



BOMB DEFUSAL MANUAL

Version 1

Verification Code: 241

Welcome to the dangerous and challenging world of bomb defusing.

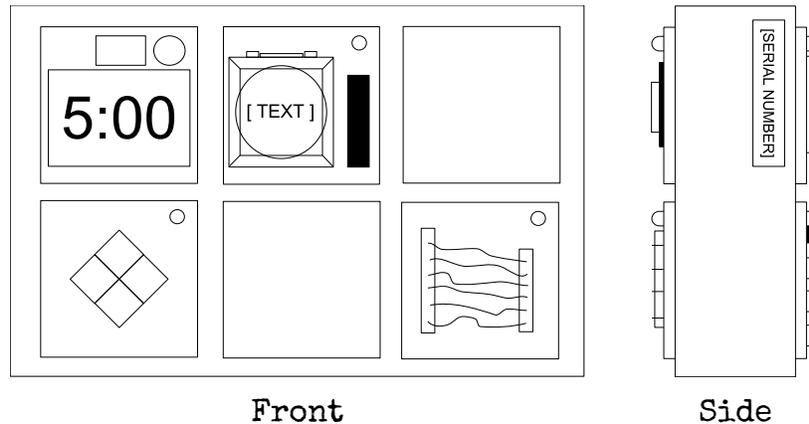
Study this manual carefully; you are the expert. In these pages you will find everything you need to know to defuse even the most insidious of bombs.

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

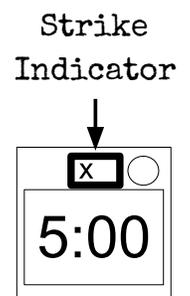
Each bomb will include up to 11 modules that must be disarmed. Each module is discrete and can be disarmed in any order.

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.



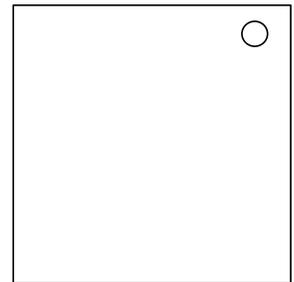
Gathering Information

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.

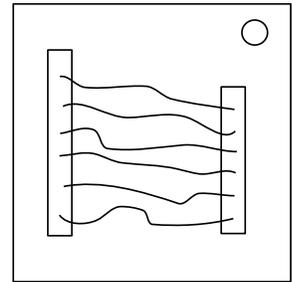
All modules must be disarmed to defuse the bomb.



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.

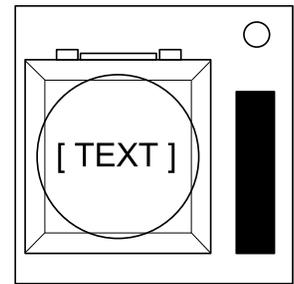
Otherwise, cut the fourth wire.

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".

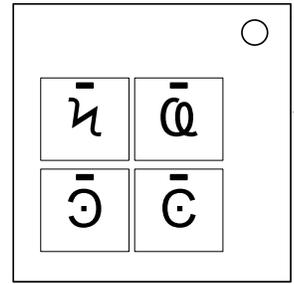
Releasing a Held Button

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.

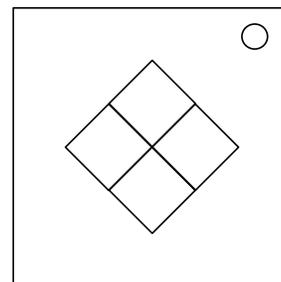


- Only one column below has all four of the symbols from the keypad.
- Press the four buttons in the order their symbols appear from top to bottom within that column.

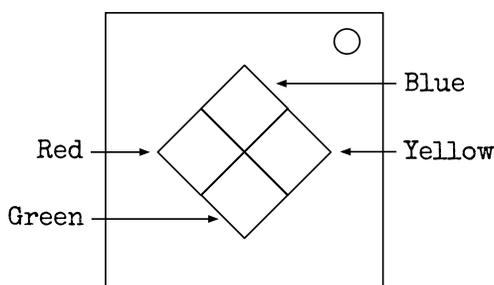
Q	Ë	©	б	Ψ	б
A	Q	Ɔ	¶	ᵀ	Ë
λ	Q̇	Q	Ђ	Ђ	≠
4	Q	Ж	Н	С	æ
Н	☆	Ꞥ	Ж	¶	Ψ
Ꞥ	Ꞥ	λ	¿	Ꞥ	Й
Q̇	¿	☆	ᵀ	★	Ω

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:

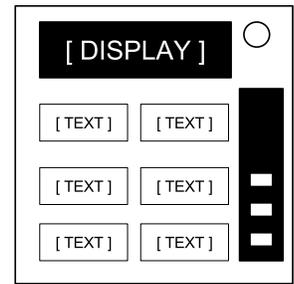
		Red Flash	Blue Flash	Green Flash	Yellow Flash
Button to press:	No Strikes	Blue	Red	Yellow	Green
	1 Strike	Yellow	Green	Blue	Red
	2 Strikes	Green	Red	Yellow	Blue

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
RED	REED	LEED	HOLD ON	YOU	YOU ARE
YOUR	YOU'RE	UR	THERE	THEY'RE	THEIR
THEY ARE	SEE	C	CEE		

Step 2:

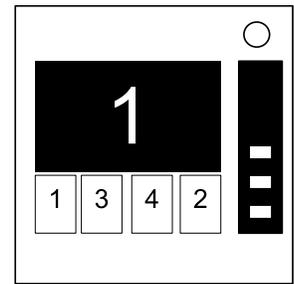
Using the label from step 1, push the first button that appears in its corresponding list:

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

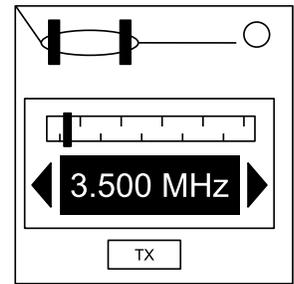
If the display is 1, press the button in the same position as you pressed in stage 1.
If the display is 2, press the button in the first position.
If the display is 3, press the button in the same position as you pressed in stage 2.
If the display is 4, press the button in the same position as you pressed 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

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	—

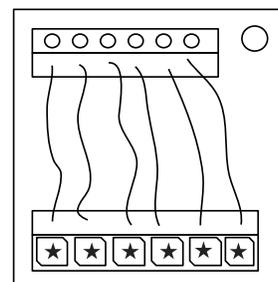
U	● ● —
V	● ● ● —
W	● — —
X	— ● ● —
Y	— ● — —
Z	— — ● ●

1	● — — — —
2	● ● — — —
3	● ● ● — —
4	● ● ● ● —
5	● ● ● ● ●
6	— ● ● ● ●
7	— — ● ● ● ●
8	— — — ● ● ●
9	— — — — ●
0	— — — — —

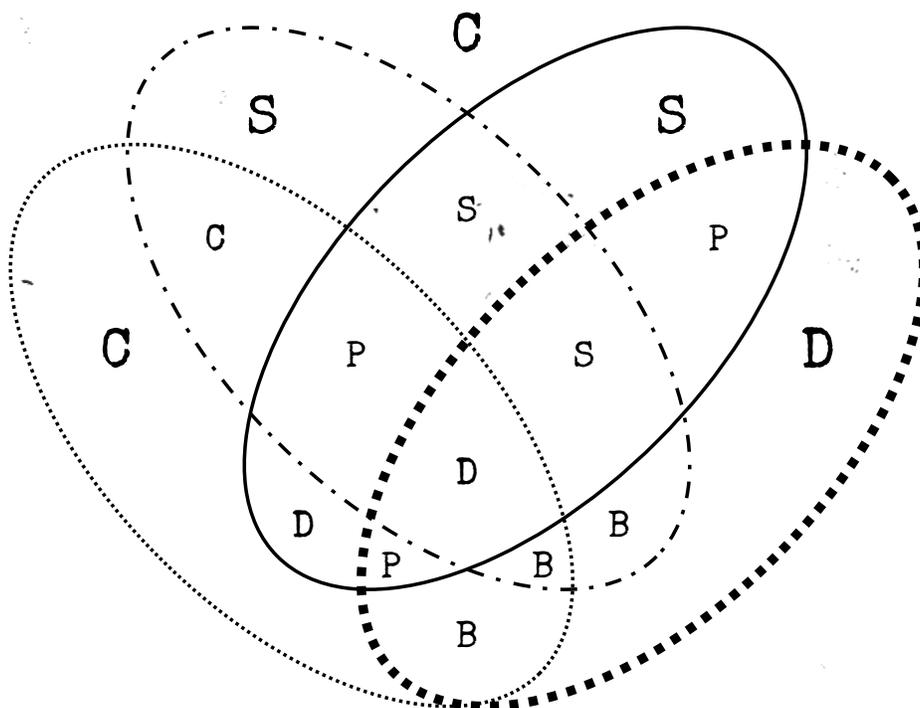
If the word is:	Respond at frequency:
shell	3.505 MHz
halls	3.515 MHz
slick	3.522 MHz
trick	3.532 MHz
boxes	3.535 MHz
leaks	3.542 MHz
strobe	3.545 MHz
bistro	3.552 MHz
flick	3.555 MHz
bombs	3.565 MHz
break	3.572 MHz
brick	3.575 MHz
steak	3.582 MHz
sting	3.592 MHz
vector	3.595 MHz
beats	3.600 MHz

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

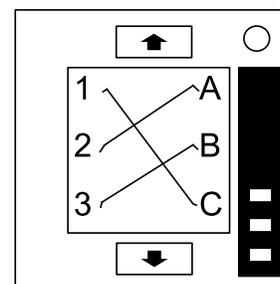
Letter	Instruction
C	Cut the wire
D	Do not cut the wire
S	Cut the wire if the last digit of the serial number is even
P	Cut the wire if the bomb has a parallel port
B	Cut the wire if the bomb has two or more batteries

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.



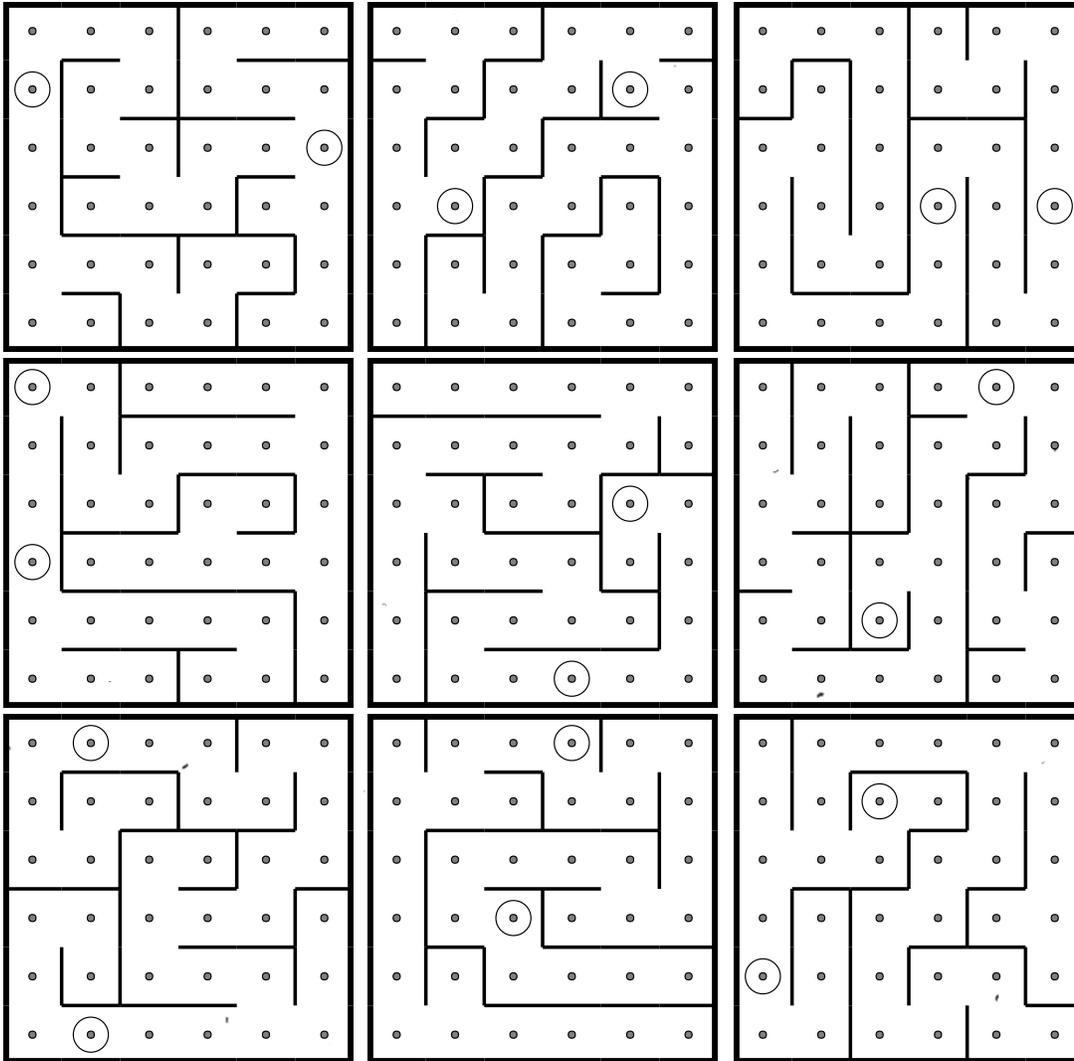
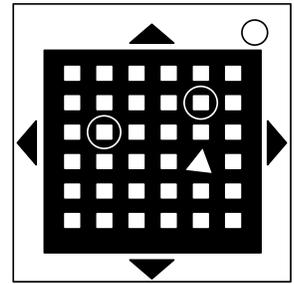
- Within this module there are several panels with wires on them, but only one panel is visible at a time. Switch to the next panel by using the down button and the previous panel by using the up button.
- Do not switch to the next panel until you are sure that you have cut all necessary wires on the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

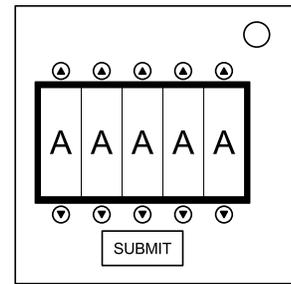
- Find the maze with matching circular markings.
- The defuser must navigate the white light to the red triangle using the arrow buttons.
- **Warning:** Do not cross the lines shown in the maze. These lines are invisible on the bomb.



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.



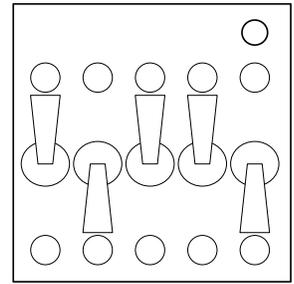
about	after	again	below	could
every	first	found	great	house
large	learn	never	other	place
plant	point	right	small	sound
spell	still	study	their	there
these	thing	think	three	water
where	which	world	would	write

On the Subject of 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:

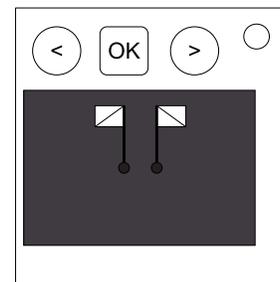


On the Subject of Semaphore

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

See the next page for semaphore reference.

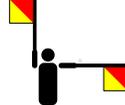
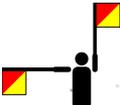
- A semaphore module will present with a previous button, a next button, an OK button and a semaphore indicator.
- Use the previous and next buttons to navigate through the semaphore sequence, starting from the left-most semaphore character to the right-most semaphore character.
- The semaphore sequence 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.

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

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On the Subject of Cruel Piano Keys

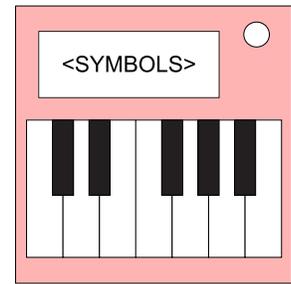
The devil's interval approaches...

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.

#	<u>Prime 12-tone Sequence</u>	#	<u>Prime 12-tone Sequence</u>
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>
⌘ and ~	2 or more indicators (lit or unlit)	Left-most digit in serial number	RI
# or ×	An empty port plate	Number of battery holders	P, transpose down by 'x' semitones, where 'x' = number of minutes remaining
⌚ or □	2 or more of a certain type of port	Least significant digit of number of completed modules	I
⌘ and ∙	2 or more port plates	9 minus the number of unlit indicators	R
© or C	Serial contains 1 or more vowels	Least significant digit of number of strikes	R, transpose down by 3 semitones
⌘ or ∞	Even number of batteries	DVI-D present: 7 Otherwise: 3	P, transpose up by 'x' semitones, where 'x' = number of ports*
⌘ or ⌘	An indicator with no vowels in the label	8	I
□ or ∙	Less than 2 ports	4	R
⌘ or ×	<i>(No other requirements)</i>	5	P

If none of these rules apply, revert back to the Normal Piano Keys ruleset and play the given note sequence normally.

Notes:

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

Serialism & Music Terminology

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

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

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

The Inverse sequence (or 'I' for short), takes the Prime sequence, but the intervals between the notes are inverted. For example, take the interval from A to B; the interval is +2 semitones, as it takes you 2 semitones to get from A to B (A goes to A[#] 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[#] then G).

As an extended example, the Inversion of the Prime row A B C D E would be A G F[#] 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[#] E D), and then the Retrograde of this Inverse would be D E F[#] 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[#] C C[#] D[#] 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 Piano Keys

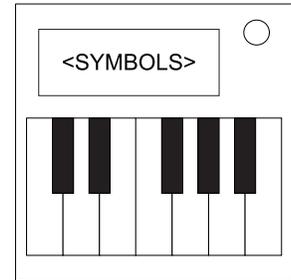
What do you get when you drop a piano down a mine shaft? A flat minor.

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.

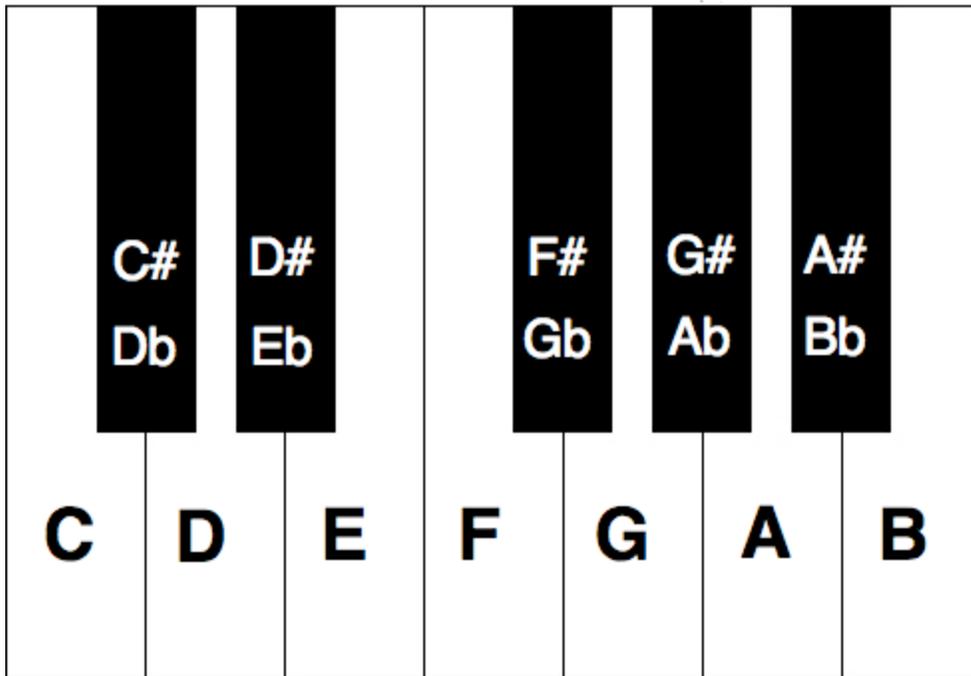


- A piano keys module will present with 3 musical symbols in the top indicator and a 12-note keyboard to input with.
- Each rule consists of one or more required symbol(s) and optional further requirements based on the bomb casing.
- Follow the list of rules down until one matches the criteria for the 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>
\flat	Last digit of serial number is even	$B\flat B\flat B\flat B\flat G\flat A\flat B\flat A\flat B\flat$
C or \sharp	2 or more battery holders	$E\flat E\flat D D E\flat E\flat D E\flat E\flat D D E\flat$
\natural and \ominus	(No other requirements)	$E F\sharp F\sharp F\sharp F\sharp E E E$
C or \sim	RCA port is present	$B\flat A B\flat F E\flat B\flat A B\flat F E\flat$
B	SND indicator is present and lit	$E E E C E G G$
w or \ominus or C	3 or more batteries	$C\sharp D E F C\sharp D E F B\flat A$
\flat and \sharp	(No other requirements)	$G G C G G C G C$
C or w	Serial number contains a 3, 7 or 8	$A E F G F E D D F A$
\natural or \sim or B	(No other requirements)	$G G G E\flat B\flat G E\flat B\flat G$
(No requirement)	(No other requirements)	$B D A G A B D A$

Piano/Keyboard Reference

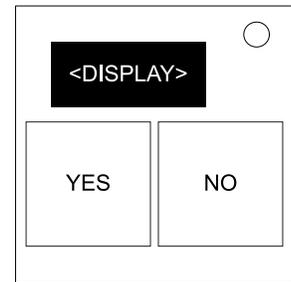
Use the following graphic as a reference to how tones are mapped onto a standard 12-note piano/keyboard.



On the Subject of Flashing Colors

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).

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.

Continuation of previous table...

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.

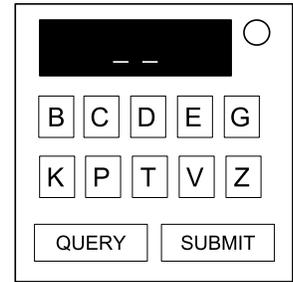
If the word Yellow is shown in Red color, press Yes on the last time Blue is used as the color of the word.

Otherwise, press No.

On the Subject of 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 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 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.

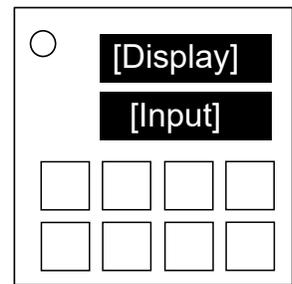
[Display]	<input type="radio"/>		
[Input]			
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

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 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!

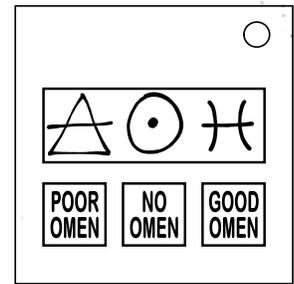
For example: =(+(translates to 1+1

The answer to enter is 2.

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

On the Subject of 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.

	☉	☾	♁	♂	♂	♃	♄	♅	♆	♇
△	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
♄	-1	-1	0	0	1	1	0	0	0	0	-1	-1
♅	-1	2	0	0	1	-2	1	0	2	-1	1	0
♆	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

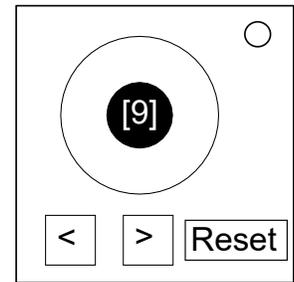
<u>Symbol</u>	<u>Zodiac</u>	<u>Symbol</u>	<u>Zodiac</u>	<u>Symbol</u>	<u>Zodiac</u>
	Aries		Leo		Sagittarius
	Taurus		Virgo		Capricorn
	Gemini		Libra		Aquarius
	Cancer		Scorpio		Pisces

On the Subject of 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.

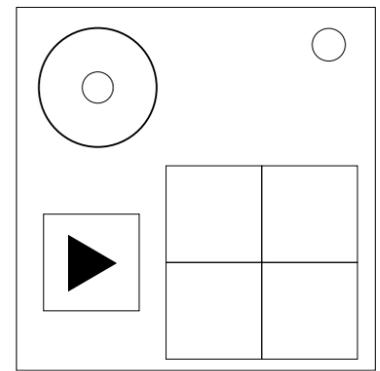
Third number:

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

On the Subject of 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.



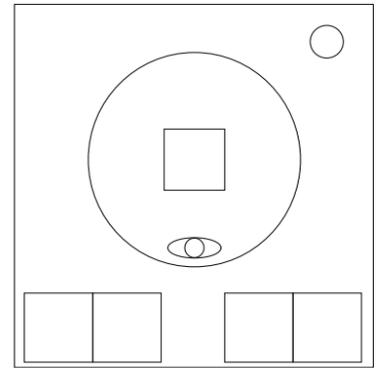
Taxi Dispatch	&&&**	Dial-up Internet	*#&*&
Cow	&\$#&	Police Radio Scanner	**###
Extractor Fan	\$#\$*&	Censorship Bleep	&&\$&*
Train Station	##\$**	Medieval Weapons	&\$**&
Arcade	\$##\$*	Door Closing	##\$&\$
Casino	**\$*#	Chainsaw	&#&&#
Supermarket	##\$&*	Compressed Air	\$*\$*\$*
Soccer Match	##*\$*	Servo 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	*#\$&&
Saxophone	\$&&**	Book Page Turning	###&\$
Tuba	#&\$##	Table Tennis	*\$\$&\$
Marimba	&*\$*\$	Squeaky 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.

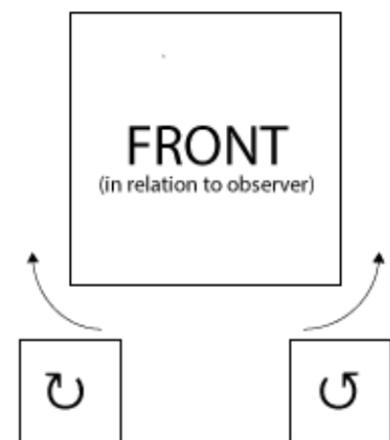
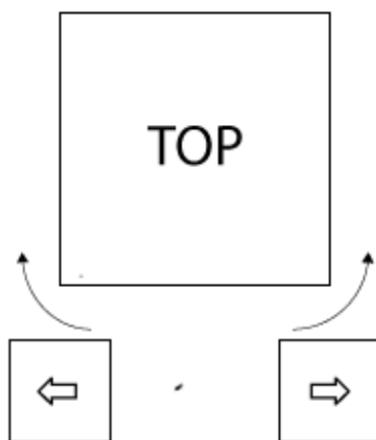
In order to diffuse this part of the bomb you will need good 3D orientation skills. A virtual cube needs to be rotated into a specific orientation using the four keys along the bottom. Unfortunately there is no display to indicate the current orientation of the virtual cube so you will have to imagine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

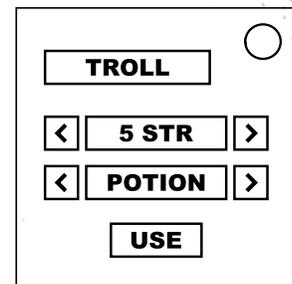
Rotate the cube so that the initial top face is in the same position as the initial left face, then press the SET button.

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 obersever is now in a different position.

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 ²	Force of gravity, in meters per second squared
101 kPa	Atmospheric pressure, in kilopascals

Item	Use if...
Balloon	Gravity is less than 9.3 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°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°C .
Ticket	The player is 4' 6" or taller, and gravity is at least 9.2 m/s^2 , and at most 10.4 m/s^2 .
Trophy	STR is greater than the first numeric digit of the serial number, or if fighting a Troll.

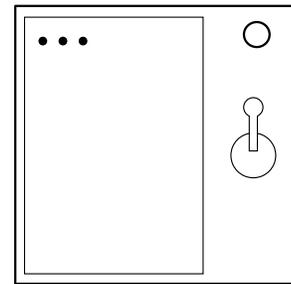
Enemy	STR	DEX	INT
Demon	50	50	50
Dragon	10	11	13
Eagle	4	7	3
Goblin	3	6	5
Golem	9	4	7
Troll	8	5	4
Lizard	4	6	3
Wizard	4	3	8

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 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 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 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 CHANGED, I DIDN'T KNOW THIS MOD COULD DO THAT. DOES IT MENTION THAT IN THE MANUAL?	8/7	THERE ARE THREE WORDS NO PUNCTUATION READY? STOP DOT PERIOD	5/0
ALL WORDS ONE THREE TO FOR FOR AS IN THIS IS FOR YOU	4/0	NOVEBMER OSCAR SPACE, LIMA INDIGO TANGO ECHO ROMEO ALPHA LIMA LIMA YANKEE SPACE NOVEMBER OSCAR TANGO HOTEL INDEGO NOVEMBER GOLF	2/9
LITERALLY NOTHING	1/4	FIVE WORDS THREE WORDS THE 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 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 ROMEO ROMEO OSCAR RISKY SPACE SIERRA YANKEE MIKE BRAVO OSCAR LIMA	1/2
THE FOLLOWING SENTENCE THE WORD 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 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 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

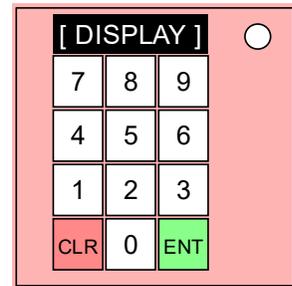
On the Subject of Number Pads

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 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 numbered buttons, take the first path.

If the numbered button 5 isn't blue or 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:

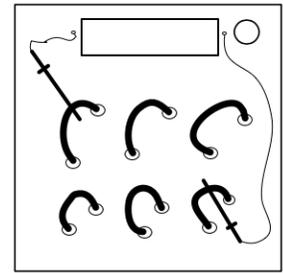
If there are 2 or fewer yellow numbered buttons, take the first path and add 1 to each digit (if a digit is 9, it becomes 0).

Otherwise, take the second path.

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.

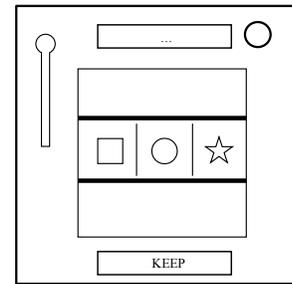
Leave the clips connected for at least six seconds to defuse. Leaving the incorrect wires connected for more than six seconds will cause a strike.

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

On the Subject of 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 Sasusage.
- 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 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.

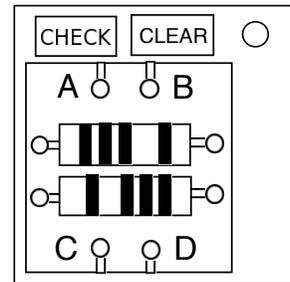
		Placeholder						
		Sassy	Silly	Soggy	Sally	Simon	Sausage	Steven
Key Word	Sassy	Blue	Red	Green	Cherry	Grape	Bomb	Coin
	Silly	Blue	Green	Red	Coin	Bomb	Grape	Cherry
	Soggy	Green	Blue	Red	Coin	Cherry	Bomb	Grape
	Sally	Red	Blue	Green	Grape	Cherry	Bomb	Coin
	Simon	Red	Green	Blue	Bomb	Grape	Cherry	Coin
	Sausage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

On the Subject of 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 Ω is calculated as follows:
 1. Take the first two digits of the bomb's serial number.
e.g. 2E7X19 → 27, ZJ3MLN → 3, ABCDEF → 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 0Ω 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**, 0Ω 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.

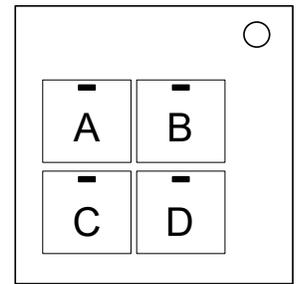
Color	First Band	Second Band	Multiplier
Black	0	0	1Ω
Brown	1	1	10Ω
Red	2	2	100Ω
Orange	3	3	$1,000\Omega$
Yellow	4	4	$10,000\Omega$
Green	5	5	$100,000\Omega$
Blue	6	6	$1,000,000\Omega$
Violet	7	7	$10,000,000\Omega$
Gray	8	8	—
White	9	9	—
Gold	—	—	0.1Ω
Silver	—	—	0.01Ω

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

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:

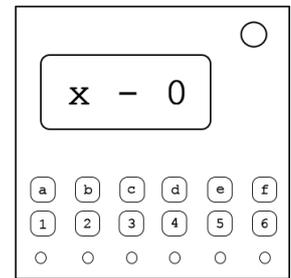
JQXZ	QEW	AC	ZNY	TJL
OKBV	DFW	YKQ	LXE	GS
VSI	PQJS	VCN	JR	IRNM
OP	QYDX	HDU	PKD	ARGF

On the Subject of Chess

Under pressure, chess can feel more like a game of battleships.

This module is based on a **6x6 chessboard** (referenced on the following page) and all figures follow the standard FIDE movement rules.

The chess module will present with a display and two rows of six buttons each.



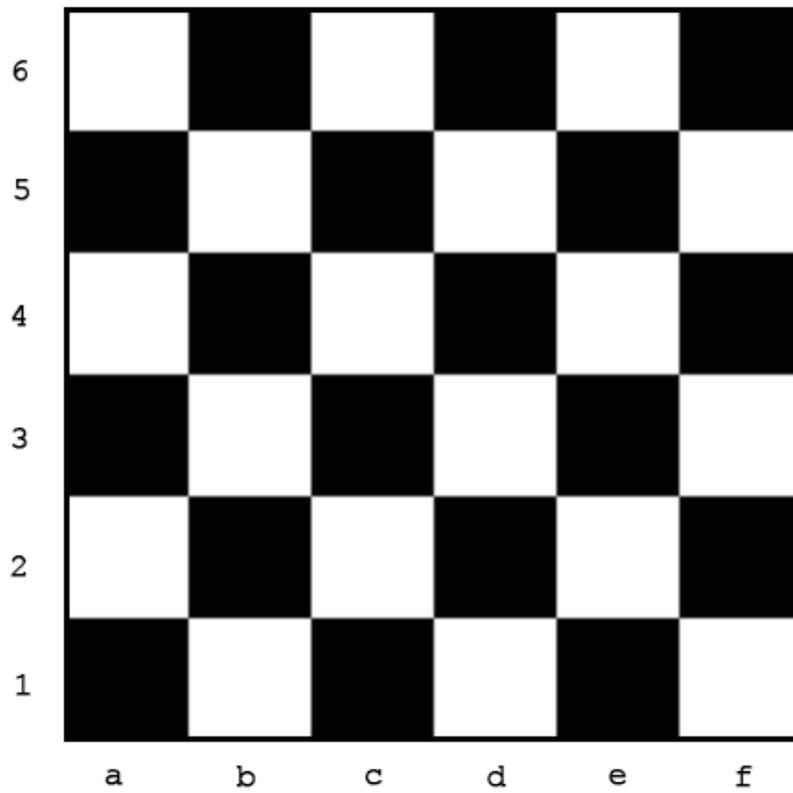
- There are six unique coordinates that represent six positions on the chessboard.
- Use the numbered keys in the bottom row to browse through the different coordinates. A green LED below the button will indicate the position of the currently selected coordinate.
- Using the reference table below, each position can be assigned a certain chess figure.
- The chess figures will cover 35 of the 36 possible fields with their combined movesets.
- All chess figures are colorless but can block each other's movement.
- Find the one field that isn't covered by any of the chess figures and enter the coordinate to defuse the module.
- To enter the coordinate, press the letter first, then the number. The LEDs will turn red to confirm the input of a solution.

Use this table as reference to determine the correct figure for each position:

<p><u>Position #1: Monarchy vs Theocracy</u> Occupied by a king if Position #5 is occupied by a queen. Otherwise, the field is occupied by a bishop.</p>
<p><u>Position #2: Commander of the Army</u> Occupied by a rook if the last digit of the serial number is odd. Otherwise, the field is occupied by a knight.</p>
<p><u>Position #3: A Matter of Regents</u> Occupied by a queen if there are less than two rooks on the board. Otherwise, the field is occupied by a king.</p>
<p><u>Position #4: The Iron Tower</u> Always occupied by a rook. <i>"Neither of two evils must thy strike claim; Instead smite the darkness between the same."</i></p>
<p><u>Position #5: Conflict between Good and Evil</u> Occupied by a queen if the field is white. Otherwise, the field is occupied by a rook.</p>
<p><u>Position #6: The Scepter, the Sword and the Crosier</u> Occupied by a queen if there are no other queens on the board. Otherwise, occupied by a knight if there are no other knights on the board. Otherwise, the field is occupied by a bishop.</p>

Chess Board Reference

Use the following graphic as a reference for the chess board layout



On the Subject of Logic

Logic, logic. That's an easy stuff but with the complexity of this bomb this may be harder than you think.

- Each row displays 3 letters. Each letter represents a statement.
- If ALL statements in the top row are true, that row is true.
- If ANY statement in the bottom row is true, that row is true.
- Use the T/F button to the right to select True/False.
- Press "Submit" when done.

○

∩ ∩

F

U U

F

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.

Letter	This letter is true if:	Letter	This letter is true if:
A	More than 2 batteries.	N	Exactly 1 battery.
B	Has Serial port.	O	No battery.
C	Has Parallel port.	P	Has RJ-45 port.
D	Serial number has vowel.	Q	Has DVI-D port.
E	Serial number doesn't have vowel.	R	More than 5 batteries.
F	Has Stereo RCA port.	S	Has SIG and CAR lit indicators.
G	Has CLR lit indicator.	T	Has at least 2 batteries and PS/2 port.
H	Has IND lit indicator.	U	Has serial and parallel port.
I	Less than 1 battery.	V	Has BOB lit indicator.
J	Has MSA lit indicator.	W	No letter in serial number.
K	Last digit of serial number is odd.	X	Has at least 4 port types.
L	Last digit of serial number is even.	Y	No lit indicator.
M	Has FRK lit indicator.	Z	Has RJ-45 port and Serial port.

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

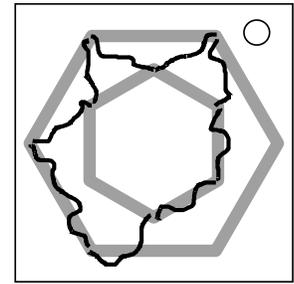
We need to *diffuse* this bomb quickly.

defuse

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 looping sequence. Each wire leads from one plug to the next plug that contains a wire in ascending numerical order. A wire leading from plug 1 is considered to be "wire 1".



Progress through the module by first determining the starting wire, then checking whether to cut each wire in 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.

Determine Start Position

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 start position is the plug containing a wire earliest in numerical order.

Cutting Wires

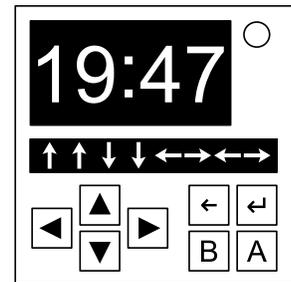
- Always cut the wire at the starting plug. Then progress to the next wire.
- From this position, cut the wires as directed by the steps in the following table. The starting step corresponds to the first letter in the serial number. If the serial number contains no letters, begin at step A.
- When progressing 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	Two of the previous three wires share a color.
F or S	Exactly one of the previous two wires are 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.

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 ($\blacktriangleleft\blacktriangle\blacktriangledown\blacktriangleright AB$), 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.

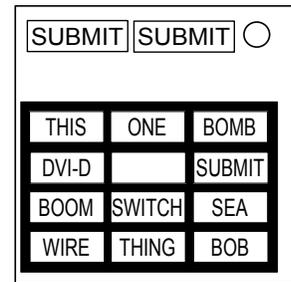
Global Overrides	
Apply all matches <u>after</u> determining the two commands.	<ul style="list-style-type: none"> • If $x = 11n$, switch the first keypress with the second, and the fifth with the seventh. • If $a = 1 + d$, switch the third and fourth keypresses, as well as the sixth and eighth. • If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

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

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.



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 word *submit* and *button* appear on buttons, press the correct submit button at the top.

Otherwise, if the word *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.

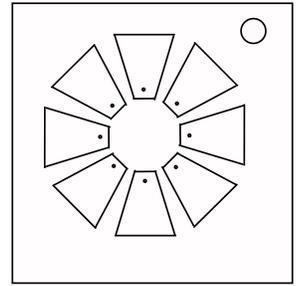
Otherwise, if the first button you pressed had the letter E in the word, the right submit is actually correct.

Lastly, press the correct submit button.

On the Subject of Round Keypads

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

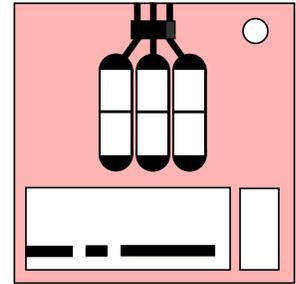
- The circular keypad contains 8 symbols from the columns below.
- Find the column below that contains the most symbols from the keypad.
- If two or more columns have the most symbols, use the right-most column.
- Press all buttons that have a symbol not present on the correct column.



Q	Э	©	б	Ψ	б
A	Q	ٲ	¶	ٲ	Э
λ	⊖	Ω	Ђ	Ђ	≠
4	Ω	Ж	ИЖ	С	æ
ИЖ	☆	3	Ж	¶	Ψ
κ	κ	λ	¿	3	Й
⊖	¿	☆	ٲ	★	Ω

On the Subject of Morsematics

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.

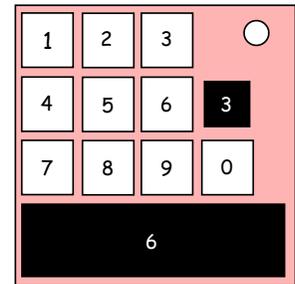
A	● —	U	● ● —
B	— ● ● ●	V	● ● ● —
C	— ● — ●	W	● — —
D	— ● ●	X	— ● ● —
E	●	Y	— ● — —
F	● ● — ●	Z	— — ● ●
G	— — ●		
H	● ● ● ●		
I	● ●		
J	● — — —		
K	— ● — —	1	● — — — —
L	● — ● ●	2	● ● — — —
M	— —	3	● ● ● — —
N	— ●	4	● ● ● ● —
O	— — —	5	● ● ● ● ●
P	● — — — ●	6	— ● ● ● ●
Q	— — ● —	7	— — ● ● ●
R	● — — ●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

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, the button for the displayed number for that stage turns green.

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.

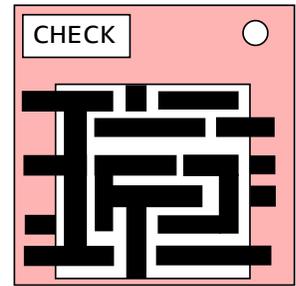
All other numbers:

- 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.

On the Subject of Plumbing

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

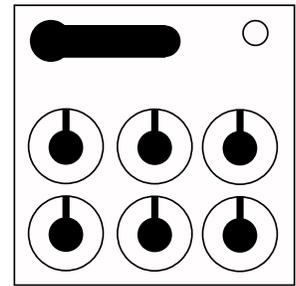
- The module has 4 input pipes (left) and 4 output pipes (right). At least one input pipe and one output pipe will be active.
- The defuser must connect all active input pipes to all active output pipes, whilst taking care not to connect inactive pipes, using the 6 by 6 grid of pipes. Clicking on a pipe 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.



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

On the Subject of the Safety Safe

This safe either contains immense riches, or is empty.



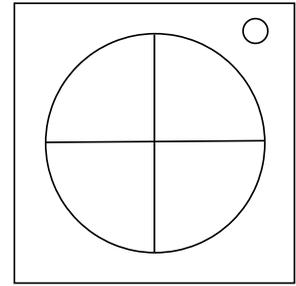
- All 6 dials must be oriented correctly to solve the module.
- Each dial has a tell, where it clicks louder. This is the starting location for each dial.
- Follow the rules below to determine how far to rotate each dial after the starting location.
- Turn the lever to check the solution. Any correct 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.



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

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.

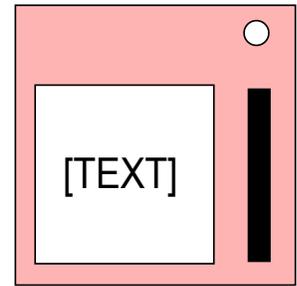
Stage 4

- 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 strip will light up on the right side of the module. 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.

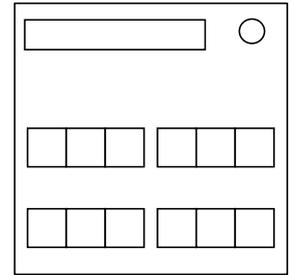
If the strip is flashing, follow these rules instead:

- **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 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.

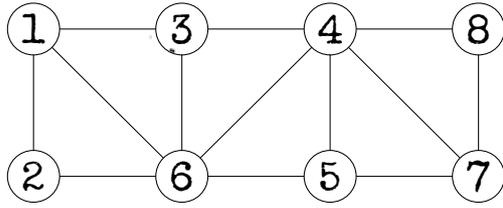
Otherwise, if there is **no "5"** on the module, look at the **fifth** character of the serial number.

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

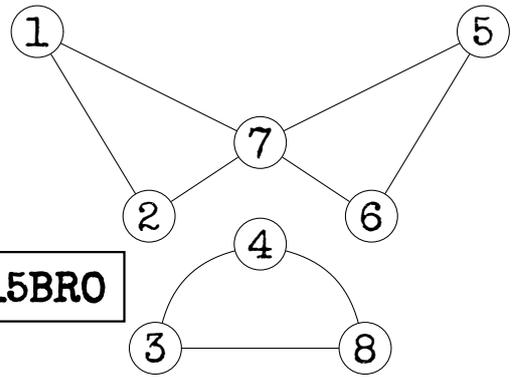
Otherwise, if there are **more than 6 batteries** or **no batteries** on the bomb, look at the **last** character of the serial number.

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.

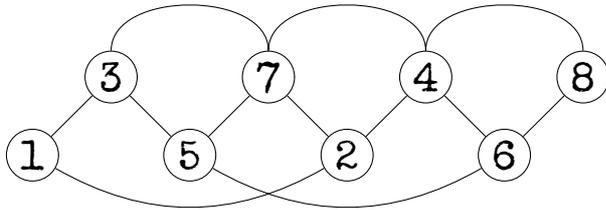
SLIM



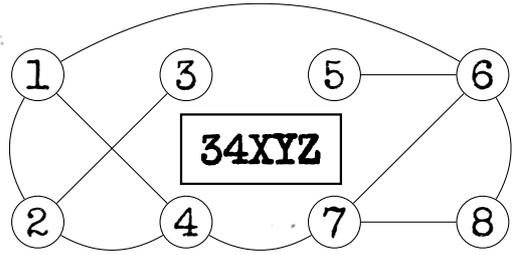
15BRO



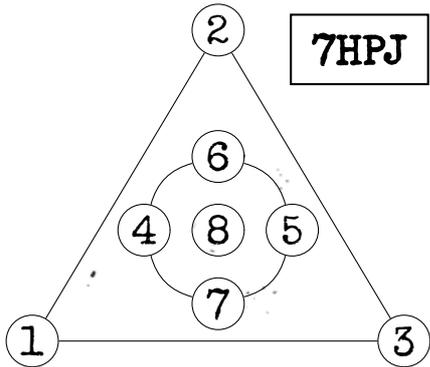
2ØDGT



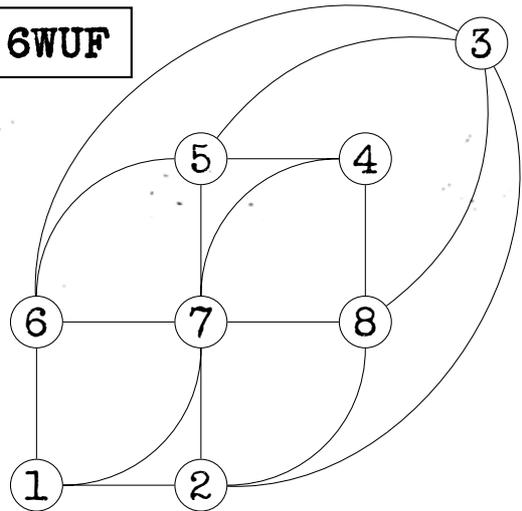
34XYZ



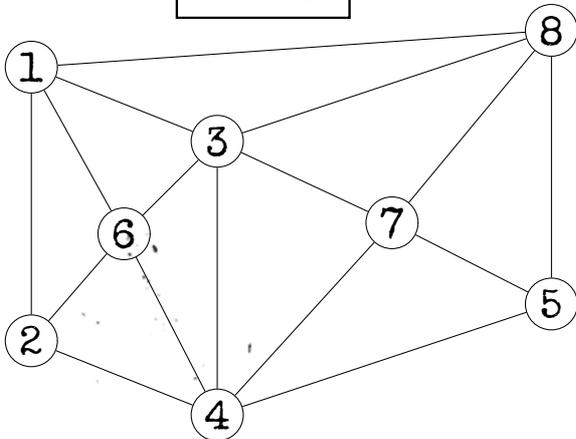
7HPJ



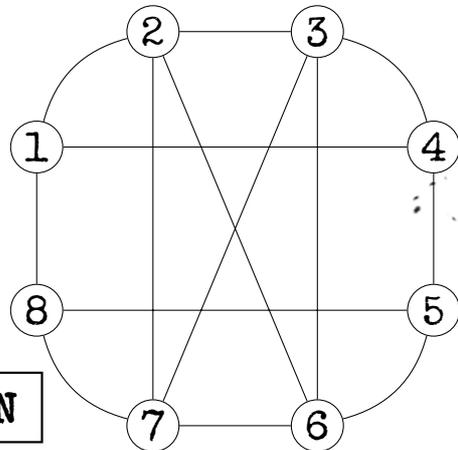
6WUF



8CAKE

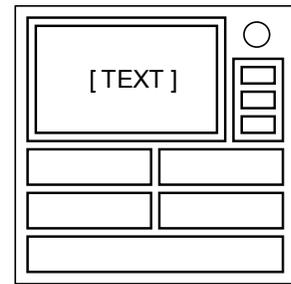


9QVN



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	EAEAEA	BEEDA
SEA SHELLS	ABABA	EAAEEA	DBEAC	ABDBAA
SEA SELLS	ACACEAC	DBAEC	EBDADAB	CECEC

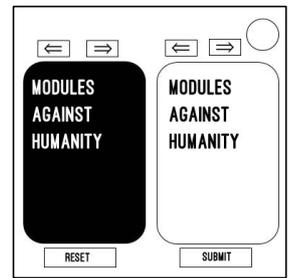
Table 2:

ON THE SEA SHORE	A = shoe D = sit	B = shih tzu E = sushi	C = she
ON THE SHE SORE	A = can D = 2	B = toucan E = cancan	C = tutu
ON THE SHE SURE	A = witch D = twitch	B = switch E = stitch	C = itch
ON THE SEESAW	A = burglar alarm D = burger	B = Bulgaria E = llama	C = armour

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.

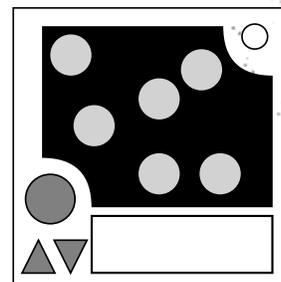
Pressing the reset button will return the module to the initial state.

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.

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 highest 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	

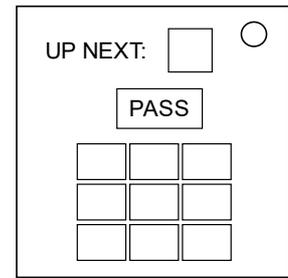
- | | | | |
|--------------------|-----------------------|---------------------|--------------------|
| A = Altruism | H = Conscientiousness | Q = Honesty | X = Resoluteness |
| B = Amicability | J = Consideration | R = Inspiration | Y = Selflessness |
| C = Authenticity | K = Courage | S = Kindness | 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 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.

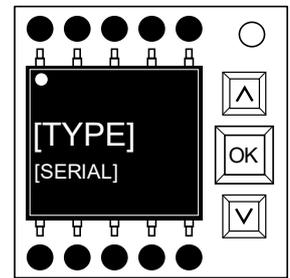
Upon a strike, the row resets to the initial starting row and the keypad displays the placed pieces and remaining numbers. All previous placements remain until the module is defused.

Table 1: Tic-tac-toe piece placement location chart

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

On the Subject of Microcontrollers

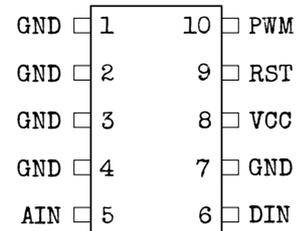
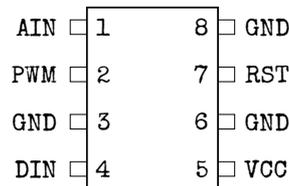
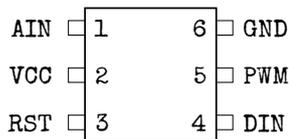
It's called "micro"-controller yet this thing in there is pretty big. Probably because it can cause a pretty big explosion...



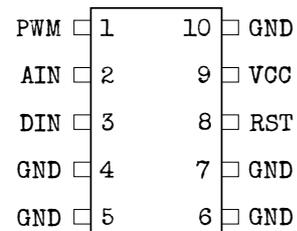
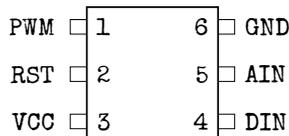
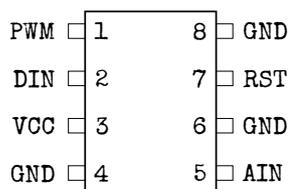
1. Use the controller's imprinted type and its size to determine its pin configuration with the diagrams below.
2. The white mark on the controller indicates where the pin with the number 1 is located. The other pins are in ascending order on the side with the number 1 and then continued backwards on 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

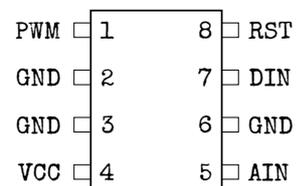
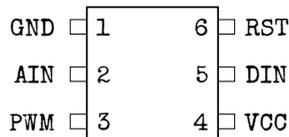
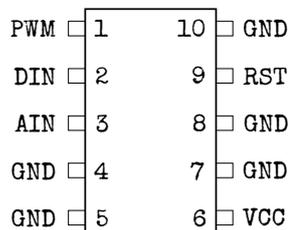
Strike (STRK) Controller:



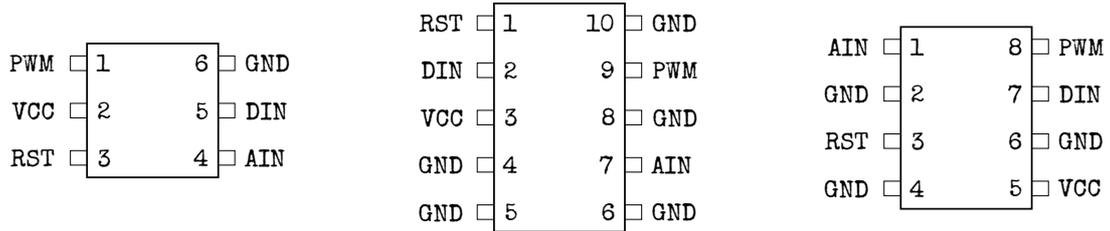
Diode (LEDS) Controller:



Countdown (CNTD) Controller:



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 G, 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 The Bulb

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

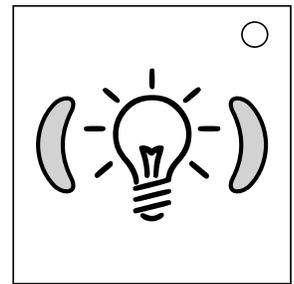
This module has two buttons labeled **I** and **O** and a light bulb, which is either see-through (translucent) or opaque, and is one of six colors: blue, green, purple, red, white or yellow.

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 and then continue.

Begin at step 1.

- 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.

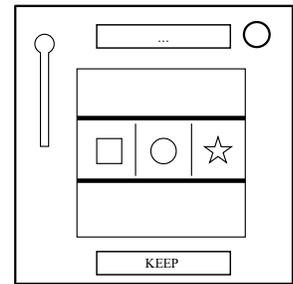


- Step 7**
- If the bulb is green, press **I**, remember SIG and go to **Step 11**.
 - If the bulb is purple, press **I**, then screw it back in and go to **Step 12**.
 - If the bulb is blue, press **O**, remember CLR and go to **Step 11**.
 - Otherwise, press **O**, then screw the bulb back in and go 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 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 Sasusage.
- 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 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 color, unless there has been a Soggy Sausage in any previous stage.
- All 3 slots are the same color, 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.

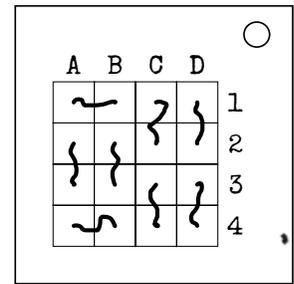
UNDERLINED words are placeholders, substitute them for the correct word using the matrix below and the keyword found on the module's display. This keyword changes when the lever is pulled.

		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 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.

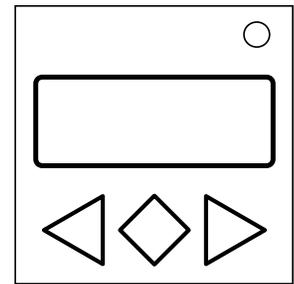


	Wire connected to C3 is				
	Black	Blue	Red	White	Yellow
Cut if color	is connected to:				
Yellow	D2	D1	D2	A2	D1
Blue	A2	C4	A1	C4	D4
White	D3	D2	D4	B3	B2
White	B2	C1	B4	A1	C1
Red	A1	B3	C4	B2	B3
Blue	C3	C2	C1	D3	B1
Black	B1	D4	A4	D2	B4
Red	C4	D3	B1	C1	C2
Yellow	A3	C3	A2	A4	A3
Yellow	D1	A1	B2	B4	A4

On the Subject of 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 illegal, then select the only legal position.



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, only one of which is legal. Use the middle button to submit your answer.

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.

To determine the illegal locations, first obtain a list of numbers as follows:

- Put each digit in the serial number on the list.
- For each indicator in alphabetical order, put a number on the list as indicated by Table 2. Add 1 to the number if the indicator is lit.
- Then, for each port in alphabetical order, put a number on the list as indicated by Table 3.
- Finally, put the number 2 on the list.

Now start with a blank grid of the size determined earlier. Mark off illegal cells as you go through the list. Start in the top left corner and advance from cell to cell in scanline order^[1]. If you reach the bottom right, wrap back to the top left. For each number in the list, count that many unmarked cells ignoring cells already marked off, then mark off the cell you land on. Move to the next unmarked cell and then move on to the next number in the list.

Finally, select the only legal grid location offered by the module. The locations may be notated in any of the formats listed in Table 5. The module may also describe locations using words such as “top”, “bottom”, “left”, “right”, “up”, “down”, “center”, “middle”, cardinal directions or clockface directions.

[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.

Table 1

Format	How to interpret
x	The number x is a product of two primes. The grid's width is the larger prime, the height the smaller.
(x)	Same as x , but width and height are swapped.
$x \times y$	x is the width, y the height of the grid.
x by y	x is the height, y the width of the grid.
$x * y$	x is the total size of the grid, y the height.
$x : y$	x is the total size of the grid, y the width.

Table 2

BOB	5	FRQ	2	SIG	4
CAR	4	IND	0	SND	1
CLR	2	MSA	3	TRN	3
FRK	1	NSA	0		

Table 3

DVI-D	5	RJ-45	3
Parallel	2	Serial	1
PS/2	0	Stereo RCA	4

Table 4

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

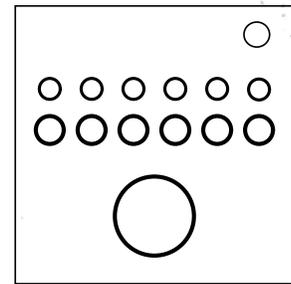
Table 5

$[x,y]$	Column, then row; top-left is $[0,0]$.
<i>letter number</i>	Column, then row; top-left is A1.
$\langle x, y \rangle$	Row, then column; top-left is $\langle 0, 0 \rangle$.
x, y	Row, then column; top-left is 1, 1.
(x,y)	Column, then row; bottom-left is $(0,0)$.
<i>letter-number</i>	Column, then row; bottom-left is A-1.
$"x, y"$	Row, then column; bottom-left is "0, 0".
x/y	Row, then column; bottom-left is 1/1.
$[x]$	Cell number in scanline order ^[1] ; top-left is $[0]$.
x th	Cell number in scanline order ^[1] ; top-left is 1st.
$\#x$	Cell number in Cartesian order ^[2] ; bottom-left is $\#1$.
四十七	Cell number in Chinese reading order ^[3] ; top-right is 一. See Table 4 for Chinese numerals reference. The example shown here represents the number 47.

On the Subject of Light Cycle

The name "blinkenlights" 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.
- 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 of the colors in your sequence.
- The correct sequence is what you are left with after those six swaps.

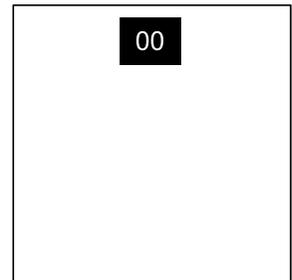
	A, B, C	D, E, F	G, H, I	J, K, L	M, N, O	P, Q, R	S, T, U	V, W, X	Y, Z, O	1, 2, 3	4, 5, 6	7, 8, 9
A	5/B	B/R	M/G	Y/5	4/1	R/W	6/4	1/6	2/3	3/M	G/Y	W/2
B	2/R	6/M	4/3	5/B	R/5	Y/2	1/G	M/Y	W/6	3/4	B/W	G/1
C	M/Y	2/4	Y/R	3/5	W/2	G/B	1/W	R/3	5/G	4/6	B/M	6/1
D	5/6	6/3	1/4	M/2	R/Y	2/M	W/R	B/G	Y/W	3/B	G/1	4/5
E	B/R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

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.

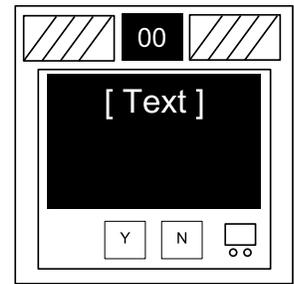
Stay observant: needy modules may reactivate at any time.



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.

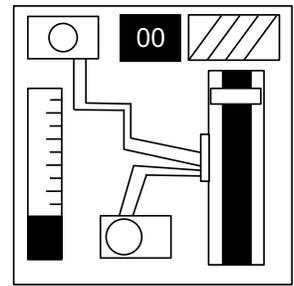
- Respond to the computer prompts by pressing "Y" for "Yes" or "N" for "No".



On the Subject of Capacitor Discharge

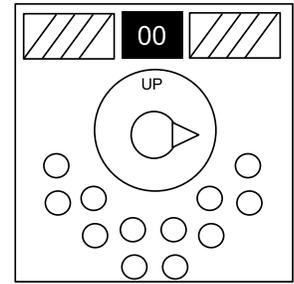
I'm going to guess that this is just meant to occupy your attention, because otherwise this is some shoddy electronics work.

- 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 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.

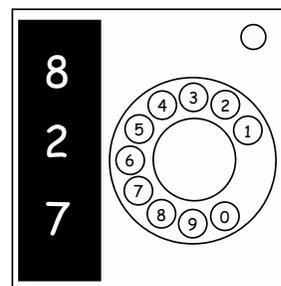
Answer the question. Enter the numbers with the keypad and press '=' to submit your answer. Use '-' to toggle the sign. Don't blow up!

/ / / /	00	/ / / /	
1	2	3	0
4	5	6	-
7	8	9	=

On the Subject of Rotary Phones

Hello, this is emergency services, please hold...

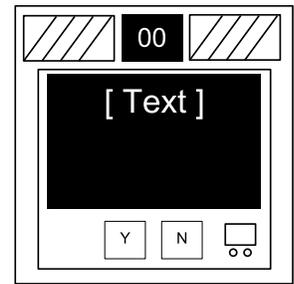
- The display will show 3 numbers, top to bottom, representing a single 3-digit number.
- Whenever the module activates, these numbers will change.
- Add the new number to the old one, take the 3 least significant digits, and enter the resulting number. This number is now your old number.
- If you gain 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".



Appendix A: Indicator Identification Reference

Labelled indicator lights can be found on the sides of the bomb casing.

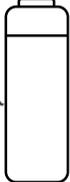


Common Indicators

- SND
- CLR
- CAR
- IND
- FRQ
- SIG
- NSA
- MSA
- TRN
- BOB
- FRK

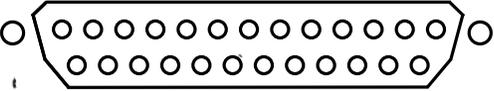
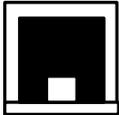
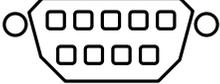
Appendix B: Battery Identification Reference

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: 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.

their: belonging to them; there: that place; they're: they are
your: belonging to you; you're: you are
I, he, she, we, they: used in subjects; me, him, her, us, them: used in objects
less: used with uncountable nouns; fewer: used with countable nouns
who: used in subjects; whom: used in objects
defiantly: rebelliously; definitely: without doubt
lead: the metal or the present tense; led: the past tense and past participle
cite: declare a quoted source; site: location; sight: a view or vision
When you don't lay something else down, you lie down. The past tense of <u>lay</u> is laid . Confusingly, the past tense of <u>lie</u> is lay !
Literally means <u>word for word</u> . If you had "literally died" watching a video, your family and friends would be crying at your funeral about now.
If you write "should of ", "could of ", "would of ", or "might of ", no educated gentleman will take you seriously. Remember, "I <u>do</u> " is to "I <u>have done</u> " as "I could <u>do</u> " is to "I could <u>have done</u> ". (Exceptions apply, but very <u>very</u> rarely!)
its: belonging to it; it's: it is
capital: main city in a territory, money you put up to borrow something, or THIS KIND OF LETTER; capitol: big building, usually in a <u>capital</u>
affect: usually a verb, but noun when it means "display of emotion"; effect: almost always a noun; impact: physical force
i.e.: short for Latin <i>id est</i> , or "that is"; e.g.: short for Latin <i>exempli gratia</i> , or "for example"
peak: summit; peek: sneak a look; perch: excite (usually interest)
allot: partition; a lot: very much; alot: (never correct)
lose: opposite of gain; loose: opposite of tight
than: (used to compare two things); then: at the time, or right after that
complement: when two parts complete each other; compliment: You look good today!
farther: physical distance; further: figurative distance
number: used for countable nouns; amount: used for uncountable nouns

Appendix: Grammar (Cont'd)

to: used in infinitives or destination; too: as well, or overly; two: 2
accept: This is fine; except: One of these things is not like the others
threw: past tense of "throw"; through: in at one side/end and out at the other
defuse: stop a bomb; diffuse: light softening out. Use "defuse" for tension.
statue: monument; stature: body height; statute: code of law
stationary: completely still; stationery: writing utensils
by: beside, from the mind of, etc.; buy: trade money for goods; bye: see you later
breath: the noun; breathe: the verb
drink: present tense; drank: past tense; drunk: past participle and adjective
discreet: <u>secret</u> or carefully subtle; discrete: <u>separate</u>
seas: plural of sea; sees: a form of "to see"; seize: to grab or take by force; O's: more than one O
weather: condition of the outside air; whether: if it is or if it isn't
raise: to make something go up; rays: narrow beams of light; raze: get rid of hair with a razor, or similarly destroy a wide area
wander: frolic; wonder: ponder
die: stop living, or a small cube for randomness; dice: more than one die
meat: flesh; meet: to see someone else; mete: to deal out something unpleasant
palate: roof of your mouth; palette: board to mix paint on, or a combination of colors; pallet: plates that cargo gets placed on
In this module, racket: a loud noise; racquet: a netted stick or paddle with which to hit a ball. (Especially in US English, racket can be used for both senses.)
perfect: 100% good or correct; prefect: 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.

Appendix Math Concepts: 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.