, G = green, B = blue, M = magenta, W = white), while a number refers to a position in your sequence (1 through 6). Swap those two colors in your sequence.
- After performing the six swaps, enter the resulting sequence.

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

## On the Subject of Translated Modules

Unfortunately, the game's pdf creation routine can't filter the manual pages for the "Translated Modules Mod" by the set language. Putting the pages for all languages in here would blow up this document (we have 80+ pages).

To get the manual you have two options:

1. For a fan translation of the complete manual with the translated module pages integrated have a look at the mod's description page (<http://steamcommunity.com/sharedfiles/filedetails/?id=850186070>) or at your mod's manual folder (see below) and open TranslatedModulesComplete(YourLanguage).pdf.
2. To integrate only the pages for the modified modules right here, navigate to the mod's manual folder (usually at "C:\Program Files (x86)\Steam\steamapps\workshop\content\341800\850186070\Manual") and copy "TranslatedModules(YourLanguage).pdf" from the "CopyManualFromHere" to the "Modules" folder.

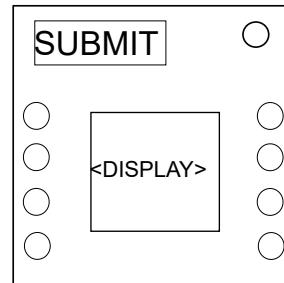
And don't forget to set the mod's language before playing:

1. Start the game with mods enabled
2. Click "Menu" => "Show Mod Settings Folder"
3. Open "TranslatedModules-settings.txt"
4. Jump to the line "CurrentLanguages": ["de"]
5. Replace "de" with the identifier for your language (you'll find all available identifiers in that file)
6. Quit and restart the game!

## On the Subject of Color Math

*So many colors!*

- This module contains 2 rows of LEDs, left (represents the base number) and right (represents adder/subtractor/multiplier/divider and/or answer).
- Numbers in this module are ranged from 0-9999 inclusive. LEDs are read from the top (Most Significant Digit) to bottom (Least Significant Digit).
- Use Table 1 to convert left side LEDs into the base number.
- The display at the middle of this module shows the action that needs to be performed: [A]dd / [S]ubtract / [M]ultiply / [D]ivide.
- If the text in the display is GREEN, use Table 2 to convert right side LEDs into the adder/subtractor/multiplier/divider.
- If the text in the display is RED, ignore right side LEDS and then use Table 3 to determine the adder/subtractor/multiplier/divider.
- Perform the action required and use table 4 to convert the answer into colors, then input it on right side LEDs. Push SUBMIT to check.



**Table 1: Left side LEDs to numbers conversion table**

| LED No. | Blue | Green | Purple | Yellow | White | Magenta | Red | Orange | Gray | Black |
|---------|------|-------|--------|--------|-------|---------|-----|--------|------|-------|
| 1       | 6    | 1     | 2      | 4      | 9     | 0       | 8   | 5      | 3    | 7     |
| 2       | 8    | 1     | 9      | 4      | 3     | 6       | 0   | 5      | 7    | 2     |
| 3       | 4    | 1     | 9      | 7      | 0     | 2       | 5   | 3      | 8    | 6     |
| 4       | 6    | 8     | 7      | 5      | 4     | 9       | 1   | 3      | 0    | 2     |

**Table 2: Right side LEDs to numbers conversion table**

| LED No. | Blue | Green | Purple | Yellow | White | Magenta | Red | Orange | Gray | Black |
|---------|------|-------|--------|--------|-------|---------|-----|--------|------|-------|
| 1       | 0    | 6     | 5      | 4      | 3     | 7       | 9   | 8      | 1    | 2     |
| 2       | 2    | 9     | 8      | 0      | 5     | 3       | 4   | 7      | 1    | 6     |
| 3       | 5    | 0     | 6      | 4      | 2     | 7       | 9   | 3      | 8    | 1     |
| 4       | 5    | 4     | 2      | 9      | 8     | 6       | 7   | 1      | 3    | 0     |

**Table 3: Finding ASMD in case of red display**

| Digit No. | 0-1 Batteries                | 2-3 Batteries                      | 4-5 Batteries                     | 6+ Batteries                          |
|-----------|------------------------------|------------------------------------|-----------------------------------|---------------------------------------|
| 1 (MSD)   | First digit in serial number | 0                                  | Amount of vowels in serial number | DVI-D port counts                     |
| 2         | Amount of unlit indicators   | PS/2 port counts                   | Amount of battery holders         | 5                                     |
| 3         | 9                            | Amount of letters in serial number | Serial port counts                | Amount of consonants in serial number |
| 4 (LSD)   | RJ-45 port counts            | Last digit in serial number        | 4                                 | Amount of lit indicators              |

**Table 4: Answer to colors conversion table**

| LED No. | 0       | 1      | 2      | 3      | 4       |
|---------|---------|--------|--------|--------|---------|
| 1       | Gray    | Green  | Orange | White  | Purple  |
| 2       | Blue    | Green  | Black  | Purple | Magenta |
| 3       | Magenta | Yellow | Blue   | Gray   | Red     |
| 4       | Gray    | Blue   | Purple | Red    | Yellow  |

| LED No. | 5       | 6       | 7      | 8      | 9     |
|---------|---------|---------|--------|--------|-------|
| 1       | Blue    | Magenta | Black  | Yellow | Red   |
| 2       | Red     | Gray    | Yellow | Orange | White |
| 3       | Black   | Green   | Purple | Orange | White |
| 4       | Magenta | Black   | Orange | Green  | White |

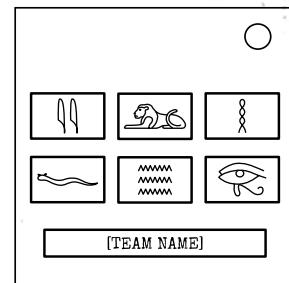
- Note: On the subtraction, if the answer is negative, answer as positive.
- Note: On the division, if the answer contains remainder, ignore the remainder.
- Note: If the answer exceeded 9999, please divide the answer with 10000 and answer with the remainder. (Or in short, modulo it with 10000.)

## On the Subject of Only Connect

*Greek letters are too pretentious, so we use Egyptian hieroglyphs.*

This module consists of two rounds.

### Round 1: Egyptian Hieroglyphs



- The module displays the six familiar Egyptian hieroglyphs in a  $3 \times 2$  arrangement, and a team name.
- Determine how many of the following criteria are met by each of the Egyptian hieroglyphs.
- Select the Egyptian hieroglyph that meets a number of criteria different from any other Egyptian hieroglyph.
- Criterion #1 is met if the Egyptian hieroglyph is in the specified location.
- Criterion #2 is met if the specified place in the serial number occurs in the team name. If the place is a digit, convert it to a letter (0=Z, 1=A, 2=B, ..., 9=I).
- Criterion #3 is met if the bomb has at least one of the specified port.

| Criterion | Two Reeds | Lion       | Twisted Flax | Horned Viper | Water         | Eye of Horus |
|-----------|-----------|------------|--------------|--------------|---------------|--------------|
| #1        | top left  | top middle | top right    | bottom left  | bottom middle | bottom right |
| #2        | first     | second     | third        | fourth       | fifth         | sixth        |
| #3        | PS/2      | Parallel   | RJ-45        | Stereo RCA   | Serial        | DVI-D        |

## Round 2: Connecting Wall

- The module displays a jumbled-up grid of 9 letters.
  - Group the 9 letters into 3 groups of 3, such that each group contains letters from the same language. There is only one solution.

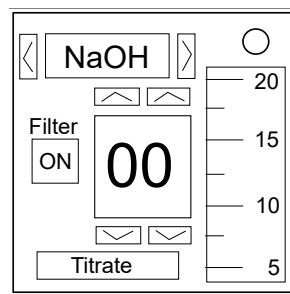
**Appendix: Names of diacritic marks and foreign letters**

|                 |                     |
|-----------------|---------------------|
| á áééííóóúúýýžž | Acute               |
| ő ū             | Double acute        |
| à è ì ò ù       | Grave               |
| â ê ã ô ã ã ã   | Circumflex          |
| ä ë ï ö ü ÿ     | Umlaut or diaeresis |
| č đ ě ř š ť ž   | Hacek or caron      |
| ç ş             | Cedilla             |
| ǵ ǵ ǵ ń ń ń     | Comma               |
| å ü             | Ring                |
| ă ă ă ă ă ă     | Breve               |
| ã ñ ñ ñ ñ ñ     | Tilde               |
| ā ē ī ī ī ī     | Macron or line      |
| ą ę ı ı ı ı     | Ogonek              |
| े ے ے ے ے ے     | Dot above           |
| đ љ ø           | Slash or stroke     |
| æ œ œ œ œ œ     | Ligature            |
| ð               | Eth                 |
| í               | Dotless i           |
| ß               | Eszett or sharp s   |
| þ               | Thorn               |

## On the Subject of Neutralization

The rules are simple: neutralize or be neutralized.

- The module is disarmed by successfully neutralizing an acid contained in a tube by titrating it with a chemical base.
- In order to solve the module, the type of base, amount of base, and filter state must all be correct.
- Once the appropriate conditions are set, press “Titrate” to confirm the solution.
- An incorrect input yields a strike. The correct answer remains unchanged.
- Useful info may be found in **Appendix NT27: Chemical Information**.



### Determining Titrants

The acid type can be determined using the following chart:

| Solution Color | Acid Type         |
|----------------|-------------------|
| Red            | Hydrogen bromide  |
| Yellow         | Hydrogen fluoride |
| Green          | Hydrogen chloride |
| Blue           | Hydrogen iodide   |

The base that must be used to titrate can be determined via the following ruleset:

- If the bomb has an NSA indicator and exactly 3 batteries, add ammonia.
- Otherwise, if the bomb has a lit CAR, FRQ, or IND indicator, add potassium hydroxide.
- Otherwise, if the bomb has no ports and the serial number has a vowel, add lithium hydroxide.
- Otherwise, if the acid's chemical formula has a letter in common with an indicator present on the bomb, add potassium hydroxide.
- Otherwise, if the number of D batteries is greater than the number of AA batteries, add ammonia.
- Otherwise, if the anion's atomic number is less than 20, add sodium hydroxide.
- Otherwise, add lithium hydroxide.

## Determining Concentrations

The concentration of the acid can be determined via the following process:

- Start with the atomic number of the anion of the acid.
- Subtract the atomic number of the cation of the base.
- If the anion or cation has a vowel in the chemical symbol, subtract 4.
- If the anion and cation's chemical symbols have the same number of characters, multiply by 3.
- Take the least significant digit of the result (removing negative signs).
- If the number is 0, the number becomes the volume of acid doubled then divided by 5.
- Divide by 10. This is the concentration of the acid.

The concentration of the base can be determined via the following ruleset:

- If there are more battery holders than port types and more battery holders than indicators, the concentration is 5.
- If there are more port types than battery holders and more port types than indicators, the concentration is 10.
- If there are more indicators than battery holders and more indicators than port types, the concentration is 20.
- If there are any ties for the most, the concentration is either 5, 10, and 20, whichever is closest to the cation's atomic number.
- However, if the titration combination is HI and KOH or HCl and NH<sub>3</sub>, the concentration is always 20.

## Determining Drop Count

- Start with 20 and divide by the concentration of the base.
- Multiply by the volume of acid and concentration of the acid.
- The result is the number of drops required to successfully titrate.

## Determining Solubility

- If the module's acid/base combination on the following chart has "NS" for "Not Soluble", the filter must be turned ON before the base is added.
- Otherwise, the filter must be turned OFF.

|     | NH <sub>3</sub> | KOH | LiOH | NaOH |
|-----|-----------------|-----|------|------|
| HBr | S               | NS  | NS   | S    |
| HF  | NS              | S   | NS   | S    |
| HCl | NS              | NS  | S    | NS   |
| HI  | S               | S   | S    | NS   |

## APPENDIX NT27: Chemical Information

### NT27.1: Bases

| Name                | Chemical Formula | Cation    | Chemical Symbol | Atomic Number |
|---------------------|------------------|-----------|-----------------|---------------|
| Ammonia             | NH <sub>3</sub>  | Hydrogen  | H               | 1             |
| Lithium hydroxide   | LiOH             | Lithium   | Li              | 3             |
| Sodium hydroxide    | NaOH             | Sodium    | Na              | 11            |
| Potassium hydroxide | KOH              | Potassium | K               | 19            |

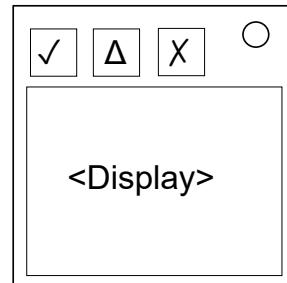
### NT27.2: Acids

| Name              | Chemical Formula | Anion    | Chemical Symbol | Atomic Number |
|-------------------|------------------|----------|-----------------|---------------|
| Hydrofluoric acid | HF               | Fluorine | F               | 9             |
| Hydrochloric acid | HCl              | Chlorine | Cl              | 17            |
| Hydrobromic acid  | HBr              | Bromine  | Br              | 35            |
| Hydroiodic acid   | HI               | Iodine   | I               | 53            |

## On the Subject of Web Design

Welcome to web design class. The first rule of web design is: You do not talk about Comic Sans MS. The second rule is: You DO NOT talk about Comic Sans MS. The third rule is: The word "color" is NEVER spelled with a U.

- The module displays a snippet of a CSS file on a screen.
- Based on the information given, you have to Accept (✓), Consider (Δ), or Reject (X) the code.



### Step 1: Select the website

Find the website this code was quoted from. Use the **Selector** part of the code (the part before {}) to narrow it down to one site, then note down its **Threshold** value.

|   |  |
|---|--|
| <b><u>Edison Daily (news site)</u></b><br><br>Elements: body, a, h3, blockquote<br>IDs: #header, #comments<br>Classes: .post, .title, .author<br><br><b>Threshold: #00FF00</b>      | <b><u>Buddymaker (social media)</u></b><br><br>Elements: div, span, img, a<br>IDs: #msg, #cover, #content, #sidebar<br>Classes: .post, .title, .share<br><br><b>Threshold: #804000</b> |
| <b><u>PNGdrop (image hosting)</u></b><br><br>Elements: div, img<br>IDs: #main, #comments, #fullview<br>Classes: .username, .share, .large<br><br><b>Threshold: #BADA55</b>          | <b><u>BobIRS (chatroom)</u></b><br><br>Elements: ul, ol, img, b, i<br>IDs: #sidebar<br>Classes: .avatar, .username<br><br><b>Threshold: #03E61E</b>                                    |
| <b><u>Vidhost (video hosting)</u></b><br><br>Elements: div, iframe, b, i<br>IDs: #main, #rating, #comments<br>Classes: .username, .share, .channel<br><br><b>Threshold: #60061E</b> | <b><u>Go Team Falcon online (online game)</u></b><br><br>Elements: body, iframe<br>IDs: #rating, #comments<br>Classes: .rating, .fullscreen<br><br><b>Threshold: #501337</b>           |
| <b><u>Stufflocker (cloud storage)</u></b><br><br>Elements: div, h3, img, iframe<br>IDs: #sidebar, #download<br>Classes: .menu, .author<br><br><b>Threshold: B020E5</b>              | <b><u>Steel Nexus (forum)</u></b><br><br>Elements: body, div, img, blockquote<br>IDs: #header, #content, #sidebar<br>Classes: .avatar, .reply<br><br><b>Threshold: #BEA61E</b>         |

## Step 2: Find the color target

Find the first color name in the CSS file, then use the following table to determine a hexadecimal value of that color. This value is the **Color Target** that you will need later. If no color name is displayed, use #7F7F7F.

| Color  | Hex value | Color   | Hex value | Color  | Hex value |
|--------|-----------|---------|-----------|--------|-----------|
| Blue   | #0000FF   | Yellow  | #FFFF00   | Red    | #FF0000   |
| Green  | #00FF00   | White   | #FFFFFF   | Orange | #FFA500   |
| Purple | #800080   | Magenta | #FF00FF   | Gray   | #808080   |

**Note:** The hexadecimal value of a color is denoted in #RRGGBB format.

## Step 3: Calculate site score

Calculate the site score as follows:

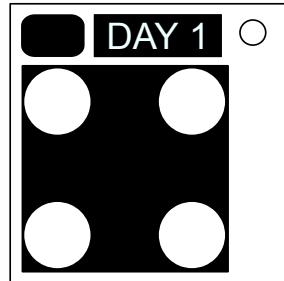
- Start with the number of lines of code inside the {curly braces}. Counting semi-colons is a good idea because it is a line terminator.
- +3 score each for:
  - R value of the Color Target is less than R value of the threshold.
  - G value of the Color Target is greater than or equal to G value of the threshold.
  - B value of the Color Target is greater than B value of the threshold.
- +2 score for each margin/padding.
- +1 score for each border/border-radius unless it's 0px or 50%.
- 1 score for each z-index without a position.
- +1 score for each font-family unless it's "Comic Sans MS", which gives a -5 score.
- +2 score for each box-shadow/text-shadow unless it's none.
- ×2 score if the buttons on the module are colored, or -3 score if they are gray.
- If your score is now negative or 0, keep adding 16 until it's positive.
- Keep adding up the digits of the number until you are left with a single digit. Then use the following table to determine which button to push.

| Accept (✓) | Consider (Δ) | Reject (✗) |
|------------|--------------|------------|
| 2, 3, 5, 7 | 6, 8         | 1, 4, 9    |

## On the Subject of Creation

*Let there be life!*

- Combine elements to create a new lifeform!
- The module contains a display featuring multiple elements, a segment explaining the day #, and a segment explaining the weather.
- As you create new elements, new icons will appear.
- Be careful, though, as change in weather can affect the elements you are combining, and may require another element to negate it!
- Combining a wrong pair of elements will result in a strike and the module will reset.



Using the chart below, determine the starting element based on the weather pattern of Day 1:

| Weather       | Element |
|---------------|---------|
| Rain          | Water   |
| Wind          | Air     |
| Heat Wave     | Fire    |
| Meteor Shower | Earth   |

Based on the starting element's position on the display, look up the correct permutation number in the following table:

|  | Upper-Left | Upper-Right | Bottom-Left | Bottom-Right |
|--|------------|-------------|-------------|--------------|
| Water                                  | [2]        | [1]         | [4]         | [3]          |
| Air                                    | [1]        | [2]         | [3]         | [4]          |
| Earth                                  | [4]        | [3]         | [1]         | [2]          |
| Fire                                   | [3]        | [4]         | [2]         | [1]          |
| Clear weather has a permutation of [0] |            |             |             |              |

Use this number to determine which lifeform to create.

**Bomb has 3 or more battery holders:**

If any lit indicators are present, AND all batteries are Double A, the lifeform will be:

- [0] Bird | [1] Dinosaur | [2] Turtle | [3] Lizard | [4] Worm

Otherwise, if any lit indicators are present, the lifeform will be:

- [0] Dinosaur | [1] Turtle | [2] Lizard | [3] Worm | [4] Bird

Otherwise, if any unlit indicators are present, AND all batteries are D cell, the lifeform will be:

- [0] Turtle | [1] Lizard | [2] Worm | [3] Bird | [4] Dinosaur

Otherwise, if any unlit indicators are present, the lifeform will be:

- [0] Lizard | [1] Worm | [2] Bird | [3] Dinosaur | [4] Turtle

Otherwise, the lifeform will be:

- [0] Worm | [1] Bird | [2] Dinosaur | [3] Turtle | [4] Lizard

**Bomb has 2 or less battery holders:**

If there are more ports plates than battery holders:

- [0] [4] Ghost | [1] Plankton | [2] Seed | [3] Mushroom

Otherwise, if there are any duplicate ports:

- [0] [4] Plankton | [1] Seeds | [2] Mushroom | [3] Ghost

Otherwise, if there are more unlit Indicators than lit Indicators:

- [0] [4] Seeds | [1] Mushroom | [2] Ghost | [3] Plankton

Otherwise, the lifeform will be:

- [0] [4] Mushroom | [1] Ghost | [2] Plankton | [3] Seeds

**Weather Rules:**

Check the forecast in the top-left corner of the module, next to "Day #"

If it's raining, all "Water" must be substituted by "Fire."



If it's windy, all "Air" must be substituted by "Earth."



If there's a heat wave, all "Fire" must be substituted by "Water."



If there is a meteor shower, all "Earth" must be substituted by "Air."



If the weather is clear, then no substitutions are required. Enjoy the sunshine!



| GEN. 1 | Earth | Air    | Fire    | Water   |
|--------|-------|--------|---------|---------|
| Earth  | X     | Dust   | Lava    | Swamp   |
| Air    | Dust  | X      | Energy  | Steam   |
| Fire   | Lava  | Energy | X       | Alcohol |
| Water  | Swamp | Steam  | Alcohol | X       |

| GEN. 2 | Fire   | Dust    | Swamp    | Energy | Lava    | Water    |
|--------|--------|---------|----------|--------|---------|----------|
| Fire   | X      | Ash     | Tar      | Plasma | X       | Gen. 1   |
| Dust   | Ash    | X       | Pollen   | X      | Volcano | Cement   |
| Swamp  | Tar    | Pollen  | X        | Life   | X       | Lily Pad |
| Energy | Plasma | X       | Life     | X      | X       | X        |
| Lava   | X      | Volcano | X        | X      | X       | Stone    |
| Water  | Gen. 1 | Cement  | Lily Pad | X      | Stone   | X        |

| GEN. 3 | Swamp    | Life     | Stone | Plasma | Fire   | Water  | Air    | Earth  |
|--------|----------|----------|-------|--------|--------|--------|--------|--------|
| Swamp  | X        | Bacteria | X     | X      | Gen. 2 | Gen. 2 | X      | X      |
| Life   | Bacteria | X        | X     | Ghost  | X      | Weeds  | X      | Egg    |
| Stone  | X        | X        | X     | X      | Metal  | Sand   | Sand   | X      |
| Plasma | X        | Ghost    | X     | X      | X      | X      | X      | X      |
| Fire   | Gen. 2   | X        | Metal | X      | X      | Gen. 1 | Gen. 1 | Gen. 1 |
| Water  | Gen. 2   | Weeds    | Sand  | X      | Gen. 1 | X      | Gen. 1 | Gen. 1 |
| Air    | X        | X        | Sand  | X      | Gen. 1 | Gen. 1 | X      | Gen. 1 |
| Earth  | X        | Egg      | X     | X      | Gen. 1 | Gen. 1 | Gen. 1 | X      |

| GEN. 4   | Air    | Egg      | Earth    | Swamp  | Weeds    | Bacteria | Water    | Life   |
|----------|--------|----------|----------|--------|----------|----------|----------|--------|
| Air      | X      | Bird     | X        | Gen. 3 | X        | X        | Gen. 3   | Gen. 3 |
| Egg      | Bird   | X        | Dinosaur | Lizard | Seeds    | X        | Turtle   | X      |
| Earth    | Gen. 1 | Dinosaur | X        | X      | Mushroom | X        | Gen. 1   | X      |
| Swamp    | Gen. 3 | Lizard   | X        | X      | Moss     | Worm     | Gen. 3   | Gen. 3 |
| Weeds    | X      | Seeds    | Mushroom | Moss   | X        | X        | X        | Gen. 3 |
| Bacteria | X      | X        | X        | Worm   | X        | X        | Plankton | X      |
| Water    | Gen. 3 | Turtle   | Gen. 1   | Gen. 3 | X        | Plankton | X        | Gen. 3 |
| Life     | Gen. 3 | X        | X        | Gen. 3 | Gen. 3   | X        | Gen. 3   | X      |

## On the Subject of Rubik's Cube

*Remember this impossible thing? Now it's on a bomb. Have fun.*

The bomb presents an unsolved Rubik's cube. To disarm the module, solve the Rubik's cube. The following steps can be used to determine the sequence of moves necessary to solve it. If you get lost, press the Reset button to return the cube to its original state.

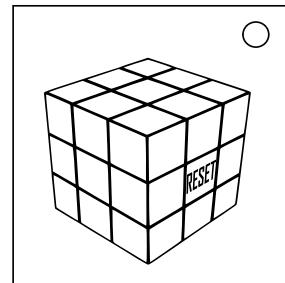


Table 1

| U | L | F | Moves |    |
|---|---|---|-------|----|
| 0 | 1 | 2 | L'    | F' |
| 3 | 4 | 5 | D'    | U' |
| 6 | 7 | 8 | U     | B' |
| 9 | A | B | F     | B  |
| C | D | E | L     | D  |
| F | G | H | R'    | U  |
| I | J | K | U'    | F  |
| L | M | N | B'    | L' |
| O | P | Q | B     | R  |
| R | S | T | D     | L  |
| U | V | W | R     | D' |
| X | Y | Z | F'    | R' |

Table 2

| Color  | Number |
|--------|--------|
| Yellow | 1      |
| Blue   | 2      |
| Red    | 3      |
| Green  | 4      |
| Orange | 5      |
| White  | 6      |

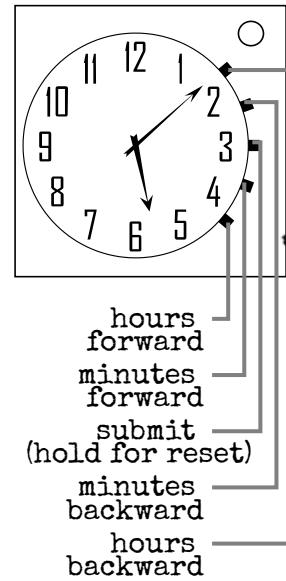
### Clarifications:

- F is the face with the Reset button. The faces visible from a direct view at the module are U, L and F.
- The “color” of a face is the color of the sticker in the middle of that face.
- A move is performed by rotating the corresponding face clockwise. A prime (') indicates the opposite move (i.e. counter-clockwise).

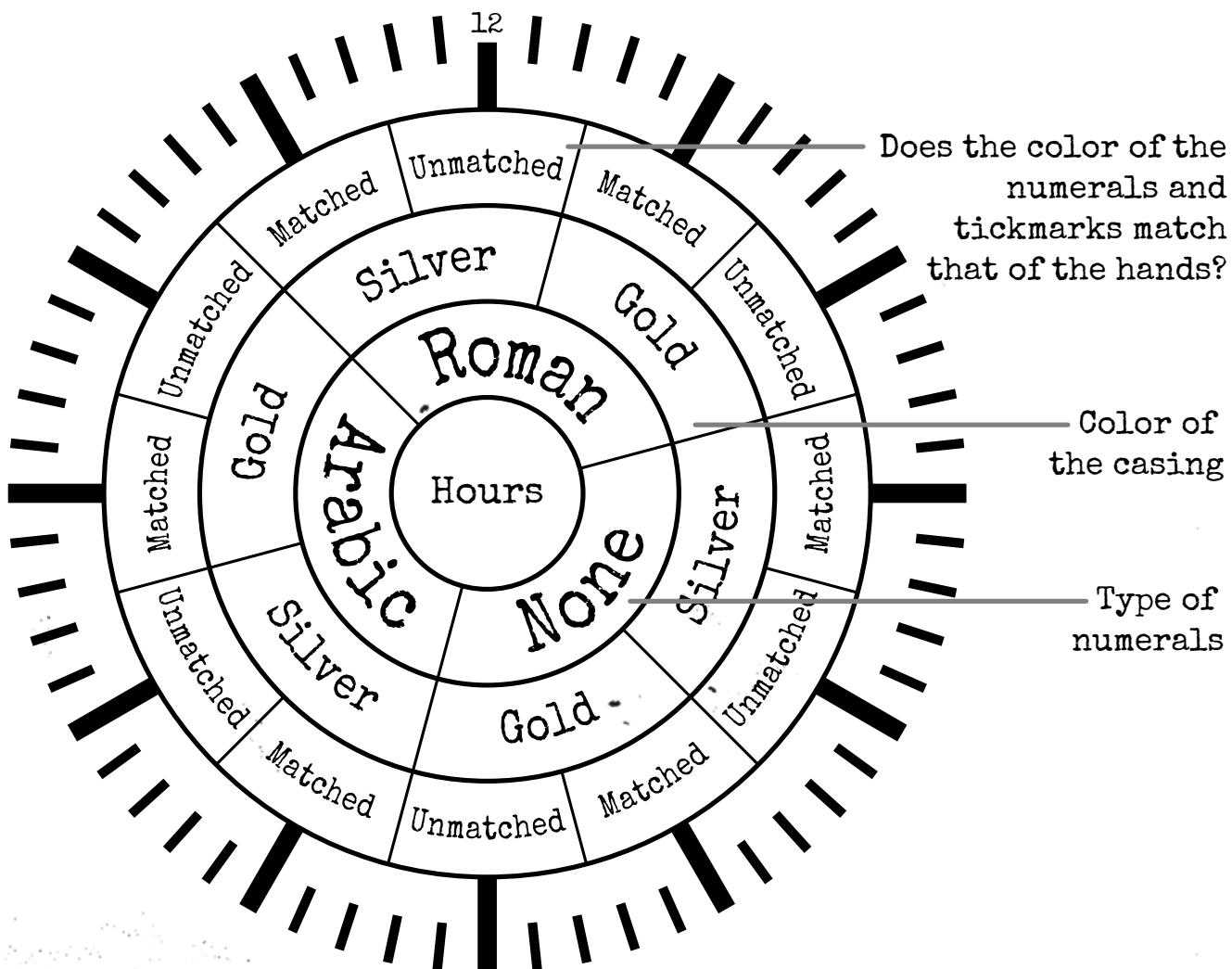
## On the Subject of The Clock

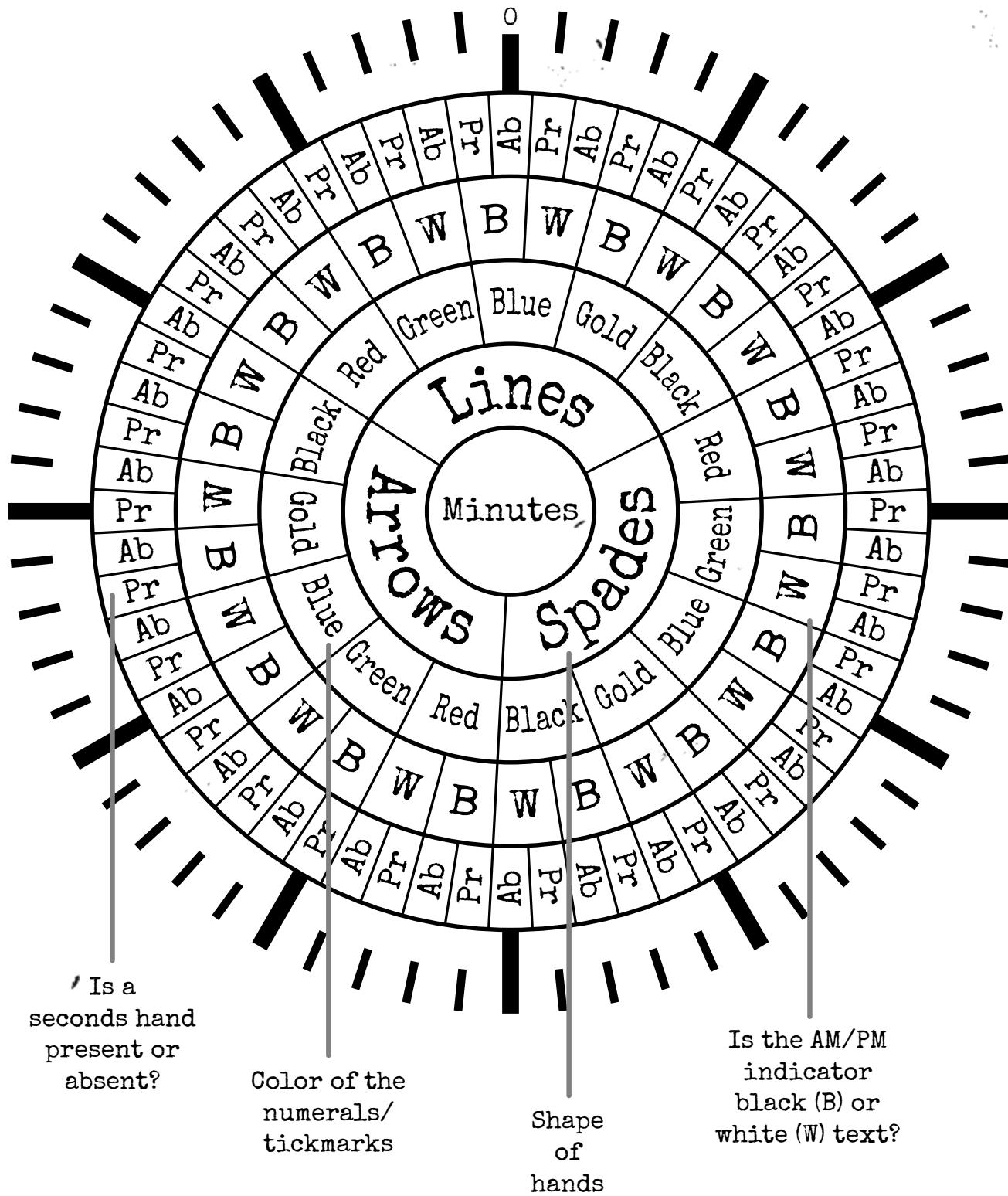
*Tick-tock... as if you needed more reminding that time is running out.*

- The clock on the module displays a time.
- The circular charts below simulate a clock face. Using the features of the clock on the module, find a straight line through all the correct categories on each chart to determine a second time.
- If more than half of the bomb's original time limit is displayed on the digital countdown timer, add the determined time to the current time displayed on the module. Otherwise, subtract it instead.
- Adjust the clock to the resulting time and press the submit button to set the clock and disarm the module. Setting an incorrect time results in a strike and a new initial time will be displayed.



NOTE: Remember to switch between AM and PM if necessary.





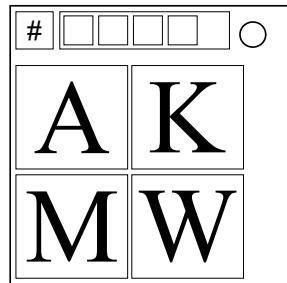
## On the Subject of LED Encryption

*Ooooh, shiny lights and buttons. Touchy touchy!*

- Two to five LEDs are installed at the top of the module, representing stages. To disarm the module, these stages must be solved in order.
- Four buttons with four different letters are shown. The letters change at each stage.
- The current stage is indicated by a number in the top left of the module.
- The current stage's multiplier is indicated by that stage's LED according to the following table:

| Red | Green | Blue | Yellow | Purple | Orange |
|-----|-------|------|--------|--------|--------|
| 2   | 3     | 4    | 5      | 6      | 7      |

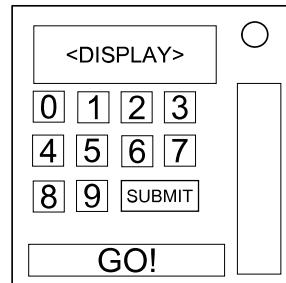
- Assign each letter of the alphabet to the numbers 0-25 (A = 0, B = 1, C = 2, etc.).
- A button is correct if its letter value, multiplied by the current stage's multiplier, modulo 26, is equal to the value of the letter on its diagonally opposite button.
- At each stage, press a correct button. There may be more than one possible answer.



## On the Subject of Fast Math

Gotta go fast!

- Two letters will be displayed on the screen. Use the number pad, then the submit button to disarm the module. The module will have 3 – 5 stages before being disarmed.
- Press the "GO!" button to start. You have 10 seconds to submit the **two digits** answer. (The time can be changed in the Mod settings file.)
- If the countdown meter reaches 0, a strike will be recorded, and the module will reset.
- Once a stage is complete, the timer will restart, and two new letters will show on the display.
- Follow these rules before submitting your answer:
  - If there is a lit MSA indicator, add 20 to your number.
  - If there is a serial port present, add 14 to your number.
  - If the serial number contains a letter F, A, S or T, subtract 5 from your number.
  - If there is an RJ-45 port present, add 27 to your number.
  - If the bomb has more than 3 batteries, subtract 15 from your number.
- If the total number is greater than 99, use the last two digits of the total number. If the total number is less than 0, add 50 to the total number.*

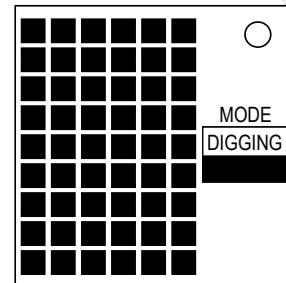


| Right letter: | A | B  | C  | D  | E  | G  | K  | N  | P  | S  | T  | X  | Z  |    |
|---------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Left letter:  | A | 25 | 11 | 53 | 97 | 02 | 42 | 51 | 97 | 12 | 86 | 55 | 73 | 33 |
|               | B | 54 | 07 | 32 | 19 | 84 | 33 | 27 | 78 | 26 | 46 | 09 | 13 | 58 |
|               | C | 86 | 37 | 44 | 01 | 05 | 26 | 93 | 49 | 18 | 69 | 23 | 40 | 22 |
|               | D | 54 | 28 | 77 | 93 | 11 | 00 | 35 | 61 | 27 | 48 | 13 | 72 | 80 |
|               | E | 99 | 36 | 23 | 95 | 67 | 05 | 26 | 17 | 44 | 60 | 26 | 41 | 67 |
|               | G | 74 | 95 | 03 | 04 | 56 | 23 | 54 | 29 | 52 | 38 | 10 | 76 | 98 |
|               | K | 88 | 46 | 37 | 96 | 02 | 52 | 81 | 37 | 12 | 70 | 14 | 36 | 78 |
|               | N | 54 | 43 | 12 | 65 | 94 | 03 | 47 | 23 | 16 | 62 | 73 | 46 | 21 |
|               | P | 07 | 33 | 26 | 01 | 67 | 26 | 27 | 77 | 83 | 14 | 27 | 93 | 09 |
|               | S | 63 | 64 | 94 | 27 | 48 | 84 | 33 | 10 | 16 | 74 | 43 | 99 | 04 |
|               | T | 35 | 39 | 03 | 25 | 47 | 62 | 38 | 45 | 88 | 48 | 34 | 31 | 27 |
|               | X | 67 | 30 | 27 | 71 | 09 | 11 | 44 | 37 | 18 | 40 | 32 | 15 | 78 |
|               | Z | 13 | 23 | 26 | 85 | 92 | 12 | 73 | 56 | 81 | 07 | 75 | 47 | 99 |

## On the Subject of Minesweeper

*Somewhat Minesweeper on a bomb feels oddly redundant.*

- A Minesweeper module has a grid of cells with a mode toggle button.
- By pressing the toggle button you can toggle between two different modes.
  - Dig Mode – Which uncovers a cell that you think doesn't have a mine.
  - Flag Mode – Which flags a cell that you think has a mine.



### Locating the starting cell

The first cell to dig will be one of the colored squares. Start with the second digit in the serial number. If it is zero, substitute 10. Count that many colored squares in reading order, wrapping around to the top left of the grid if necessary.

Use the color found to look up a value in the table. Add this number to the numeric value of the first letter in the serial number, with A = 1, B = 2, etc. Starting from the bottom right corner, count that many colored squares in reverse reading order, looping back if necessary. This gives you the first location to dig.

| Color  | # |
|--------|---|
| Red    | 5 |
| Orange | 2 |
| Yellow | 3 |
| Green  | 1 |
| Blue   | 6 |
| Purple | 4 |

**NOTE:** You cannot dig other cells until you have dug the correct starting cell and digging an incorrect starting cell will give you a strike, regardless of whether it's a mine or not.

### Solving Minesweeper

Each number on the grid represents how many mines there are in the surrounding 8 cells. Use these numbers to figure out where each mine is. Once you have achieved either all non-mine cells dug or all mine filled cells flagged, the module will solve. Digging up a cell with a mine under it will expose the mine and a strike will be given.

**NOTE:** Clicking on a number while digging will dig all cells around it that aren't flagged. Holding down on a cell will flag it instead of digging it.

## On the Subject of Zoos

Ruff! Roar! Meow! Warble! Neigh! Tweet! Mew! Cock-a-doodle-doo! Honk! Baa! Bark!  
 Bellow! Crow! Cha-caw! Buzz! Growl! Ribbit! Coo! Caw! Gobble! Screech! Whinny!  
 Bleat! Hee-haw! Chirrup! Arf! Croak! Chirp! Squawk! Woof! Bow-wow! Cluck! Snort!  
 Yap! Click! Squeal! Oink! Hoot! Moo! Squeak! Howl! Bah-gawk! Purr! Hiss! Quack!

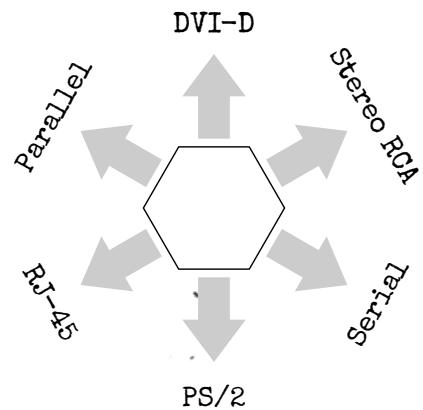
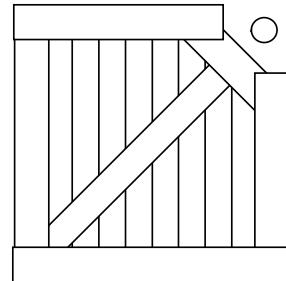
Using the two animals displayed on the module, find the starting position in the grid on the next page.

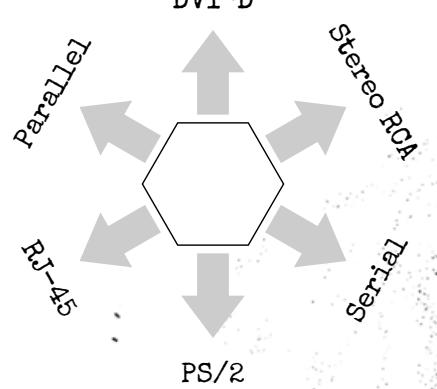
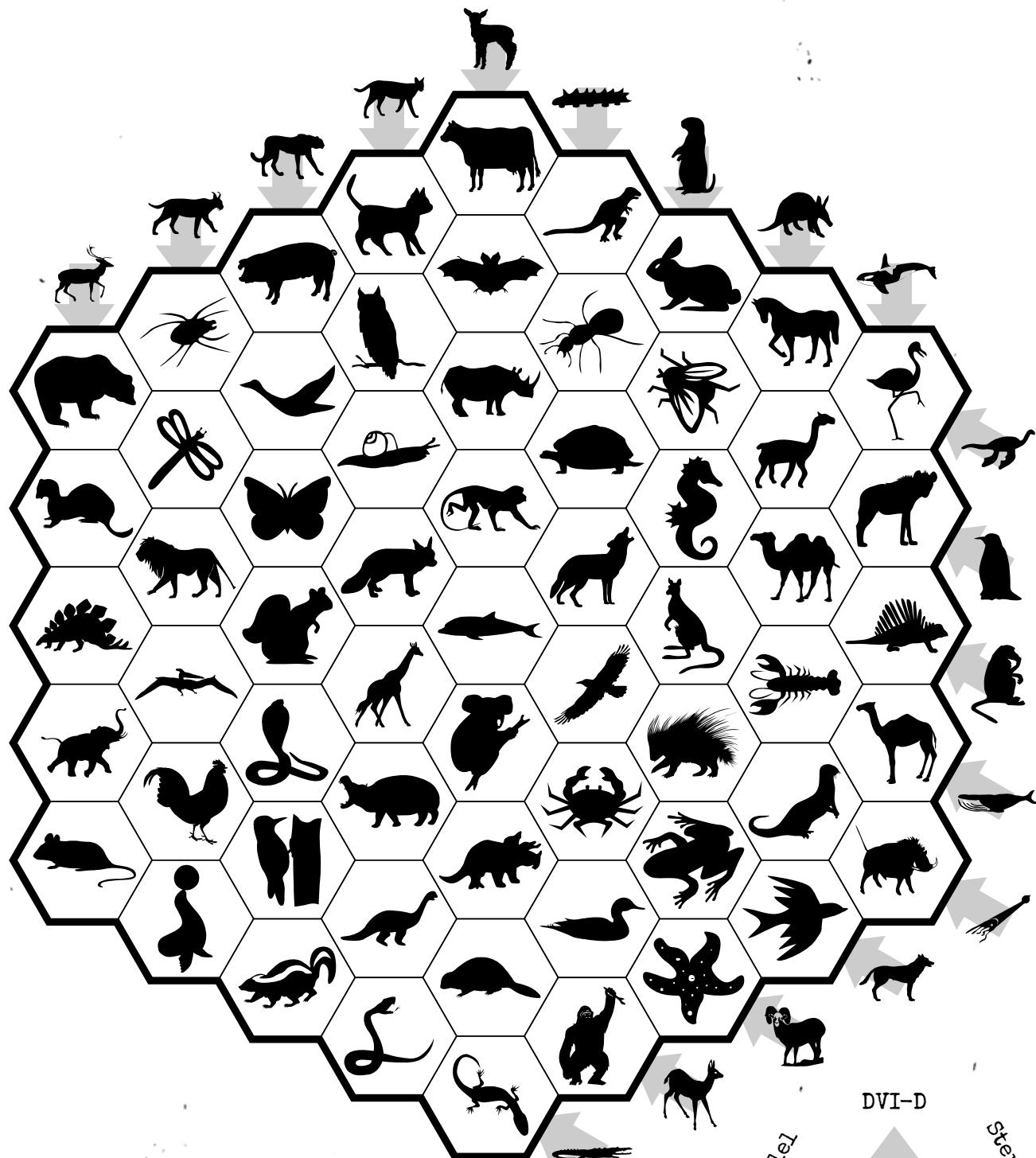
Refer to the direction chart on the right to translate port types to a direction.

Out of the port types whose associated direction allows you to form a straight line of 5 animals from the starting position, find the line pertaining to the port type of which the bomb has the most ports (including zero) that is not tied with another such port type.

If no port type satisfies this condition, form a straight line of 5 animals by moving two steps at a time. There is always only one direction in which this is possible.

Open the sliding door on the module. Press the animals in the order they appear in the line. Avoid pressing the animals that aren't in the line. You must do this within 6 seconds before the door closes again.

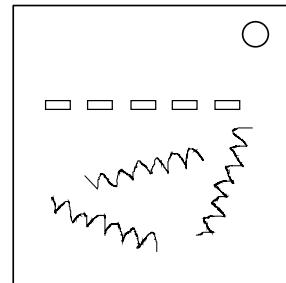




## On the Subject of Binary LEDs

*Binary is a time-honored tradition of communication with tiny blinking lights.*

- Interpret the binary code from the five LEDs. The bit farthest left is the most significant.
- The code will follow one of the eight numeric sequences below. The sequence oscillates forwards and backwards without repeating the ends.
- Some numbers in the sequence have a letter underneath it. Cut the wire of the matching color while this part of the sequence is displayed.
- Only one wire needs to be cut successfully.



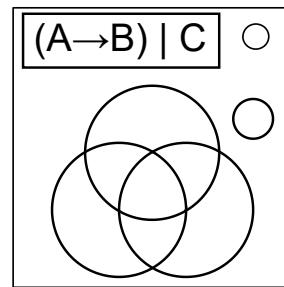
|    |    |    |    |    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 17 | 15 | 6  | 2  | 24 | 8  | 26 | 25 | 21 | 24 | 1  | 15 | 18 | 8  |
|    |    |    | G  |    | R  |    | B  |    |    |    |    |    |    |
| 18 | 15 | 19 | 31 | 12 | 6  | 19 | 21 | 11 | 16 | 19 | 2  | 1  | 29 |
|    |    |    |    | B  |    |    |    | G  |    |    | R  |    |    |
| 8  | 25 | 1  | 15 | 20 | 15 | 9  | 3  | 6  | 24 | 1  | 24 | 5  | 26 |
|    | G  | B  |    |    |    |    |    |    | R  |    |    |    |    |
| 21 | 27 | 6  | 12 | 27 | 20 | 7  | 1  | 19 | 15 | 3  | 13 | 9  | 28 |
|    |    |    |    |    |    | B  | R  |    |    |    | G  |    |    |
| 3  | 21 | 14 | 22 | 7  | 28 | 16 | 27 | 22 | 17 | 26 | 2  | 31 | 15 |
|    |    |    |    |    | G  |    |    | B  |    | R  |    |    |    |
| 8  | 22 | 30 | 19 | 1  | 25 | 31 | 16 | 9  | 7  | 6  | 13 | 9  | 7  |
| R  |    |    |    |    | B  |    |    |    |    | G  |    |    |    |
| 5  | 18 | 12 | 7  | 5  | 12 | 31 | 16 | 10 | 15 | 17 | 9  | 12 | 25 |
|    |    | R  |    |    | G  |    |    |    | B  |    |    |    |    |
| 4  | 20 | 18 | 25 | 20 | 4  | 24 | 29 | 17 | 16 | 12 | 16 | 29 | 19 |
|    |    |    |    |    | G  |    |    |    | R  | B  |    |    |    |

|            |   |       |
|------------|---|-------|
| Color Key: | R | red   |
|            | G | green |
|            | B | blue  |

## On the Subject of Boolean Venn Diagrams

Why is there a big Venn diagram? Why are there some weird symbols? Oh no...

- This module has eight buttons, one for each enclosed section of the Venn diagram and one representing the area not enclosed in any section of the diagram.
- The three circles are referred to as "A" (top), "B" (bottom left), and "C" (bottom right).
- For each section, use the boolean logic expression displayed above the Venn diagram to determine if that section is "true" or "false" by using the following rules:
  - If the section is enclosed in a circle, then the value for that variable is considered to be "true". Otherwise, it is "false".
  - Example: The middle section is enclosed in all three circles, so "A", "B", and "C" should all be considered to be "true" while evaluating that section.*
  - Evaluate the operator inside the parentheses before the one outside of the parentheses.
  - Images describing each operator can be found below (gray regions represent "true").
  - If the section evaluates to "true", press the button that corresponds with it. The section will turn green.
- Solve the module by pressing the buttons corresponding to all of the "true" sections.
- Note: if an incorrect button is pressed, a strike will be issued and the section will turn red.



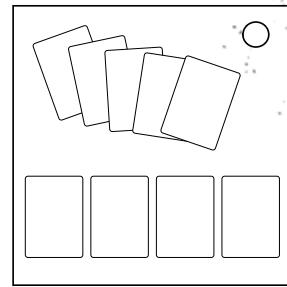
| $X \wedge Y$<br>AND | $X \vee Y$<br>OR | $X \vee \neg Y$<br>XOR | $X \rightarrow Y$<br>IMPLIES |
|---------------------|------------------|------------------------|------------------------------|
|                     |                  |                        |                              |

| $X \mid Y$<br>NAND | $X \downarrow Y$<br>NOR | $X \leftrightarrow Y$<br>XNOR | $X \leftarrow Y$<br>IMPLIED BY |
|--------------------|-------------------------|-------------------------------|--------------------------------|
|                    |                         |                               |                                |

## On the Subject of Points of Order

We are playing weird 4-card KTANE Mao. Play begins with me and proceeds in a clockwise direction.

- Welcome to this game of Mao. You joined at just the right time. We've already played five cards in accordance with the current rules of the game.
- You have four cards on your hand. Once you pick up your cards, you must play a valid card within 5 seconds to defuse the module.
- Playing a bad card or failing to play a card within 5 seconds will result in a strike. You will also receive four new cards.



To find out what the current rules of the game are, examine the cards already played and determine which two of the following rules are active and which one is inactive:

- Examine the first and second character of the serial number. Depending on whether each is a letter or a number, the next card's suit must be one of the following:

| First character | Second character | Previously-played suit |        |        |        |
|-----------------|------------------|------------------------|--------|--------|--------|
|                 |                  | ♠                      | ♥      | ♣      | ♦      |
| Letter          | Letter           | ♠ or ♥                 | ♥ or ♣ | ♣ or ♦ | ♦ or ♠ |
| Letter          | Number           | ♠ or ♦                 | ♥ or ♠ | ♣ or ♥ | ♦ or ♣ |
| Number          | Letter           | ♥ or ♣                 | ♣ or ♦ | ♦ or ♠ | ♠ or ♥ |
| Number          | Number           | ♦ or ♣                 | ♠ or ♦ | ♥ or ♠ | ♣ or ♥ |

- Take the alphabetic position of the fourth character of the serial number and add/subtract 3 until it's in the range 3-5. Ranks must alternate between being divisible and not divisible by this number.
- Take the alphabetic position of the fifth character of the serial number and add/subtract 3 until it's in the range 0-2. Call this number  $x$ . Ranks of consecutive cards must have a difference of  $x + 2$  or  $x + 3$  (with wraparound allowed).

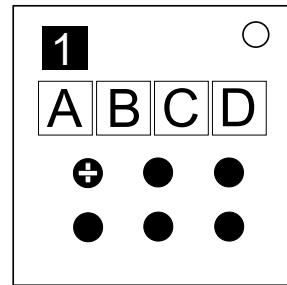
Ranks are considered to be numbered from 1 (Ace) to 13 (King).

Only one of the four cards in front of you is valid to play under the two active rules.

## On the Subject of The Screw

You know what? Screw this module...

- The Screw module has 4 buttons with labels A, B, C, and D.
- 6 holes with colored outlines are located below the buttons.
- The buttons' functions change based on which hole the screw is in.
- Pressing an incorrect button will incur a strike. However, screwing a screw into the wrong hole will not immediately incur a strike, you can change the screw position safely before you press a button.
- Buttons neither advance towards solving the module nor give a strike if a screw is not inserted into any of the holes.
- At the start of the bomb, the screw is always in the top left hole.
- To complete a stage, you must remove the screw from the current hole, screw it into the next correct hole, then press the correct button.
- The screen at the top left corner of the module shows the current stage of the module.
- Once three stages have been solved, the module will disarm.



### Firstly, determine which color hole the screw must go into.

- The colored outlines are numbered in reading order from 1-6.
- The first stage's hole position is determined by the number of batteries plus amount of unlit indicators.
- The second stage's hole position is determined by the rightmost digit in the serial number plus amount of lit indicators.
- The third stage's hole position is determined by the number of ports plus amount of battery holders.
- If the correct hole was already taken up by the screw in the previous stage, the correct hole is actually the next hole in numeric order.
- If a value is 7 or greater, subtract 6 until the value is between 1-6. If a value is 0, the actual value is 1.

Secondly, determine which button must be pressed to progress using the following tables:

Outline color is red, yellow, or green:

If the hole is in the top row:

- If the hole's position in the row is equal to the number of battery holders, press the button in the fourth position.
- Otherwise, if the letter A is in the first or third position, press the button labeled C.
- Otherwise, if the bomb has indicators CLR, FRK, or TRN, press the button in the third position.
- Otherwise, if the hole shares the same row as the blue hole, press the button in the first position.
- Otherwise, press the button labeled B.

If the hole is in the bottom row:

- If the hole's position in the row is equal to the number of port types, press the button in the second position.
- Otherwise, if the hole's position in the row is equal to the number of batteries, press the button labeled D.
- Otherwise, if the hole is not vertically opposite to the white hole, press the button labeled A.
- Otherwise, if the hole is horizontally adjacent to the magenta hole, press the button labeled C.
- Otherwise, press the button in the first position.

Outline color is blue, magenta, or white:

If the hole is in the top row:

- If the hole's position in the row is equal to the number of port types, press the button labeled D.
- Otherwise, if the letter C is in the second or fourth position, press the button labeled B.
- Otherwise, if the bomb has indicators CAR, FRQ, or SND, press the button in the fourth position.
- Otherwise, if the hole shares the same row as the red hole, press the button in the second position.
- Otherwise, press the button labeled A.

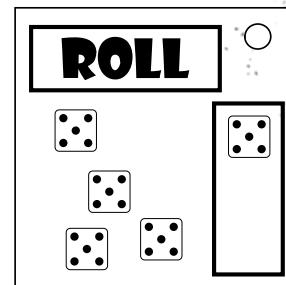
If the hole is in the bottom row:

- If the hole's position in the row is equal to the number of port plates, press the button in the second position.
- Otherwise, if the hole's position in the row is equal to the total number of indicators, press the button labeled A.
- Otherwise, if the hole is horizontally adjacent to the yellow hole, press the button labeled C.
- Otherwise, if the hole is not vertically opposite to the green hole, press the button labeled D.
- Otherwise, press the button in the fourth position.

## On the Subject of Yahtzee

*When has bomb defusal ever been a game of chance?*

There are five dice in the colors of purple, yellow, blue, white and black. Start by rolling the dice. Then choose which dice to keep and which to reroll. You may only keep dice of the same value. Keep repeating this process until you get a Yahtzee.\*



At each stage, the dice to keep are given by the following rules:

### If you just rolled 5 dice:

Follow the first rule that applies:

- **Large straight:**\* keep the die with the highest value equal to a digit in the serial number; if none, keep the purple.
- **Small straight:**\* keep the outlier.\*
- **Three of a kind or full house:**\* keep the white die if there are  $\geq 2$  lit indicators; otherwise, the black die if there are  $\geq 2$  unlit; otherwise, the highest value not in the three-of-a-kind.
- **Four of a kind or two pairs:** keep any dice matching the number of batteries; otherwise, matching the number of battery holders; otherwise the yellow die.
- **Pair:** keep the die of the color listed in the first applicable row of the following table:

| If there is a... | Die color |
|------------------|-----------|
| parallel port    | purple    |
| PS/2 port        | blue      |
| RCA port         | white     |
| RJ port          | black     |
| otherwise        | yellow    |

- **Otherwise:** you must roll all the dice again.
- In all of the above cases, dice of the same value as a die to be kept may also be kept.

\* **Yahtzee:** All dice show the same value.

**Large straight:** Five consecutive values.

**Small straight:** Four consecutive values. The **outlier** is the fifth die.

**Three of a kind:** Three dice of equal value, but not four.

**Full house:** Three of a kind plus two of another kind.

These terms always refer to all of the dice, regardless of which were rolled and which were kept.

**If you just rolled 4 dice:**

- **Straight (small or large):**\* you must reroll the die you previously kept and keep a die or dice of a different value.
- **Otherwise:**
  - Rerolling all dice is always allowed.
  - Keeping 1 die is only allowed if it isn't black.
  - Keeping 2 dice is only allowed if neither is blue.
  - Keeping 3 dice is only allowed if the values of the other two both aren't in the serial number.
  - Keeping 4 dice is only allowed if the fifth die has a bigger value.
  - Keeping a number of dice equal to the number of port plates is not allowed unless it's 2 or less.

**If you just rolled 3 dice:**

- **Full house:**\* reroll the pair if there are any duplicate ports; otherwise, reroll the three-of-a-kind.
- **Otherwise:**
  - Keeping 0, 1 or 2 dice is allowed.
  - Keeping 3 dice is only allowed if purple or white was kept during the previous roll.
  - Keeping 4 dice is only allowed if the fifth die has a smaller value.
  - Keeping any number of dice is allowed if the value of the kept dice is in the serial.

**If you just rolled 2 dice:**

- Keeping 0, 1, 2 or 3 dice is allowed.
- Keeping 4 dice is only allowed if yellow or blue was kept during the previous roll or if the fifth die is 1 away in value from the value of the kept dice.

**If only 1 die is left to roll:**

Keep rolling it until you achieve a Yahtzee.

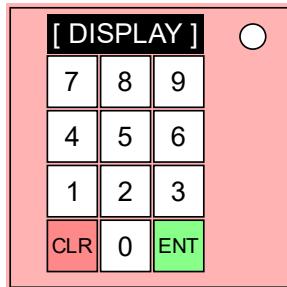
## On the Subject of Number Pads

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).

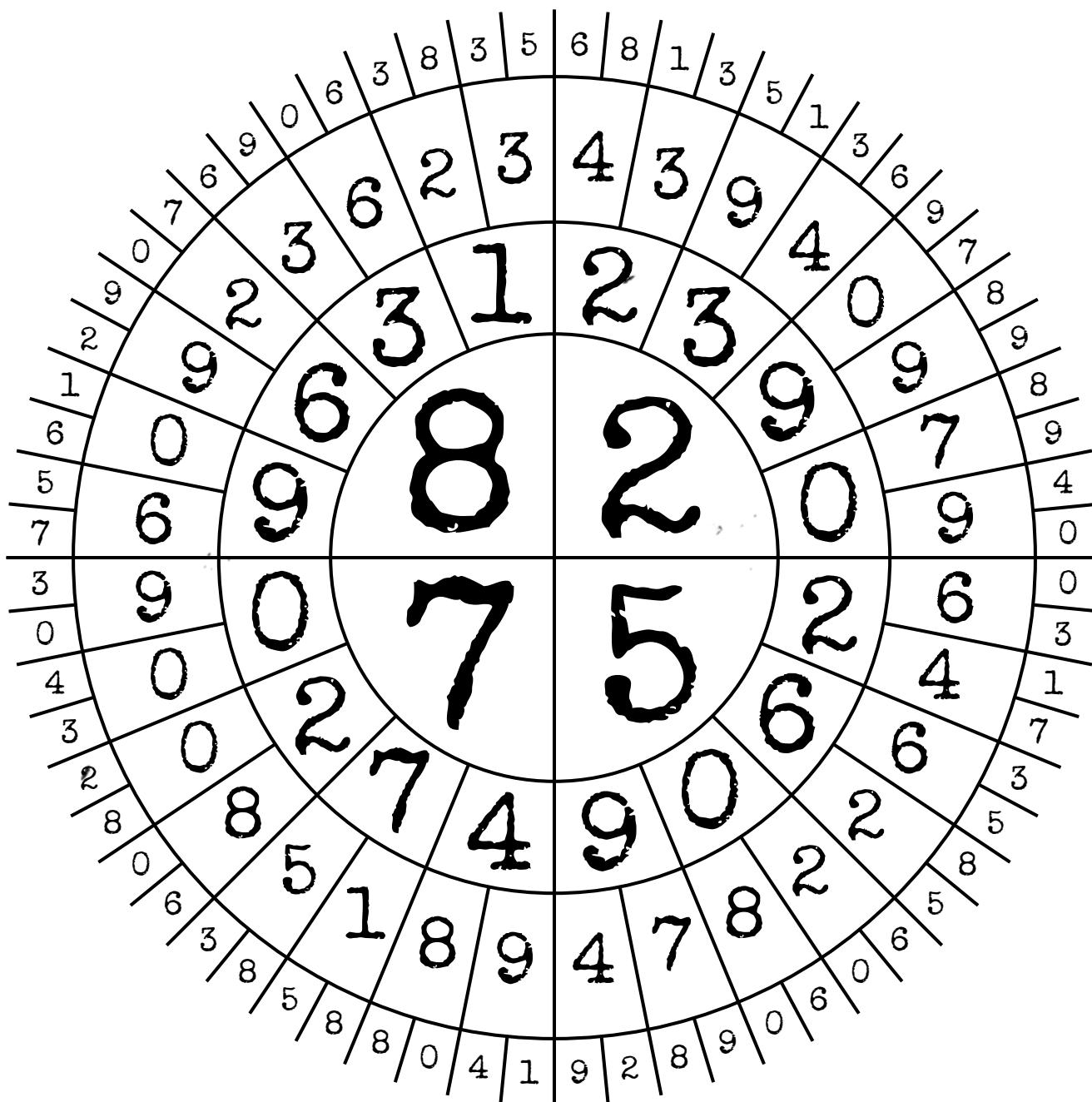
Otherwise, take the second path.

**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.

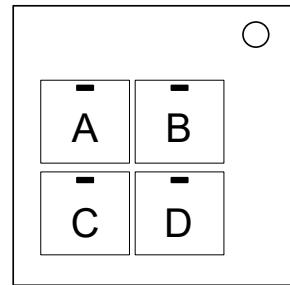
If both criteria above are not met, swap the first and fourth digits.

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

## On the Subject of Alphabet

*Can you speak English? Do you know the alphabet? Then you should be okay.*

1. Use the four lettered buttons to spell a word from the word bank below.
2. Spell the longest word with the letters given by pressing the lettered buttons.
3. A letter can only be used once to spell a word.
4. If multiple words can be spelled, spell the word that comes first in alphabetical order, then the next one if there are enough remaining letters.
5. If no more words can be spelled, press the remaining buttons in alphabetical order.



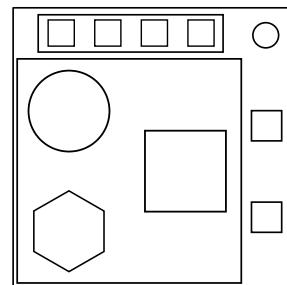
### Word Bank:

|      |      |     |     |      |
|------|------|-----|-----|------|
| JQXZ | QEWT | AC  | ZNY | TJL  |
| OKBV | DFW  | YKQ | LXE | GS   |
| VSI  | PQJS | VCN | JR  | IRNM |
| OP   | QYDX | HDU | PKD | ARGF |

## On the Subject of Button Sequences

*Click. Click. Kaboom!*

- Within the module, there are several panels with three buttons on them. Only one panel is visible at a time.
- Switch to the next panel by using the down button and the previous panel by using the up button.
- Press the buttons as directed by the following tables.
- Button occurrences are cumulative over all panels within the module. If both conditions match, refer to "Releasing a Held Button".
- The LEDs found next to each button display green if the button was pressed or held successfully, or if they were not pressed and the panel has been submitted successfully. They display orange if the corresponding button has not been dealt with yet. They display red if the corresponding button caused a strike.



| Red Button Occurrence | Press if label is...* | Press if shape is... |
|-----------------------|-----------------------|----------------------|
| First or Sixth        | Abort                 | Square               |
| Second or Seventh     | Detonate              | Hexagon              |
| Third or Eighth       | Hold                  | Circle               |
| Fourth or Ninth       | Abort                 | Circle               |
| Fifth or Tenth        | Press                 | Square               |

| Yellow Button Occurrence | Press if label is...* | Press if shape is... |
|--------------------------|-----------------------|----------------------|
| First or Sixth           | Detonate              | Circle               |
| Second or Seventh        | Hold                  | Hexagon              |
| Third or Eighth          | Abort                 | Square               |
| Fourth or Ninth          | Press                 | Circle               |
| Fifth or Tenth           | Hold                  | Hexagon              |

| Blue Button Occurrence | Press if label is...* | Press if shape is... |
|------------------------|-----------------------|----------------------|
| First or Sixth         | Hold                  | Circle               |
| Second or Seventh      | Abort                 | Square               |
| Third or Eighth        | Detonate              | Hexagon              |
| Fourth or Ninth        | Press                 | Square               |
| Fifth or Tenth         | Press                 | Hexagon              |

| White Button Occurrence | Press if label is...* | Press if shape is... |
|-------------------------|-----------------------|----------------------|
| First or Sixth          | Hold                  | Hexagon              |
| Second or Seventh       | Detonate              | Square               |
| Third or Eighth         | Press                 | Hexagon              |
| Fourth or Ninth         | Abort                 | Circle               |
| Fifth or Tenth          | Detonate              | Square               |

\* Due to budget cuts, the buttons will only display the first letter of each word.

### Releasing a Held Button

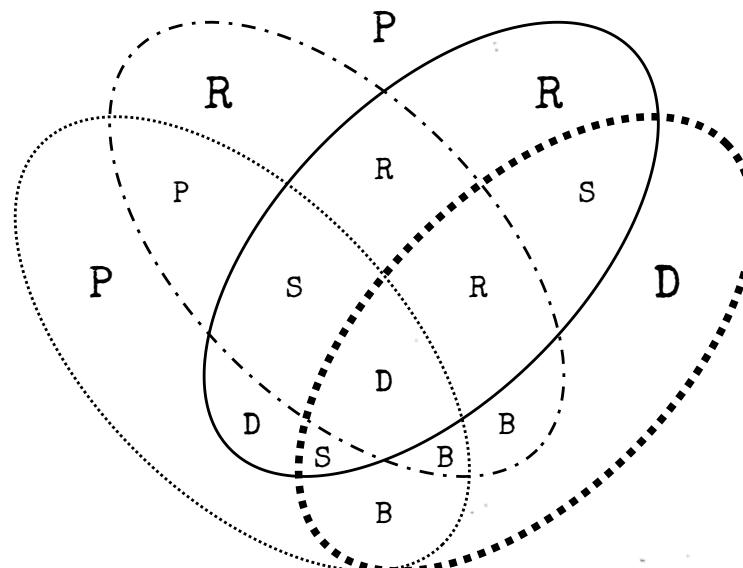
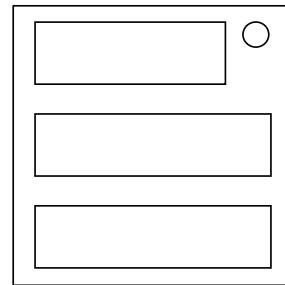
If you start holding the button down, the colored LED will light up next to the button. Based on its color you must release the button at a specific point in time:

- Blue light: release when the countdown timer has a 2 in any position.
- White light: release when the countdown timer has a 7 in any position.
- Yellow light: release when the countdown timer has a 3 in any position.
- Magenta light: release when the countdown timer has a 4 in any position.
- Any other color light: release when the countdown timer has a 0 in any position.

## On the Subject of Complicated Buttons

These buttons aren't like the others. The good news is that we've found a concise set of instructions on what to do about it! Maybe too concise...

1. Each button has one or two colors, and a label.
2. For each button, use the Venn diagram below to decide whether or not to press the button.
3. Press the buttons in the order listed in the table. If no buttons are pressed, press the second button in the list.
4. Upon getting a strike, the entire module resets.



|               |                                  |
|---------------|----------------------------------|
| — — — — —     | Button has red coloring          |
| — — — — —     | Button has blue coloring         |
| .....         | Button says "Press"              |
| ■ ■ ■ ■ ■ ■ ■ | Button is in the middle position |

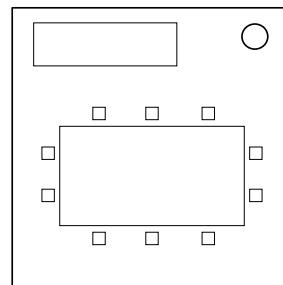
| Letter | Instruction  |
|--------|--|
| P      | Press the button   |
| D      | Do not press the button  |
| R      | Press the button if the serial number contains two or more repeated characters |
| S      | Press the button if the bomb has a serial port                                 |
| B      | Press the button if the bomb has two or more battery holders                   |

|               | Label of First Button | 0-1 Batteries | 2-3 Batteries | 4-5 Batteries | 6+ Batteries |
|---------------|-----------------------|---------------|---------------|---------------|--------------|
| Button order: | Press                 | 1, 2, 3       | 2, 3, 1       | 3, 1, 2       | 1, 2, 3      |
|               | Hold                  | 2, 1, 3       | 3, 2, 1       | 1, 3, 2       | 2, 3, 1      |
|               | Detonate              | 3, 1, 2       | 1, 2, 3       | 2, 1, 3       | 3, 1, 2      |

## On the Subject of Symbolic Passwords

Websites allow symbols in passwords now, but this is ridiculous!

1. There are six symbols on the module. Find a 2x3 (2 high by 3 long) region in the table below with the same six symbols. **THE SYMBOLS MAY NOT BE IN THE SAME ORDER** (they will be mixed up in that 2x3 area).
2. Then use the buttons around the screen to rearrange the symbols to match the positions found in the corresponding 2x3 area in the table. The buttons have arrows next to them showing which way they move the symbols.

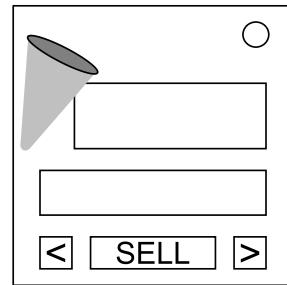


|   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|
| ꝑ | Ӭ | © | б | Ѱ | Ӯ | ՞ |
| ѧ | զ | ՞ | ՚ | ՞ | Ӭ | ☆ |
| ՚ | ՚ | զ | ՚ | ՚ | * | զ |
| ՚ | զ | ՚ | ՚ | ՚ | ա | ՚ |
| ՚ | ☆ | ՚ | ՚ | ՚ | Ѱ | զ |
| ՚ | ՚ | ՚ | ՚ | ՚ | ՚ | ՚ |
| ՚ | ՚ | ՚ | ՚ | ՚ | ՚ | ՚ |

## On the Subject of Ice Cream

*Simon screams for ice cream!*

- The module has a display with a customer's name, and a display with five types of ice cream.
- Using the table, determine the allergies of the customer.
- Go through the first applicable flavour list below and select the first ice cream flavour that the customer is not allergic to which is also currently available in the flavour list on the bomb. **All flavours are made out of real ingredients.**
- Press the 'sell' button once the correct ice cream flavour is selected. Repeat for all three customers.
- Note that the ice cream parlour is not open all day! Only sell ice cream on even-numbered minutes! Selling ice cream on an odd-numbered minute causes a strike.



### Recipes for Ice Cream Flavours:

- Tutti Frutti:** Vanilla Flavour, Fruit Pieces\*.
- Rocky Road:** Chocolate Flavour, Nuts, Marshmallows.
- Raspberry Ripple:** Vanilla Flavour, Raspberry Sauce.
- Double Chocolate:** Chocolate Flavour, Chocolate Chips.
- Double Strawberry:** Strawberry Flavour, Strawberries.
- Cookies and Cream:** Vanilla Flavour, Cookies.
- Neapolitan:** Strawberry Flavour, Chocolate Flavour, Vanilla Flavour.
- Mint Chocolate Chip:** Mint Flavour, Chocolate Chips.
- The Classic:** Vanilla Flavour, Chocolate Sauce, Cherry.
- Vanilla:** Vanilla Flavour.

### Allergy Converter\*\*:

- |                        |                          |
|------------------------|--------------------------|
| • <b>Chocolate:</b> 0  | • <b>Mint:</b> 5         |
| • <b>Strawberry:</b> 1 | • <b>Fruit:</b> 6***     |
| • <b>Raspberry:</b> 2  | • <b>Cherry:</b> 7       |
| • <b>Nuts:</b> 3       | • <b>Marshmallows:</b> 8 |
| • <b>Cookies:</b> 4    |                          |

\* Fruit pieces include strawberries, bananas, cherries, and raspberries.

\*\* None of the customers are allergic to vanilla flavouring.

\*\*\* Having a fruit allergy implies you are also allergic to strawberries, raspberries, and cherries.

To find out which ingredients the customer is allergic to, use the allergy table.

The rows are the customers, and the columns are the last digit of the serial number.

**Allergy Table:**

|                | 0-1   | 2-3   | 4-5   | 6-7   | 8-9   |
|----------------|-------|-------|-------|-------|-------|
| <b>Mike</b>    | 1-5-0 | 6-8-3 | 0-7-1 | 4-3-2 | 3-6-1 |
| <b>Tim</b>     | 0-8-3 | 2-1-4 | 4-3-5 | 2-6-7 | 1-4-3 |
| <b>Tom</b>     | 8-4-5 | 1-6-7 | 2-5-6 | 3-7-5 | 3-6-1 |
| <b>Dave</b>    | 2-6-7 | 0-1-4 | 8-2-3 | 7-8-1 | 5-7-3 |
| <b>Adam</b>    | 3-4-1 | 3-6-2 | 0-2-1 | 2-4-7 | 8-5-6 |
| <b>Cheryl</b>  | 1-6-3 | 7-5-2 | 1-4-5 | 4-2-0 | 3-7-5 |
| <b>Sean</b>    | 4-6-1 | 2-3-6 | 1-5-7 | 6-8-2 | 2-7-4 |
| <b>Ashley</b>  | 6-2-5 | 4-1-7 | 0-8-2 | 1-2-6 | 3-6-7 |
| <b>Jessica</b> | 4-2-6 | 1-2-3 | 0-3-4 | 6-5-0 | 4-7-8 |
| <b>Taylor</b>  | 6-3-5 | 5-1-2 | 4-2-6 | 7-1-0 | 3-7-2 |
| <b>Simon</b>   | 0-3-5 | 1-6-4 | 5-4-8 | 2-0-7 | 7-3-6 |
| <b>Sally</b>   | 4-6-3 | 1-0-2 | 6-7-4 | 2-5-8 | 0-3-1 |
| <b>Jade</b>    | 3-7-1 | 0-8-2 | 7-1-3 | 6-7-8 | 4-5-1 |
| <b>Sam</b>     | 2-4-1 | 7-8-0 | 3-4-6 | 1-0-3 | 6-5-2 |
| <b>Gary</b>    | 1-2-5 | 6-8-0 | 3-2-1 | 7-4-5 | 1-8-4 |
| <b>Victor</b>  | 0-3-1 | 2-5-7 | 3-4-6 | 6-7-1 | 5-3-0 |
| <b>George</b>  | 8-1-2 | 6-4-8 | 0-4-3 | 1-6-4 | 3-2-5 |
| <b>Jacob</b>   | 7-3-2 | 1-5-6 | 5-4-7 | 3-4-0 | 6-2-1 |
| <b>Pat</b>     | 5-6-2 | 1-3-6 | 3-4-7 | 2-0-5 | 8-1-3 |
| <b>Bob</b>     | 5-6-8 | 2-1-0 | 4-8-2 | 4-2-5 | 0-5-1 |

To find out which flavours to sell to the customer first, use the following table of flavour lists.

Read the table in normal reading order (left to right, then top to bottom) and choose the first applicable list.

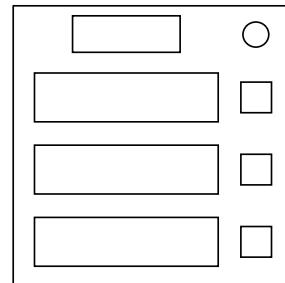
### Flavour List Table:

| If there are more lit than unlit indicators:  | Otherwise, if there is an empty port plate present on the bomb:   |
|---|---|
| <ul style="list-style-type: none"> <li>• Cookies and Cream</li> <li>• Neapolitan</li> <li>• Tutti Frutti</li> <li>• The Classic</li> <li>• Rocky Road</li> <li>• Double Chocolate</li> <li>• Mint Chocolate Chip</li> <li>• Double Strawberry</li> <li>• Raspberry Ripple</li> <li>• Vanilla</li> </ul> | <ul style="list-style-type: none"> <li>• Double Chocolate</li> <li>• Mint Chocolate Chip</li> <li>• Neapolitan</li> <li>• Rocky Road</li> <li>• Tutti Frutti</li> <li>• Double Strawberry</li> <li>• Cookies and Cream</li> <li>• Raspberry Ripple</li> <li>• The Classic</li> <li>• Vanilla</li> </ul> |
| Otherwise, if there are 3 or more batteries:  | Otherwise:  |
| <ul style="list-style-type: none"> <li>• Neapolitan</li> <li>• Tutti Frutti</li> <li>• Cookies and Cream</li> <li>• Raspberry Ripple</li> <li>• Double Strawberry</li> <li>• Mint Chocolate Chip</li> <li>• Double Chocolate</li> <li>• The Classic</li> <li>• Rocky Road</li> <li>• Vanilla</li> </ul> | <ul style="list-style-type: none"> <li>• Double Strawberry</li> <li>• Cookies and Cream</li> <li>• Rocky Road</li> <li>• The Classic</li> <li>• Neapolitan</li> <li>• Double Chocolate</li> <li>• Tutti Frutti</li> <li>• Raspberry Ripple</li> <li>• Mint Chocolate Chip</li> <li>• Vanilla</li> </ul> |

## On the Subject of FizzBuzz

*Why put a classic schoolyard game on a bomb? Wait... that's odd...*

- This module has three displays, each with a seven-digit number.
- For each number, find the column corresponding to the color of the number in the table below. Go through that column and take a note of each integer whose condition applies.
- Take the sum of these integers to get a number. Take this number and add it to each digit of the displayed number to get a new seven-digit (or less if the first few digits are zeros) number. **Be sure to disregard any carry digits you get when performing this operation.**
- If the new number is not divisible by three or five, do nothing.  
If the new number is divisible by three and not five, use the button to change the display to "FIZZ".  
If the new number is divisible by five and not three, use the button to change the display to "BUZZ".  
If the new number is divisible by both five and three, use the button to change the display to "FIZZBUZZ"
- Finally, repeat for the remaining numbers and press "SUBMIT" once all three numbers' displays are correct.

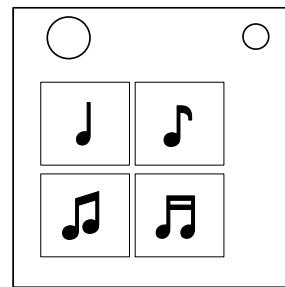


| Condition   | red | green | blue | yellow | white |
|---|-----|-------|------|--------|-------|
| 3 or more battery holders are present on the bomb.                    | 7   | 3     | 2    | 4      | 5     |
| At least one Serial <u>and</u> Parallel port is present on the bomb.  | 3   | 4     | 9    | 2      | 8     |
| 3 letters and 3 digits are present in the serial number.              | 4   | 5     | 8    | 8      | 2     |
| At least one DVI-D <u>and</u> Stereo RCA port is present on the bomb. | 2   | 3     | 7    | 9      | 1     |
| 2 or more strikes are present on the bomb.                            | 6   | 6     | 1    | 2      | 8     |
| 5 or more batteries are present on the bomb.                          | 1   | 2     | 2    | 5      | 3     |
| None of the above apply.  | 3   | 1     | 8    | 3      | 4     |

## On the Subject of Rhythms

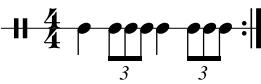
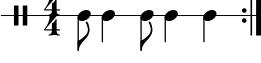
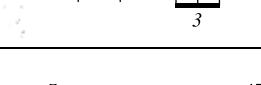
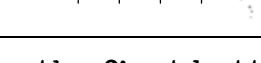
Have you ever taken a music theory class where you had to count and clap rhythms? This is just like that, only here your suffering ends when you get it wrong.

See the next page for musical note durations.



1. The colored indicator light will flash in one of the rhythms shown below.
2. To defuse this module, two buttons will need to be pressed in succession, each held until the correct number of beeps are heard.
3. The button order and length is specified in the table below.

Each button press is represented by a musical note and an alphanumeric digit. The musical note is the label of the button that must be pressed, and the digit is the number of beeps that must be heard before the button is released, or P if the button should be pressed and released immediately.

| Rhythm of Light Flashes  | Color of Indicator Light |        |        |          |
|--|--------------------------|--------|--------|----------|
|  | Blue                     | Red    | Green  | Yellow** |
| 4/   | ♪2/P                     | ***    | ♪♪2/P  | ♪♪2/P    |
| 4/  | ♪1/♪P                    | ♪P/JP  | ♪P/♪1  | ♪1/♪1    |
| 4/  | ♪1/♪P                    | ♪1/♪1  | ♪P/♪P  | ♪P/♪1    |
| 4/  | ♪P/♪P                    | ♪1/♪P  | ♪1/♪P  | ♪1/♪P    |
| 4/  | ♪1/♪P                    | ♪P/♪P  | ♪1/♪P  | ♪P/♪1    |
| 4/  | ♪1/♪1                    | ♪P/♪1  | ♪P/♪P  | ♪P/♪1    |
| 4/  | ♪P/♪1*                   | ♪P/♪1* | ♪P/♪1* | ♪P/♪P*   |

\*Use the first button press in place of the second if there is more than one battery on the bomb

\*\*Hold both buttons for one additional beep per lit indicator on the bomb

\*\*\*Press buttons as quickly as possible until module is disarmed

## Musical Note Duration Reference

Musical notes have many important properties, but for this module only their duration is important. Every pattern shown above consists of four beats, and they are distributed between the following notes:

- ♪ **Half Note:** This note lasts for two beats, exactly half of a measure.
- ♩ **Dotted Quarter Note:**\* In-between a quarter note and a half note, the dotted quarter note lasts for one and a half beats.
- ▢ **Quarter Note:** The most common note, the quarter note lasts for one beat.
- ▢▢▢ **Eighth Note:** The basis of syncopation, the eighth note lasts for half of a beat.
- ▢▢▢▢▢▢▢▢ **Sixteenth Note:** The bane of woodwind players everywhere, the sixteenth note lasts for a quarter of a beat.
- ▢▢▢▢▢▢▢▢ = ▢▢▢▢▢▢▢▢ **Beamed Eighth Notes:** To enhance clarity, successive eighth notes are often drawn with a single beam connecting them.
- ▢▢▢▢▢▢▢▢ = ▢▢▢▢▢▢▢▢ **Beamed Sixteenth Notes:** Similarly, successive sixteenth notes are often drawn with two beams connecting them.
- ▢▢▢▢▢▢▢▢ **Eighth Note Triplet:**\* Each note in this triplet lasts for a third of the beat.

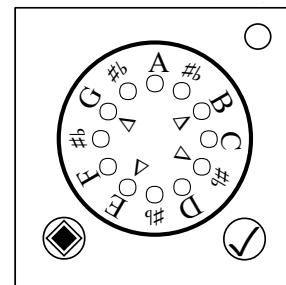
\*Dots and triplets can be added to any note durations, but this module only uses dotted quarter notes and eighth note triplets.

If all else fails, then you can trust the spacing of the notes to guide you.

## On the Subject of Chord Qualities

*They say that anything goes in jazz, but I didn't know that that includes long boring tables!*

*See the next page for chord quality lookup.*



1. This module consists of a wheel with twelve notes on it, ordered chromatically.
2. Four of those notes are selected with a triangle pointing towards them. These notes make up the given chord.
3. Every chord consists of two parts: The root and the quality. For example, the root of the chord C-7 is the note C, and the quality is '-7'. Use the table on the next page (or music theory knowledge) to determine the root and quality of the given chord.
4. Look up the root and quality of the answer chord in the tables below using the given chord's quality and root respectively.
5. Reverse the process in step #3 to find the notes of the answer chord, and select the notes of the answer chord by rotating the wheel and pressing the button labeled ♦.
6. Press the other button to submit the answer chord. There is only one correct answer.

| Root to Quality |       |
|-----------------|-------|
| A               | -△7#5 |
| A#              | △7#5  |
| B               | -7    |
| C               | ∅     |
| C#              | -add9 |
| D               | △7    |
| D#              | 7#9   |
| E               | 7sus  |
| F               | add9  |
| F#              | 7     |
| G               | -△7   |
| G#              | 7#5   |

| Quality to Root |    |
|-----------------|----|
| 7               | G  |
| -7              | G# |
| △7              | A# |
| -△7             | F  |
| 7#9             | A  |
| ∅               | C# |
| add9            | D# |
| -add9           | E  |
| 7#5             | F# |
| △7#5            | C  |
| 7sus            | D  |
| -△7#5           | B  |

## Chord Quality Lookup Table

Use the following table to look up which notes are in a chord of a particular quality. Each note in the chord is represented by an  $\times$  in the row of its interval. The offset from the root (in semitones) of each row is provided in the left-most column. Note that an offset of +12 is the same as an offset as +0.

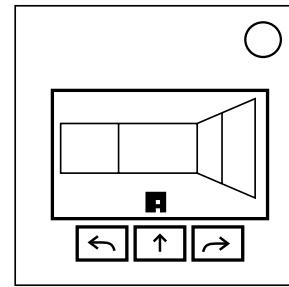
| Off | 7        | -7       | $\Delta 7$ | $-\Delta 7$ | $7\#9$   | $\emptyset$ | add9     | -add9    | $7\#5$   | $\Delta 7\#5$ | $7sus$   | $-\Delta 7\#5$ |
|-----|----------|----------|------------|-------------|----------|-------------|----------|----------|----------|---------------|----------|----------------|
| +0  | $\times$ | $\times$ | $\times$   | $\times$    | $\times$ | $\times$    | $\times$ | $\times$ | $\times$ | $\times$      | $\times$ | $\times$       |
| +1  |          |          |            |             |          |             |          |          |          |               |          |                |
| +2  |          |          |            |             |          |             | $\times$ | $\times$ |          |               |          |                |
| +3  |          | $\times$ |            |             | $\times$ | $\times$    | $\times$ |          | $\times$ |               |          | $\times$       |
| +4  | $\times$ |          | $\times$   |             | $\times$ |             | $\times$ |          | $\times$ | $\times$      |          |                |
| +5  |          |          |            |             |          |             |          |          |          |               |          | $\times$       |
| +6  |          |          |            |             |          | $\times$    |          |          |          |               |          |                |
| +7  | $\times$ | $\times$ | $\times$   | $\times$    | *        |             | $\times$ | $\times$ |          |               | $\times$ |                |
| +8  |          |          |            |             |          |             |          |          | $\times$ | $\times$      |          | $\times$       |
| +9  |          |          |            |             |          |             |          |          |          |               |          |                |
| +10 | $\times$ | $\times$ |            |             | $\times$ | $\times$    |          |          | $\times$ |               | $\times$ |                |
| +11 |          |          | $\times$   | $\times$    |          |             |          |          |          | $\times$      |          | $\times$       |

\*Omit the 5th of this chord

## On the Subject of 3D Maze

You are in a maze of twisty passages, all alike. Exits are to the north, south, east, and west.

- The defuser starts in a random position and orientation in one of the ten mazes below.
- Locate the defuser using a 3D view of the maze walls, which also shows the symbol on the floor of the current space, and if there is a symbol in the space ahead.
- The maze map is cyclic; moving off one of the edges will take the defuser to the space on the opposite side, provided there is no wall in between the space.
- One of the walls is the goal, the rest will cause strikes if moved into.
- To defuse the module, locate the goal wall, and move through it from either side.
- Using the methods below, calculate a row (0-7), a column (0-7), and a direction; the goal wall will be the first wall from these coordinates in the given direction.



### Row:

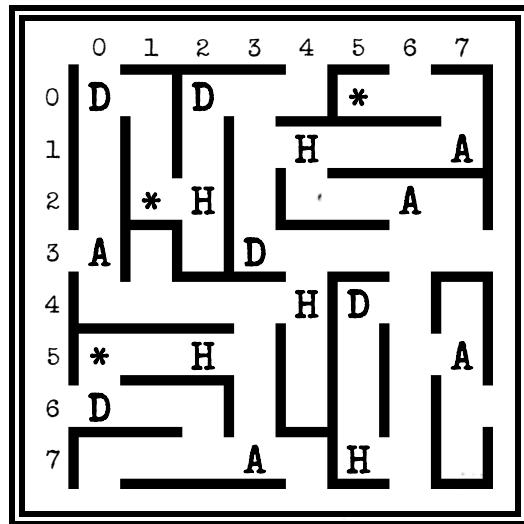
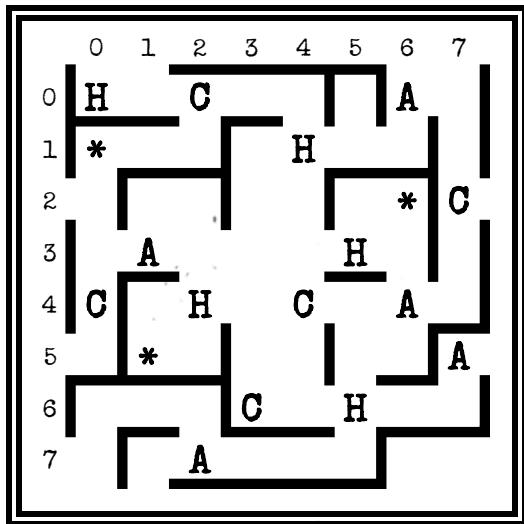
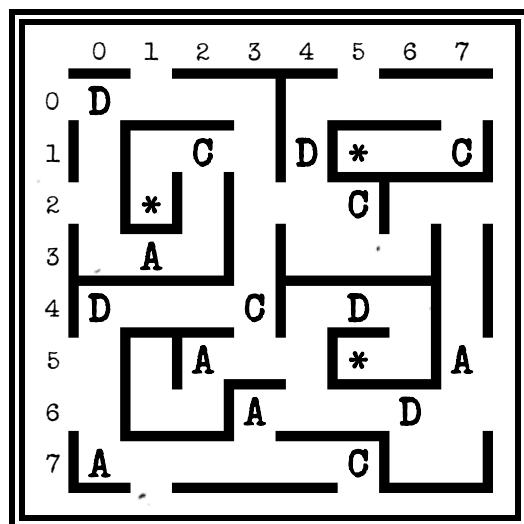
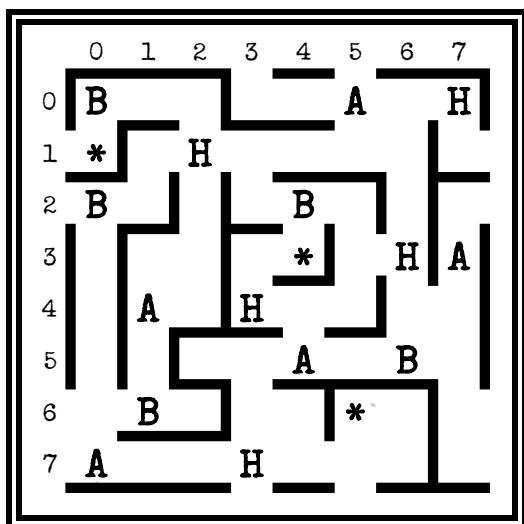
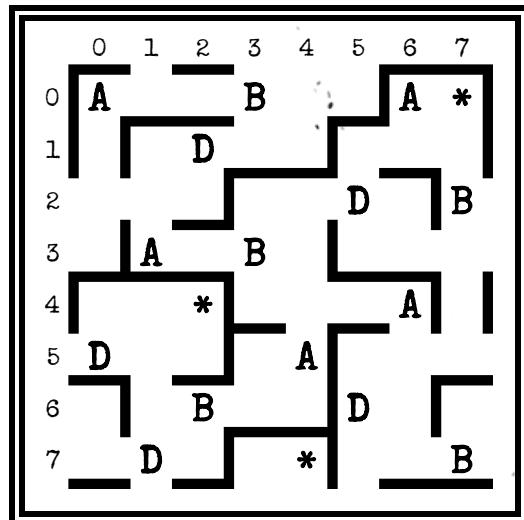
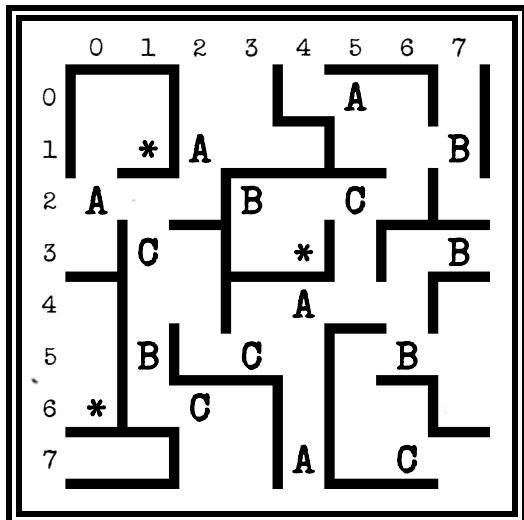
- Start with the first numeric digit in the serial number.
- Add 1 for every unlit indicator with a letter in "MAZE GAMER".
- If the row number is greater than 7, subtract 8.

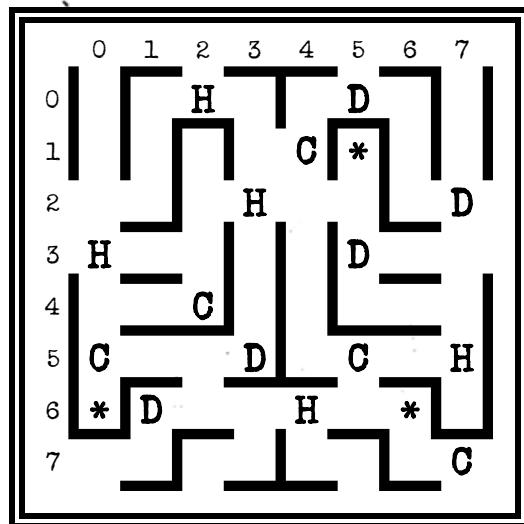
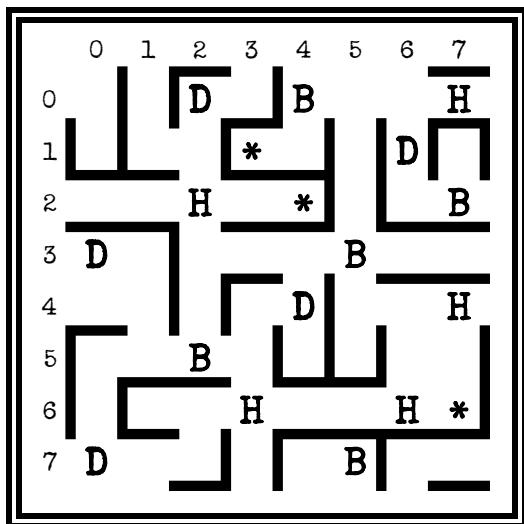
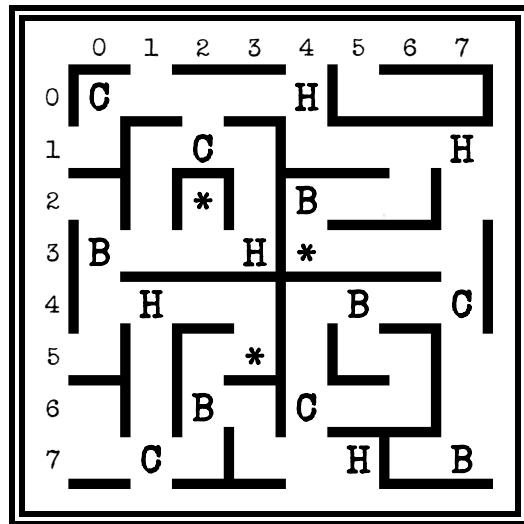
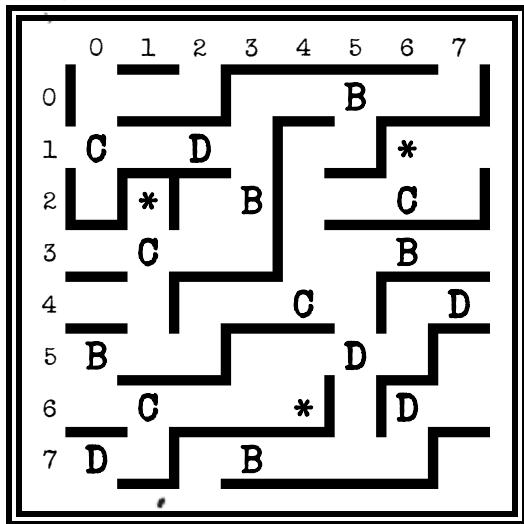
### Column:

- Start with the last numeric digit in the serial number.
- Add 1 for every lit indicator with a letter in "HELP IM LOST".
- If the column number is greater than 7, subtract 8.

### Direction:

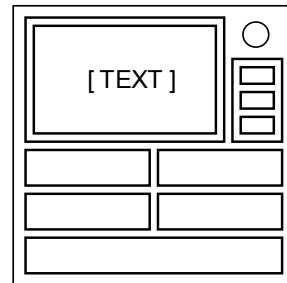
- Each maze contains three star icons marked on the map.
- On the floor in each of these locations is a letter, which maps to the direction to the goal wall: "N" becomes North, "S" becomes South, "E" becomes East, and "W" becomes West.
- Beware of letters not in these marked locations, they carry incorrect decoy instructions!





## On the Subject of Sea Shells

*Clear communication is crucial when defusing bombs. One can only assume that this module doesn't want to be defused.*



- The Sea Shells module consists of a display and five buttons.
- The display shows a phrase. The first two words of the phrase refer to a row of Table 1. The third and fourth words refer to a column of Table 1. The remainder of the phrase refers to Table 2.
- Table 1 will give a code, and Table 2 will provide a key to turn the code into a sequence of words.
- The buttons must be used to input the sequence of words. Pressing an incorrect button will result in a strike and reset the current stage of the module.
- Inputting a correct sequence three times will disarm the module.

Table 1:

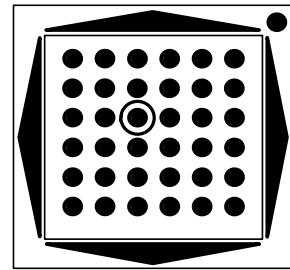
|            | SEA SHELLS | SHE SHELLS | SEA SELLS | SHE SELLS |
|------------|------------|------------|-----------|-----------|
| SHE SELLS  | BDABDAB    | ACEEAC     | EACEACE   | DAABDAB   |
| SHE SHELLS | BEEBBE     | CDCCDB     | EAEEAA    | BEEDA     |
| SEA SHELLS | ABABA      | EAAEEA     | D BEAC    | ABDBAA    |
| SEA SELLS  | ACACEAC    | DBAEC      | E BDADAB  | CECEC     |

Table 2:

|                  |                                 |                           |            |
|------------------|---------------------------------|---------------------------|------------|
| ON THE SEA SHORE | A = shoe<br>D = sit             | B = shih tzu<br>E = sushi | C = she    |
| ON THE SHE SORE  | A = can<br>D = 2                | B = toucan<br>E = cancan  | C = tutu   |
| ON THE SHE SURE  | A = witch<br>D = twitch         | B = switch<br>E = stitch  | C = itch   |
| ON THE SEESAW    | A = burglar alarm<br>D = burger | B = Bulgaria<br>E = llama | C = armour |

## On the Subject of Morse-A-Maze

*It is Amazing that the status light got a life of its own.*



- Decode the Morse code from the blinking status light. Off state is green, On state is red.\*\*
- The first thing transmitted is the word used to find the maze.
- The second thing transmitted is the coordinates the status light needs to be placed on. Coordinates are a letter from A-F, representing columns, followed by a number from 1-6, representing rows. The upper left is A1.
- If the word is listed in Table 1, use the corresponding information in the table to determine which maze to look up. If the number you get is greater than 18, keep subtracting 18 until you are in the range of 0-17.
- Otherwise, look up the word in Tables 2 and 3.
- **Warning:** Do not cross the lines shown in the maze. These lines are invisible on the bomb.
- If there is an unlit BOB indicator and 4 batteries in 3 holders in the configuration of 2×AA and 2×D, Bob will actively prevent you from earning any strikes. Thanks Bob.

Table 1:

|        |  |         |                                     |
|--------|--|---------|-------------------------------------|
| count* | <ul style="list-style-type: none"> <li>If any two-factor widgets are present, use the sum of the 2nd least significant digit of each two-factor code.</li> <li>Otherwise, use the number of unsolved modules.</li> </ul> |         |                                     |
| assay* | Number of solved modules   | bought* | Number of strikes                   |
| rabbit | Number of battery holders  | stench  | Number of unique ports              |
| submit | Total number of ports  | salads  | Number of lit indicators            |
| tribes | Number of unlit indicators   | awards  | Number of indicators                |
| sword  | Number of port plates  | apron   | The last digit of the serial number |
| county | The sum of the serial number digits  | mosaic  | Number of batteries                 |
| summit | First serial number digit  | things  | Starting time in minutes            |
| music  | Day of week at bomb start<br>(Sunday = 0, Saturday = 6).   | tacit   | Number of empty port plates         |
| thinks | Position of first serial number letter minus one (A=0, B=1, C=2, ...)  |         |                                     |

\* - The maze for these words can change.

\*\* - Refer to page 3 for colorblind mode details. Refer to page 4 for some configuration options.

Table 2:

|            |            |            |
|------------|------------|------------|
| 0 - pulses | 1 - pulse  | 2 - cousin |
|            |            |            |
| 3 - brass  | 4 - spurs  | 5 - prove  |
|            |            |            |
| 6 - guards | 7 - essays | 8 - strobe |
|            |            |            |

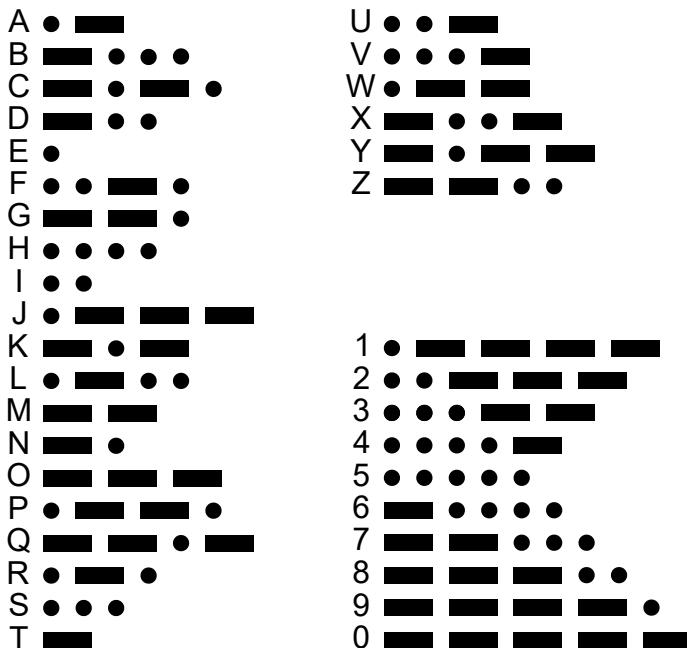
Table 3:

|             |             |             |
|-------------|-------------|-------------|
| 9 - stroke  | 10 - tactic | 11 - counts |
|             |             |             |
| 12 - artist | 13 - opener | 14 - award  |
|             |             |             |
| 15 - toast  | 16 - stayed | 17 - prone  |
|             |             |             |

\*If Colorblind mode is enabled, the module will ensure that at least the **OffState** or the **MorseXmitState** is set to Off, regardless of current configuration options.

## 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.



## Configuration Options for MorseAMaze-settings.txt

It is possible to change the colors of the status light for the various states of the module. The following colors are possible.

- 0 - Off
- 1 - Green
- 2 - Red
- 3 - Random

These are the options that can be configured, and their default values.

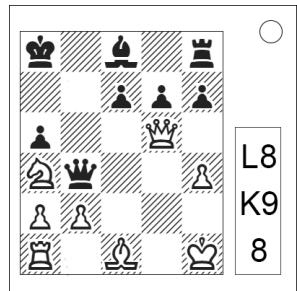
- **SolvedState** – The state the status light changes to once the module is solved. (default: **Off**)
- **StrikeState** – The state the status light changes to for one second when a strike is earned. (default: **Off**)
- **OffState** – The off state of the status light while morse code is being transmitted. (default: **Green**)
- **MorseXmitState** – The on state of the status light while morse code is being transmitted. (default: **Red**)

Finally, if you wish to reset everything back to default, just change "ResetToDefault" from **false** to **true**

## On the Subject of Lousy Chess

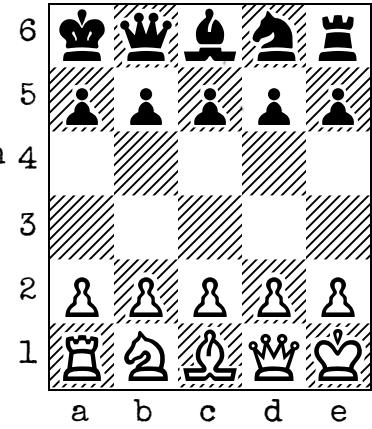
*It's like playing random moves. Only worse.*

Two lousy [chess](https://www.chess.com/learn-how-to-play-chess) (<https://www.chess.com/learn-how-to-play-chess>) engines are playing against each other. It's up to you to predict their moves and finish the game.



The variant played is [MinitChess](http://wiki.cs.pdx.edu/mc-howto/rules.html) (<http://wiki.cs.pdx.edu/mc-howto/rules.html>). It's different from regular chess in the following ways:

- Smaller board with less pieces — see diagram.
- Bishops can also move to an adjacent **empty** square, allowing them to change color.
- No double pawn moves or “en pasant”, no castling, pawn promotion always to queen.
- No “check” or “stalemate”, victory by king capture.
- No draw by repetition or number of moves after capture.
- Draw after 40 moves by each side.



On the display you can see the white engine's letter code and seed number, the black engine's letter code and seed number, and the current move. Check which pieces are selectable to determine whose turn it is. Freely use the FULL/FLAT button to switch between two sets of pieces.

Make a move by first selecting a piece, then selecting its destination. Keep playing moves until the game is finished. Selecting the incorrect piece or destination will result in a strike.

## The engines

Every engine follows these steps to determine their next move:

- Each engine has its own list of goals. While making a valid move, try to meet a goal, starting at the top of the list.
- The first goal of every engine is: **Capture the enemy king.**
- The final goal of every engine is: **Play any valid move.**
- For each goal, if there are no moves that meet the goal, try the next goal.
- If there are one or more moves that meet the goal, name them “from-to” according to the a1, a2, ..., e6 coordinates and sort them alphabetically. Sort ascending if the previous random number was even, descending if it was odd. (First valid move in starting position is a2-a3, last is e5-e4).
- Use the random number generator explained below to get a number.
- Count moves on the list, starting at 0, wrapping around to the first if you reach the end, until you reach the random number. That's the next move to play.

|   | Engine                 | Goals   |
|---|------------------------|---|
| D | Dark squares are lava  | <ul style="list-style-type: none"> <li>• Move a piece from a dark square to a light square.</li> <li>• Move a piece from a light square to another light square.</li> </ul>   |
| K | The king must die      | <ul style="list-style-type: none"> <li>• Move a piece closer to the enemy king.</li> </ul>  |
| L | Light squares are lava | <ul style="list-style-type: none"> <li>• Move a piece from a light square to a dark square.</li> <li>• Move a piece from a dark square to another dark square.</li> </ul>   |
| M | Mirror, mirror         | <ul style="list-style-type: none"> <li>• Mirror the last move of the opponent using point reflection on the center of the board with the same piece as the opponent.</li> <li>• Move the same piece as the opponent.</li> </ul> |
| S | Let's switch sides     | <ul style="list-style-type: none"> <li>• Move a piece closer to the setup position of the enemy. (Pawns only look to the starting square in front of them.)</li> </ul>  |

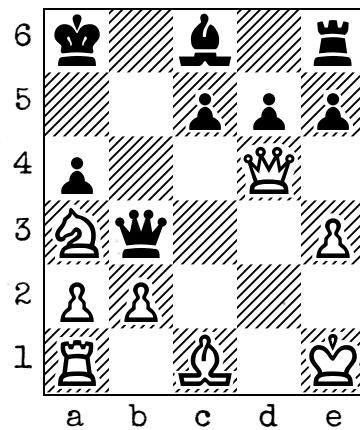
Distance is measured in straight lines. E.g. the distance between the queens in starting position is 7, between the kings is 9.

## Random number generator

- Define the **base number** by taking the serial number and replacing letters with numbers (a=1, b=2, ..., z=26).
- To get a new random number;
  - Start with the previous one (for the first time, use the engine seed for this).
  - Add the next digit of the base number (looping around to the first if you are at the last).
  - Only use the rightmost digit.
- NB: The engines used the generator for moves that are already played. If you want to know the random number for e.g. move 10, you will have to repeat the previous step 10 times.

## Example

- White: L8 (Light squares are lava, seed 8)
- Move: 8
- Serial: CH3SS5
- Base number: 3(C) 8(H) 3 19(S) 19(S) 5 → 38319195
- First goal: Capture the enemy king. No moves meet the goal.
- Next goal: Move a piece from a light square to a dark square. No moves meet the goal.
- Next goal: Move a piece from a dark square to another dark square.
- Random number for move 8: 7. Previous number is 2 so we sort ascending.
- Possible moves: 0:c1-d2, 1:d4-b4, 2:d4-c3, 3:d4-c5, 4:d4-d2, 5:d4-e5, 6:e1-d2
- For the 7th one we wrap around after 6 back to 0, so we end up on c1-d2.



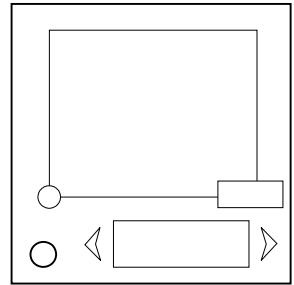
## Random numbers

|                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |     |     |
|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-----|-----|
| Move counter          | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 0   | ... |
| Base number, repeated | 3 | 8 | 3 | 1 | 9 | 1 | 9 | 5 | 3 | 8 | 3 | 1 | 9 | 1 | 9 | 5 | 3 | 8 | 3 | 1 | ... |     |
| For white, seed 8     | 1 | 9 | 2 | 3 | 2 | 3 | 2 | 7 | 0 | 8 | 1 | 2 | 1 | 2 | 1 | 6 | 9 | 7 | 0 | 1 | ... |     |

## On the Subject of Subway

Face Jam covered Subway in episode 21, "Subway BBQ Rib Sandwich", in which the sandwich scored the lowest score yet, with an average score of 14.

Being of the lowest social caste, and not strong enough to work in the salt mines, you have been sent to work at Subway as the only other acceptable job. Destined to spend the rest of your life selling mediocre sandwiches to businessmen and followed by the stench of Subway everywhere you go, you grow more and more apathetic every day. There is only one solace in your hollow existence: messing up people's orders. Not messing up an order enough will lead to the monotonous void of Subway consuming your consciousness, while messing an order up too much will get rid of your tip, and you will starve to death.



The module will show an order button, and pressing it will start the order. Once the order is finished, ingredient buttons will show up on the module. As a proud Subway Sandwich Artist™, you would never make a sandwich out of order, and ingredients will always show up in the order: breads, meats, cheese, veggies, condiments. In addition, there will be a ? button in the bottom left that you can press at any time to ask the customer to restate their order. This can be done as many times as you like for no cost other than the customer's sanity.

To solve this module, mess up the order with changes that add up to as close to the tip threshold as possible. There can be multiple correct answers. To get the value of a change, see the table below the explicit rules. To calculate the tip threshold, first take the greatest number from the number of battery holders, port plates, and indicators, and multiply by 3. Then, add the bomb's voltage, if any, and round down. If the tip threshold is 0, you are making a sandwich for your coworker, and as the only other human being that has talked to you outside of asking for a sandwich, you don't have the heart to mess up their order.

Never remove a vegetable if it is the last vegetable on the sandwich. It is, pertinent to the structural integrity of the sandwich and keeps the fine line between people who say "Ew, green stuff," and rational human beings.

Always toast a sandwich if the customer specifically asks for it. However, you may avoid toasting a sandwich if the customer only asks for a melt. How were you supposed to know to toast the melt?

If a customer asks for extra of anything, always give them the normal amount. However, if the customer specifically asks for as much of something that will get you fired, add that ingredient (when you get to it in the sandwich order) until the module solves.

Never give a customer whole wheat bread, even if they ask for it. Just pretend you are out of it to spite people who think they are eating healthy by going to Subway, a fast food chain whose "bread" had too much sugar content to be considered bread by the Supreme Court of Ireland.

If a customer asks for Ketchup, just don't give it to them. Whatever is in the sandwich, it's not worth it.

If the customer orders a sandwich with tuna in it, substitute the tuna for extra mayonnaise. They won't be able to tell the difference anyways. (This won't count against the tip threshold and changing or removing the mayonnaise will count as changing or removing a condiment.)

Never add an item without removing an equivalent item (i.e. changing an item). We're a failing restaurant chain, not a soup kitchen.

If enough tip threshold is left after previous required changes, always put the wrong cheese if the customer asks for cheese. Literally all the cheeses are exactly the same with their only differences being food coloring, and you cannot convince me otherwise.

While technically possible while adding the bread, don't give the customer a sandwich when they asked for a pizza. Yeah, Subways sells pizza. They even have their own pizza boxes. Don't believe me? Go to your nearest Subway and get one, it's probably better than the sandwich.

|        | Bread    | Meat | Cheese | Veggies | Condiments |
|--------|----------|------|--------|---------|------------|
| Change | 3        | 4    | 1      | 2       | 2          |
| Remove | infinite | 9    | 4      | 3       | 2          |

### Clarifications

Pizza can be found when bread is selectable, and changing which kind of pizza it is counts as changing the bread.

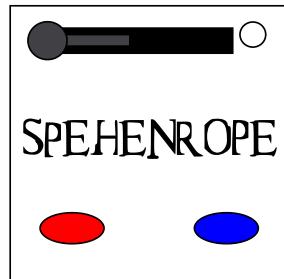
Whether you toast the bread or not can be chosen when cheese is selectable, and changing the toast of a sandwich counts as removing a cheese.

Removing or changing an item will always count against the tip threshold unless otherwise stated.

## On the Subject of The Matrix

*Free your mind...*

- The module consists of two rotating pills, a pair of scrambled, cycling names (Matrix access codes) and a switch with which to access the Matrix.
- To solve the module, you must choose and press the correct pill at the correct time.
- Begin by unscrambling the two names on the module. Cross-reference them with the below table to determine the amount of time (in seconds) that you may safely access the Matrix.
- Exceeding the amount of time you may safely enter the Matrix will eject you from the Matrix and cause a strike.
- You may only enter the Matrix once every minute. Wait for the system to reboot before re-attempting access. Attempting to access the Matrix whilst the system is rebooting will cause a strike.
- Pull the access switch to enter the Matrix. Pull it again to safely leave.
- Upon entering, the pills will stop rotating and the code will freeze.
- Inside the Matrix, you will find six rapidly cycling words.
- **One of these words is a glitch.**
- Five of the six words will appear on one of the lists below. The anomalous word is the glitch in the Matrix.
- If the number of characters in the glitched word is even, press the red pill.
- If the number of characters in the glitched word is odd, press the blue pill.
- It is vital that the system has located you before pressing the pill.
- Consequently, you must press the pill when the last digit of the bomb timer is equal to the list number that contains the non-glitched words.
- The pills will not respond if pressed within the Matrix. Ensure you have left the Matrix before pressing the pill.
- Pressing the wrong pill or pressing at the wrong time will cause a strike.
- The Matrix access codes will reset upon every system reboot. The words inside the Matrix will remain consistent.



**Matrix Access Codes**

|             | Twins | Neo | Seraph | Cypher | Persephone | Tank | Dozer | Mouse | Switch | Architect |
|-------------|-------|-----|--------|--------|------------|------|-------|-------|--------|-----------|
| Smith       | 45    | 30  | 27     | 24     | 21         | 18   | 15    | 12    | 9      | 6         |
| Merovingian | 30    | 27  | 24     | 21     | 18         | 15   | 12    | 9     | 6      | 9         |
| Morpheus    | 27    | 24  | 21     | 18     | 15         | 12   | 9     | 6     | 9      | 12        |
| Niobe       | 24    | 21  | 18     | 15     | 12         | 9    | 6     | 9     | 12     | 15        |
| Bane        | 21    | 18  | 15     | 12     | 9          | 6    | 9     | 12    | 15     | 18        |
| Oracle      | 18    | 15  | 12     | 9      | 6          | 9    | 12    | 15    | 18     | 21        |
| Keymaker    | 15    | 12  | 9      | 6      | 9          | 12   | 15    | 18    | 21     | 24        |
| Link        | 12    | 9   | 6      | 9      | 12         | 15   | 18    | 21    | 24     | 27        |
| Trinity     | 9     | 6   | 9      | 12     | 15         | 18   | 21    | 24    | 27     | 30        |
| Apoc        | 6     | 9   | 12     | 15     | 18         | 21   | 24    | 27    | 30     | 45        |

**Matrix Word Lists**

| List 0         | List 1   | List 2     | List 3   | List 4   |
|----------------|----------|------------|----------|----------|
| Headjack       | Utopia   | Metacortex | Fight    | KungFu   |
| Phone          | Mind     | Flint      | Free     | Choi     |
| Dystopia       | Squiddy  | Nova       | Nova     | Red      |
| Control        | Guns     | White      | Blue     | Blue     |
| Paradise       | Trace    | Rabbit     | Fields   | Pill     |
| Utopia         | Spoon    | Follow     | Choice   | Jump     |
| Version        | Machine  | Matrix     | Battery  | Program  |
| Nebuchadnezzar | Red      | Free       | Program  | Agent    |
| Zion           | White    | Neural     | Flint    | Sentient |
| Fight          | Paradise | Mind       | Headjack | Squiddy  |

| List 5   | List 6   | List 7         | List 8    | List 9    |
|----------|----------|----------------|-----------|-----------|
| Dystopia | Sentinel | Elevator       | Trainman  | Prison    |
| Rabbit   | Machine  | Sentinel       | Spoon     | KungFu    |
| Jump     | Prison   | Choi           | Cookie    | Interface |
| Code     | Human    | Matrix         | Elevator  | Neural    |
| Mirror   | Fields   | Nebuchadnezzar | Hardwire  | Trainman  |
| Cookie   | Battery  | Control        | Choice    | Hel       |
| Human    | Code     | Metacortex     | Trace     | Agent     |
| Pill     | Training | Sentient       | Mirror    | Training  |
| Follow   | Guns     | Unplug         | Unplug    | Zion      |
| Version  | Hel      | Hardwire       | Interface | Phone     |

## Section 2: Needy Modules

Needy modules cannot be disarmed, but pose a recurrent hazard.

Needy modules can be identified as a module with a small 2-digit timer in the top center. Interacting with the bomb may cause them to become activated. Once activated, these needy modules must be tended to regularly before their timer expires in order to prevent a strike.

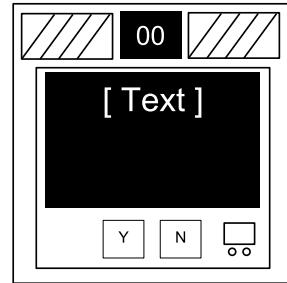
Stay observant: needy modules may reactivate at any time.

00

## On the Subject of Venting Gas

*Computer hacking is hard work! Well, it usually is. This job could probably be performed by a simple drinking bird pressing the same key over and over again.*

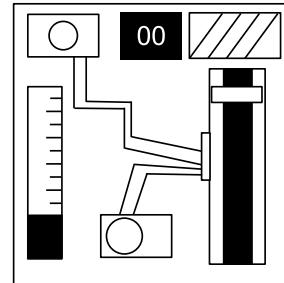
- Respond to the computer prompts by pressing "Y" for "Yes" or "N" for "No".



## On the Subject of Capacitor Discharge

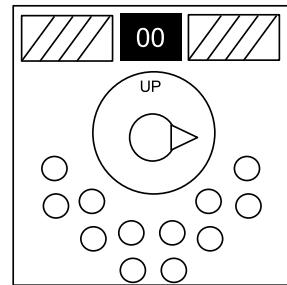
*I'm going to guess that this is just meant to occupy your attention, because otherwise this is some shoddy electronics work.*

- Discharge the capacitor before it overloads by holding down the lever.



## On the Subject of Knobs

*Needlessly complicated and endlessly needy. Imagine if such expertise were used to make something other than diabolical puzzles.*



- The knob can be turned to one of four different positions.
- The knob must be in the correct position when this module's timer hits zero.
- The correct position can be determined by the on/off configuration of the twelve LEDs.
- Knob positions are relative to the "UP" label, which may be rotated.

### LED Configurations

#### Up Position:

|   |   |   |   |   |   |
|---|---|---|---|---|---|
|   |   | X |   | X | X |
| X | X | X | X |   | X |

|   |   |   |  |   |   |
|---|---|---|--|---|---|
| X |   | X |  | X |   |
|   | X | X |  | X | X |

#### Down Position:

|   |   |   |   |  |   |
|---|---|---|---|--|---|
|   | X | X |   |  | X |
| X | X | X | X |  | X |

|   |   |   |  |   |   |
|---|---|---|--|---|---|
| X |   | X |  | X |   |
|   | X |   |  |   | X |

#### Left Position:

|   |  |  |   |   |   |
|---|--|--|---|---|---|
|   |  |  |   | X |   |
| X |  |  | X | X | X |

|  |  |  |  |   |   |
|--|--|--|--|---|---|
|  |  |  |  | X |   |
|  |  |  |  | X | X |

#### Right Position:

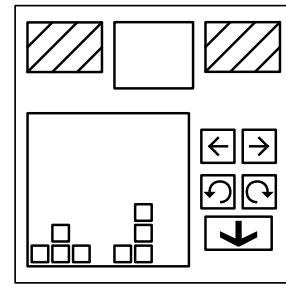
|   |   |   |   |   |   |
|---|---|---|---|---|---|
| X |   | X | X | X | X |
| X | X | X |   | X |   |

|   |   |   |   |   |  |
|---|---|---|---|---|--|
| X |   | X | X |   |  |
| X | X | X |   | X |  |

X = Lit LED

## On the Subject of Tetris

*Chances are you've already played many iterations of this game. At this point, how can we be sure that Tetris isn't some kind of meta-virus that propagates itself through game developers and modders?*

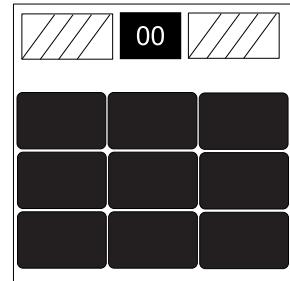


- To deactivate the module, the player will be required to place 3 Tetris pieces onto the game board.
- Pieces can be rotated, moved left and right, and placed using the arrow buttons.
- Pieces will not fall with time, but instead will be placed as far down as possible.
- Completely filling a row will cause that row to be removed, and other rows will fall down to fill the empty space.
- If the board fills up, the player will be unable to place new blocks, and will gain strikes.

## On the Subject of Lights Out

*Who knew turning out all the lights was a hard task?*

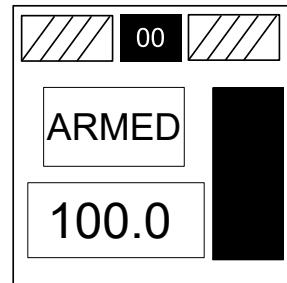
- Press the buttons to switch off all the lights.
- When pressed, a button will invert the lit state of the button itself and the lit state of the adjacent buttons in the four major cardinal directions.



## On the Subject of Filibuster

*What's this game called? Ok, let's do that.*

- A warning countdown signals the module is about to be armed.
- If you hear annoying beeping, talk.
- Keep talking.



### Filibuster Settings

This mod requires a microphone. It will look for the default recording device and listen to it to determine the volume.

There is a *modSettings.json* file in the mod's folder (*SteamLibrary\steamapps\workshop\content\341800\739663396*) to customize the thresholds. You can open this file in a text editor to edit the settings. Restart the game if you are changing these values.

This is the default for the file:

```
{"MicThreshold": 25.0, "FailureThreshold": 3}
```

*MicThreshold* – a value from 0.0 – 100.0 to adjust for your microphone.

*FailureThreshold* – an integer value for the number of seconds of failing the mic check before a strike. I recommend this stay in the range of 1 – 10.

## On the Subject of Math

*Math is still easy. But is it easy when you have to answer questions over and over to stop an explosion? Only one way to find out.*

Answer the question. Enter the numbers with the keypad and press '=' to submit your answer. Use '-' to toggle the sign.

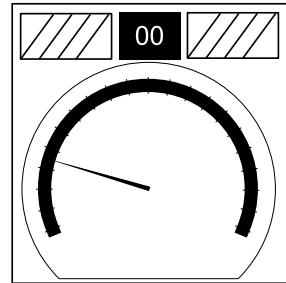
Don't blow up!

|   |   |   |   |
|---|---|---|---|
|   |   |   |   |
| 1 | 2 | 3 | 0 |
| 4 | 5 | 6 | - |
| 7 | 8 | 9 | = |

## On the Subject of Motion Sense

*Don't move. Its explosiveness is based on movement.*

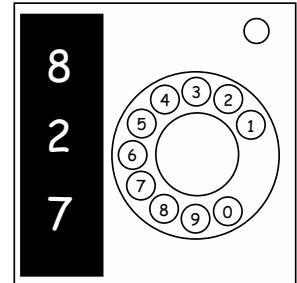
- When activated, this module will monitor all rotation activity of the bomb for the duration of the module activation.
- The more you rotate the bomb while active, the higher the needle will rise on the indicator.
- A strike is given if the needle on the gauge reaches the end of the scale.
- The back-light of the gauge will change color and an audible sound will be made when the gauge reaches 80% or more.
- Setting the bomb down, or conversely picking the bomb up, will cause rotation activity and will cause the needle to rise when the module is active.



## On the Subject of Rotary Phones

*Hello, this is emergency services, please hold...*

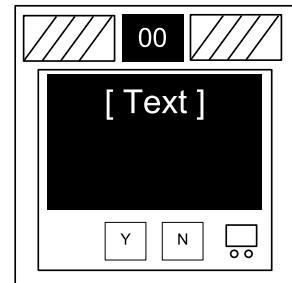
- The display will show 3 numbers, top to bottom, representing a single 3-digit number.
- Whenever the module activates, these numbers will change.
- Add the new number to the old one, take the 3 least significant digits, and enter the resulting number. This number is now your old number.
- If you gain a strike from this module, your old number is replaced with the currently displayed number.



## On the Subject of Answering Questions

*I hope you studied, it's quiz night!*

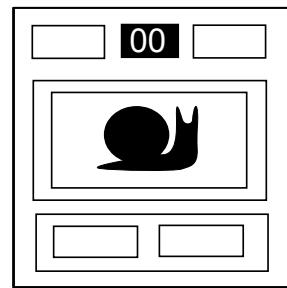
- Respond to the computer prompts by pressing "Y" for "Yes" or "N" for "No".



## On the Subject of Who's That Monsplode?

Are you still a fan of some animated series from your childhood? It looks like you stumbled upon another fan.

- The shadow of a Monsplode™ will appear on the screen.
- Picking the name of the Monsplode™ correctly will add 20 seconds to the counter.
- You can't have more than 80 seconds in the counter.
- If you make a mistake, the bomb will register a strike.

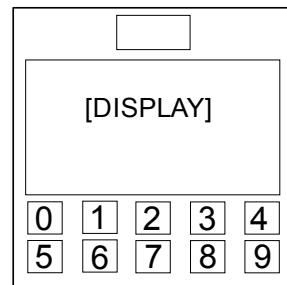


| Monsplode™ | Name      | Monsplode™ | Name      | Monsplode™ | Name       |
|------------|-----------|------------|-----------|------------|------------|
|            | Buhar     |            | Lanaluff  |            | Magmy      |
|            | Bob       |            | Melbor    |            | Docspplode |
|            | Mountoise |            | Nibs      |            | Clondar    |
|            | Aluga     |            | Lugirit   |            | Zapra      |
|            | Caadarim  |            | Vellarim  |            | Ukkens     |
|            | Flaurim   |            | Gloorim   |            | Zenlad     |
|            | Asteran   |            | Violan    |            | Pouse      |
|            | Myrchat   |            | Cutie Pie |            | Percy      |

## On the Subject of HTTP Response

*When your bomb acts as a web server...*

- The module displays a remote or local status string. You must respond to it with a 3-digit status code.
- Remote codes can be found on Table 1 while local codes can be found on Table 2.
- An undisclosed source told us that, due to display limits, some strings may be abbreviated.
- Use the keypad to enter the correct response code to disable the needy module.
- Caution:** There's no delete button, so be careful!



**Table 1: Remote status, response as listed.**

| Full name           | Abbrev. | Response | Full name             | Abbrev. | Response |
|---------------------|---------|----------|-----------------------|---------|----------|
| Continue            | Cont    | 100      | Unauthorized          | Unauth  | 401      |
| Switching Protocols | SwPrt   | 101      | Payment Required      | PayReq  | 402      |
| Processing          | Proc    | 102      | Forbidden             | Frbd    | 403      |
| OK                  | OK      | 200      | Not Found             | NFnd    | 404      |
| Created             | Crtd    | 201      | Request Time-out      | TmOut   | 408      |
| Moved Permanently   | MvPerm  | 301      | Gone                  | Gone    | 410      |
| Found               | Found   | 302      | I'm a teapot          | ImaTp   | 418      |
| Not Modified        | NMod    | 304      | Internal Server Error | SrvErr  | 500      |
| Use Proxy           | UPrx    | 305      | Bad Gateway           | BGw     | 502      |
| Bad Request         | BadR    | 400      | Service Unavailable   | SrvUn   | 503      |

**Table 2: Local status. Add the number of batteries times the sum of the numerical digits in the serial number to the response first.**

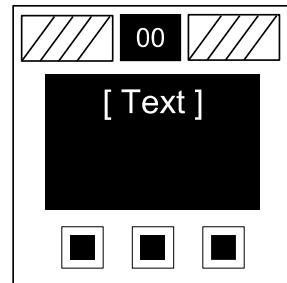
| Full name | Abbrev. | Response | Fullscreen | Abbrev. | Response |
|-----------|---------|----------|------------|---------|----------|
| Strike    | Stk     | 601      | Detonate   | Dtn     | 602      |
| Pass      | Ps      | 603      | Press      | Prs     | 604      |
| Command   | Cmd     | 605      | Release    | Rls     | 606      |
| Blue      | Blue    | 701      | Green      | Grn     | 702      |
| Red       | Red     | 703      | Yellow     | Yel     | 704      |
| Black     | Blk     | 705      | White      | Wht     | 706      |
| Cut       | Cut     | 801      | Unscrew    | Uns     | 802      |
| Set       | Set     | 803      | Locate     | Loc     | 804      |
| Indicator | Indc    | 805      | Batteries  | Batt    | 806      |
| Timer     | Tmr     | 901      | Lower      | Lwr     | 902      |
| Upper     | Upr     | 903      | Lever      | Lvr     | 904      |
| Time      | Time    | 905      | Done       | Done    | 906      |

Note: In the rare case the response number is over 999, subtract 999 from the response code.

## On the Subject of Edgework

*You would think that the ports on the side of the bomb are used for something other than just for answering questions...*

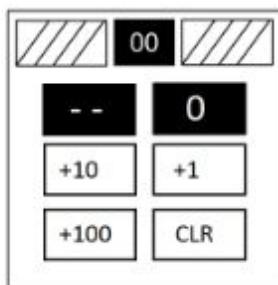
- Respond to the computer prompts by pressing the button corresponding to the answer of the question on the main display.
- There are five questions asked every time the module activates.



## On the Subject of Hex To Decimal

*Be happy you are only doing this for one game session. At least you weren't Nintendo in the 1980's figuring out how to program the NES with 0's and 1's.*

The main display at the top left displays a random hexadecimal character.



The input display at the top right displays the number the defuser has currently added.

Starting from 0, the defuser must add 100, 10, or 1 to get the desired number.

If the defuser messes up, reset by pressing the "CLR" button.

- To find the desired number, use the table below:

|    | -0  | -1  | -2  | -3  | -4  | -5  | -6  | -7  | -8  | -9  | -A  | -B  | -C  | -D  | -E  | -F  |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0- | 0   | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  |
| 1- | 16  | 17  | 18  | 19  | 20  | 21  | 22  | 23  | 24  | 25  | 26  | 27  | 28  | 29  | 30  | 31  |
| 2- | 32  | 33  | 34  | 35  | 36  | 37  | 38  | 39  | 40  | 41  | 42  | 43  | 44  | 45  | 46  | 47  |
| 3- | 48  | 49  | 50  | 51  | 52  | 53  | 54  | 55  | 56  | 57  | 58  | 59  | 60  | 61  | 62  | 63  |
| 4- | 64  | 65  | 66  | 67  | 68  | 69  | 70  | 71  | 72  | 73  | 74  | 75  | 76  | 77  | 78  | 79  |
| 5- | 80  | 81  | 82  | 83  | 84  | 85  | 86  | 87  | 88  | 89  | 90  | 91  | 92  | 93  | 94  | 95  |
| 6- | 96  | 97  | 98  | 99  | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 |
| 7- | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 |
| 8- | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 |
| 9- | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 |
| A- | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 |
| B- | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 |
| C- | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 |
| D- | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 |
| E- | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 |
| F- | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 |

## Appendix A: Indicator Identification Reference

Labelled indicator lights can be found on the sides of the bomb casing.

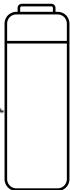


### Common Indicators

- SND
- CLR
- CAR
- IND
- FRQ
- SIG
- NSA
- MSA
- TRN
- BOB
- FRK

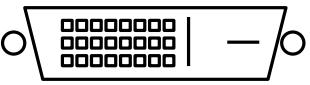
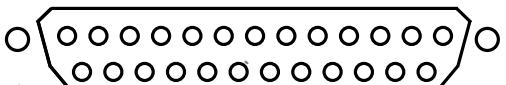
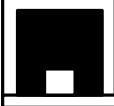
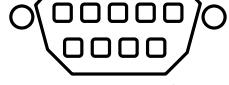
## Appendix B: Battery Identification Reference

Common battery types can be found within enclosures on the sides of the bomb casing.

| Battery   | Type |
|---|------|
|  | AA   |
|  | D    |

## Appendix C: Port Identification Reference

Digital and analog ports can be found on sides of the bomb casing.

| Port  | Name       |
|---|------------|
|    | DVI-D      |
|    | Parallel   |
|    | PS/2       |
|   | RJ-45      |
|  | Serial     |
|  | Stereo RCA |

## Appendix Two Factor: Two Factor Identification Reference

Digital displays can be found on sides of the bomb casing showing a serial number.



[000000.]

The display shows up to a six digit number for two factor authentication. The number rotates every 60 seconds for security. When the serial number changes, three audio tones will sound.

## APPENDIX CD43

### Excerpt from Charles Dickens' "A Christmas Carol".

Scrooge knew he was dead? Of course he did. How could it be otherwise? Scrooge and he were partners for I don't know how many years. Scrooge was his sole executor, his sole administrator, his sole assign, his sole residuary legatee, his sole friend, and sole mourner. And even Scrooge was not so dreadfully cut up by the sad event, but that he was an excellent man of business on the very day of the funeral, and solemnised it with an undoubted bargain. The mention of Marley's funeral brings me back to the point I started from. There is no doubt that Marley was dead. This must be distinctly understood, or nothing wonderful can come of the story I am going to relate. If we were not perfectly convinced that Hamlet's Father died before the play began, there would be nothing more remarkable in his taking a stroll at night, in an easterly wind, upon his own ramparts, than there would be in any other middle-aged gentleman rashly turning out after dark in a breezy spot -- say Saint Paul's Churchyard for instance -- literally to astonish his son's weak mind.

Scrooge never painted out Old Marley's name. There it stood, years afterwards, above the warehouse door: Scrooge and Marley. The firm was known as Scrooge and Marley. Sometimes people new to the business called Scrooge Scrooge, and sometimes Marley, but he answered to both names. It was all the same to him.

Oh! But he was a tight-fisted hand at the grind-stone, Scrooge! A squeezing, wrenching, grasping, scraping, clutching, covetous, old sinner! Hard and sharp as flint, from which no steel had ever struck out generous fire; secret, and self-contained, and solitary as an oyster. The cold within him froze his old features, nipped his pointed nose, shrivelled his cheek, stiffened his gait; made his eyes red, his thin lips blue and spoke out shrewdly in his grating voice. A frosty rime was on his head, and on his eyebrows, and his wiry chin. He carried his own low temperature always about with him; he iced his office in the dogdays; and didn't thaw it one degree at Christmas.

External heat and cold had little influence on Scrooge. No warmth could warm, no wintry weather chill him. No wind that blew was bitterer than he, no falling snow was more intent upon its purpose, no pelting rain less open to entreaty. Foul weather didn't know where to have him. The heaviest rain, and snow, and hail, and sleet, could boast of the advantage over him in only one respect. They often 'came down' handsomely, and Scrooge never did.

Nobody ever stopped him in the street to say, with gladsome looks, 'My dear Scrooge, how are you? When will you come to see me?' No beggars implored him to bestow a trifle, no children asked him what it was o'clock, no man or woman ever once in all his life inquired the way to such and such a place, of Scrooge. Even the blind men's dogs appeared to know him; and when they saw him coming on, would tug their owners into doorways and up courts; and then would wag their tails as though they said, 'No eye at all is better than an evil eye, dark master!'

But what did Scrooge care! It was the very thing he liked. To edge his way along the crowded paths of life, warning all human sympathy to keep its distance, was what the knowing ones call 'nuts' to Scrooge.

**APPENDIX CD44**Word and Letter Frequency in Charles Dickens' "A Christmas Carol".Frequent 2 letter words

- 16x TO
- 11x NO
- 10x HE
- 9x IN
- 8x OF
- 7x IT

Frequent 3 letter words

1. 23x AND
2. 22x THE
3. 22x HIS
4. 14x WAS
5. 11x HIM
6. 4x OUT

Frequent 4 letter words

1. 6x SOLE
2. 4x THAT

Frequent 5 letter words

1. 4x THERE
2. 4x WOULD

Frequent 6 letter words

1. 4x MARLEY

Frequent 7 letter words

1. 12x SCROOGE

Frequent 8 letter words

1. 2x BUSINESS

Frequent 9 letter words

1. 2x SOMETIMES

## Appendix Math: Mathematical Terms Reference

### Fibonacci Sequence

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, ...

### Prime Numbers

|    |    |    |    |    |    |    |    |    |    |
|----|----|----|----|----|----|----|----|----|----|
| 0  | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |

### Binary Conversions

| Decimal | Binary Form |
|---------|-------------|
| 0       | 0000        |
| 1       | 0001        |
| 2       | 0010        |
| 3       | 0011        |
| 4       | 0100        |
| 5       | 0101        |
| 6       | 0110        |
| 7       | 0111        |
| 8       | 1000        |
| 9       | 1001        |
| 10      | 1010        |

## Appendix: Grammar

for use with the English Test module

This appendix contains a brief overview of some grammatical distinctions used in the English Test module and Needy English Test module.

The **subject** is what is doing the action, and the **object** is what is receiving the action. e.g. In “I buy milk.” **I** is the subject and **milk** is the object.

|   |
|---|
| <b>their:</b> belonging to them; <b>there:</b> that place; <b>they're:</b> they are   |
| <b>your:</b> belonging to you; <b>you're:</b> you are   |
| <b>I, he, she, we, they:</b> used in subjects; <b>me, him, her, us, them:</b> used in objects   |
| <b>less:</b> used with uncountable nouns; <b>fewer:</b> used with countable nouns   |
| <b>who:</b> used in subjects; <b>whom:</b> used in objects  |
| <b>defiantly:</b> rebelliously; <b>definitely:</b> without doubt  |
| <b>lead:</b> the metal or the present tense; <b>led:</b> the past tense and past participle   |
| <b>cite:</b> declare a quoted source; <b>site:</b> location; <b>sight:</b> a view or vision   |
| When you don't <b>lay</b> something else down, you <b>lie</b> down.<br>The past tense of <b>lay</b> is <b>laid</b> . Confusingly, the past tense of <b>lie</b> is <b>lay</b> !  |
| <b>Literally</b> means <b>word for word</b> . If you had “literally died” watching a video, your family and friends would be crying at your funeral about now.  |
| If you write “should <b>of</b> ”, “could <b>of</b> ”, “would <b>of</b> ”, or “might <b>of</b> ”, no educated gentleman will take you seriously.<br>Remember, “I <b>do</b> ” is to “I <b>have done</b> ” as “I could <b>do</b> ” is to “I could <b>have done</b> ”.<br>(Exceptions apply, but very <b>very rarely</b> !) |
| <b>its:</b> belonging to it; <b>it's:</b> it is   |
| <b>capital:</b> main city in a territory, money you put up to borrow something, or THIS KIND OF LETTER; <b>capitol:</b> big building, usually in a <b>capital</b>   |
| <b>affect:</b> usually a verb, but noun when it means “display of emotion”; <b>effect:</b> almost always a noun; <b>impact:</b> physical force  |
| <b>i.e.:</b> short for Latin <i>id est</i> , or “that is”; <b>e.g.:</b> short for Latin <i>exempli grātiā</i> , or “for example”  |
| <b>peak:</b> summit; <b>peek:</b> sneak a look; <b>pique:</b> excite (usually interest)   |
| <b>allot:</b> partition; <b>a lot:</b> very much; <b>alot:</b> (never correct)  |
| <b>lose:</b> opposite of gain; <b>loose:</b> opposite of tight  |
| <b>than:</b> (used to compare two things); <b>then:</b> at the time, or right after that  |
| <b>complement:</b> when two parts complete each other; <b>compliment:</b> You look good today!  |
| <b>farther:</b> physical distance; <b>further:</b> figurative distance  |
| <b>number:</b> used for countable nouns; <b>amount:</b> used for uncountable nouns  |

## Appendix: Grammar (Cont'd)

|   |
|---|
| <b>to:</b> used in infinitives or destination; <b>too:</b> as well, or overly; <b>two:</b> 2  |
| <b>accept:</b> This is fine; <b>except:</b> One of these things is not like the others  |
| <b>threw:</b> past tense of "throw"; <b>through:</b> in at one side/end and out at the other  |
| <b>defuse:</b> stop a bomb; <b>diffuse:</b> light softening out. Use "defuse" for tension.  |
| <b>statue:</b> monument; <b>stature:</b> body height; <b>statute:</b> code of law   |
| <b>stationary:</b> completely still; <b>stationery:</b> writing utensils  |
| <b>by:</b> beside, from the mind of, etc.; <b>buy:</b> trade money for goods; <b>bye:</b> see you later   |
| <b>breath:</b> the noun; <b>breathe:</b> the verb   |
| <b>drink:</b> present tense; <b>drank:</b> past tense; <b>drunk:</b> past participle and adjective  |
| <b>discreet:</b> <u>secret</u> or carefully subtle; <b>discrete:</b> separate   |
| <b>seas:</b> plural of sea; <b>sees:</b> a form of "to see"; <b>seize:</b> to grab or take by force; <b>C's:</b> more than one C  |
| <b>weather:</b> condition of the outside air; <b>whether:</b> if it is or if it isn't   |
| <b>raise:</b> to make something go up; <b>rays:</b> narrow beams of light; <b>raze:</b> get rid of hair with a razor, or similarly destroy a wide area                          |
| <b>wander:</b> frolic; <b>wonder:</b> ponder  |
| <b>die:</b> stop living, or a small cube for randomness; <b>dice:</b> more than one die   |
| <b>meat:</b> flesh; <b>meet:</b> to see someone else; <b>mete:</b> to deal out something unpleasant   |
| <b>palate:</b> roof of your mouth; <b>palette:</b> board to mix paint on, or a combination of colors; <b>pallet:</b> plates that cargo gets placed on                           |
| In this module, <b>racket:</b> a loud noise; <b>racquet:</b> a netted stick or paddle with which to hit a ball. (Especially in US English, racket can be used for both senses.) |
| <b>perfect:</b> 100% good or correct; <b>prefect:</b> person in a position of power, like an official or a heir   |

**Other pairs/sets of words include:** ad/add, aloud/allowed, altar/alter, arc/ark, baited/bated, base/bass, blew/blue, brake/break, carat/caret/carrot/karat, ceiling/sealing, cent/scent/sent, cereal/serial, choral/coral/corral, coarse/course, creak/creek, dear/deer, discussed/disgust, elicit/illicit, everyday/every day, faint/feint, faze/phase, find/fined, flair/flare, flea/flee, gait/gate, idle/idol/idyll, lighting/lightning/lightening, loan/lone/lend, oar/or/ore, pail/pale, pair/pare/pear, poor/pore/pour, praise/prays/preys, precedence/precedents/presidents, right/rite/wright/write, road/rode/rowed, ring/wring, role/roll, seam/seem, stairs/stares, steal/steel, straight/strait, though/thought/through/thorough, vain/vane/vein, vary/very, wait/weight, and weak/week.

For lack of space, the differences for these words have been omitted, but they should be fairly common knowledge to most English speakers.