



SORTED A-Z

BOMB DEFUSAL MANUAL

Version 1

by Rexkix

On the Subject of 3D Maze

You are in a maze of twisty passages, all alike. Exits are to the north, south, east, and west.

- The defuser starts in a random position and orientation in one of the ten mazes below.
- Locate the defuser using a 3D view of the maze walls, which also shows the symbol on the floor of the current space, and if there is a symbol in the space ahead.
- The maze map is cyclic; moving off one of the edges will take the defuser to the space on the opposite side, provided there is no wall in between the space.
- One of the walls is the goal, the rest will cause strikes if moved into.
- To defuse the module, locate the goal wall, and move through it from either side.
- Using the methods below, calculate a row (0-7), a column (0-7), and a direction; the goal wall will be the first wall from these coordinates in the given direction.



Row:

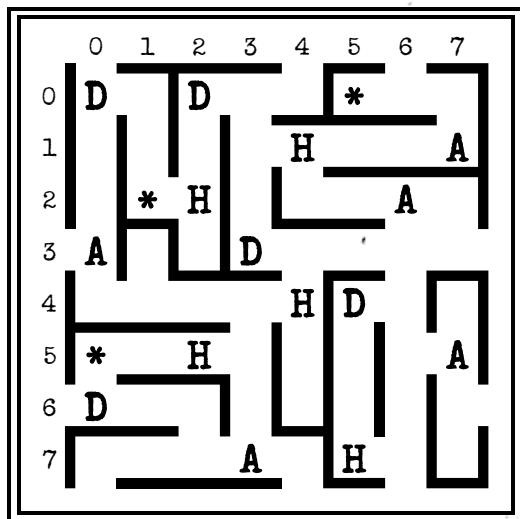
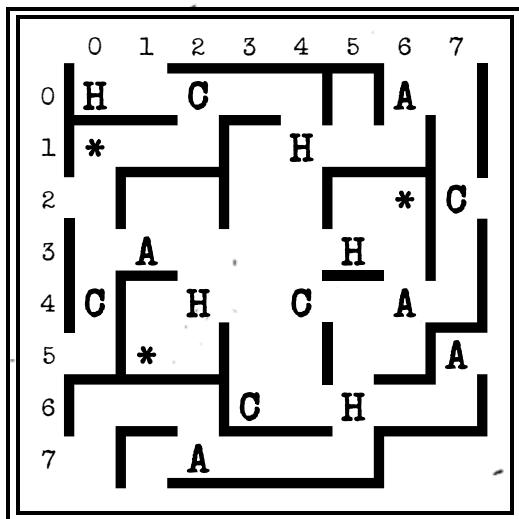
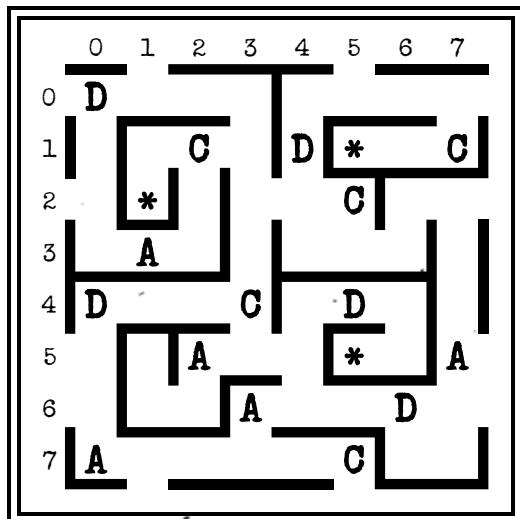
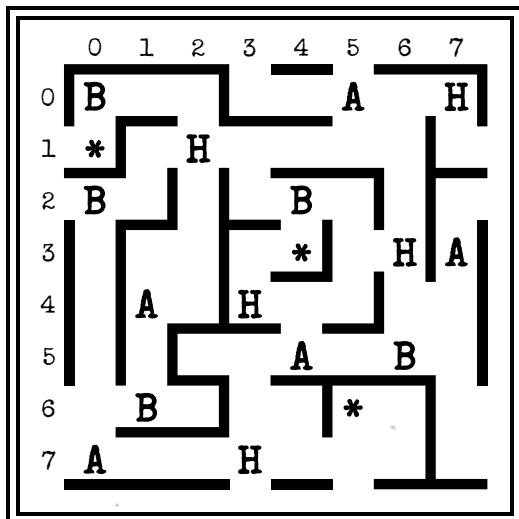
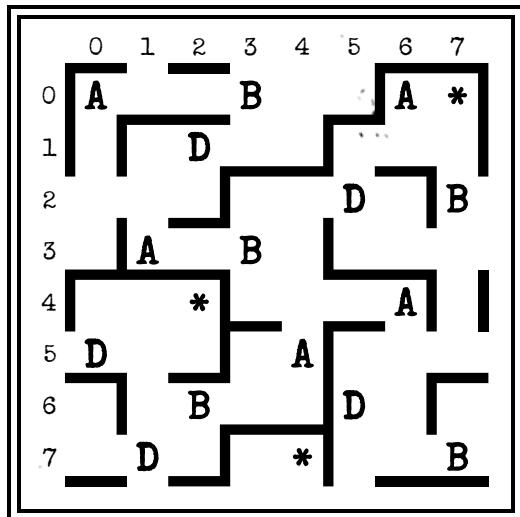
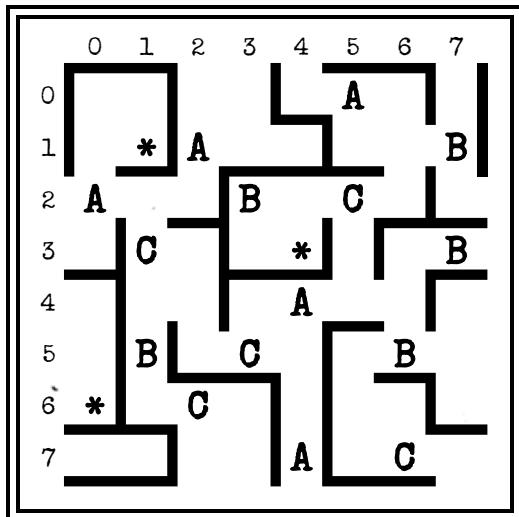
- Start with the first numeric digit in the serial number.
- Add 1 for every unlit indicator with a letter in "MAZE GAMER".
- If the row number is greater than 7, subtract 8.

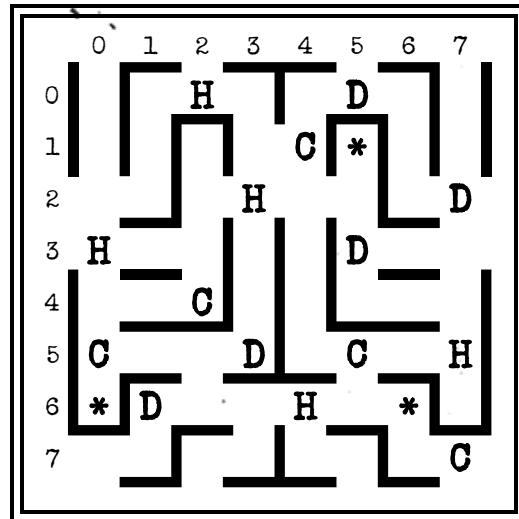
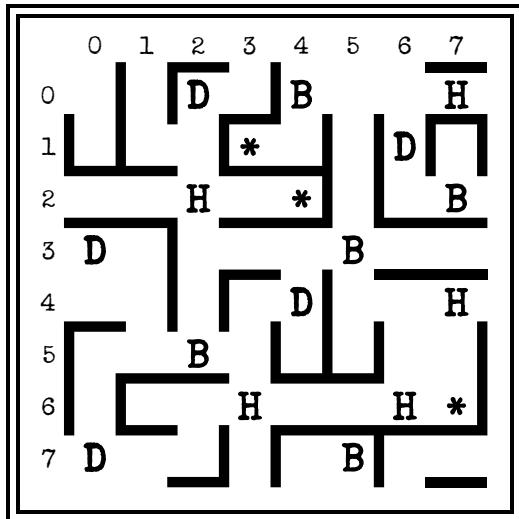
Column:

- Start with the last numeric digit in the serial number.
- Add 1 for every lit indicator with a letter in "HELP IM LOST".
- If the column number is greater than 7, subtract 8.

Direction:

- Each maze contains three star icons marked on the map.
- On the floor in each of these locations is a letter, which maps to the direction to the goal wall: "N" becomes North, "S" becomes South, "E" becomes East, and "W" becomes West.
- Beware of letters not in these marked locations, they carry incorrect decoy instructions!

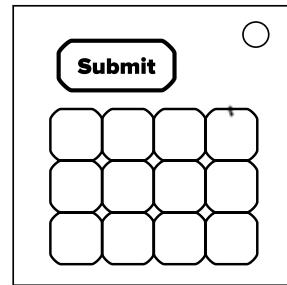




On the Subject of Adjacent Letters

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

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



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

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

On the Subject of 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 Alphabet

Can you speak English? Do you know the alphabet? Then you should be okay.

1. Use the four lettered buttons to spell a word from the word bank below.
2. Spell the longest word with the letters given by pressing the lettered buttons.
3. A letter can only be used once to spell a word.
4. If multiple words can be spelled, spell the word that comes first in alphabetical order, then the next one if there are enough remaining letters.
5. If no more words can be spelled, press the remaining buttons in alphabetical order.



Word Bank:

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

On the Subject of 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 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 Astrology

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

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



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

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

	♈	♉	♊	♋	♌	♍	♎	♏	♐	♑	♒	♓	♓
●	-1	-1	2	0	-1	0	-1	1	0	0	-2	-2	
☽	-2	0	1	0	2	0	-1	1	2	0	1	0	
♀	-2	-2	-1	-1	1	-1	0	-2	0	0	-1	1	
♀	-2	2	-2	0	0	1	-1	0	2	-2	-1	1	
♂	-2	0	-1	-2	-2	-2	-1	1	1	1	0	-1	
‡	-1	-2	1	-1	0	0	0	1	0	-1	2	0	
ℏ	-1	-1	0	0	1	1	0	0	0	0	-1	-1	
♓	-1	2	0	0	1	-2	1	0	2	-1	1	0	
Ѱ	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 Bitmaps

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

- A combination of 64 pixels will appear on the grid.
- Each pixel can be black or white.
- There are 4 buttons underneath the grid labeled 1, 2, 3, and 4.
- Figure out which button to press by follow the steps below.



1. If the majority of the pixels on the top half of the grid are black, press '2'.
2. Otherwise, if the majority of the pixels on the **entire** grid are white, press '4'.
3. Otherwise, if the majority of the pixels on the bottom half of the grid are white, press '1'.
4. Otherwise, if there are 16 or fewer white pixels on the right side of the grid, press '2'.
5. Otherwise, if the majority of the pixels on the top left of the grid are white, press '3'.
6. Otherwise, if there are 17 or more black pixels on the left side of the grid, press '1'.
7. Otherwise, if the serial number contains a vowel, press '3'.
8. Otherwise, if there are 3 or more batteries on the bomb, press '4'.
9. Otherwise, press '2'.

On the Subject of the Blind Alley

What? Where?

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



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

On the Subject of Broken Buttons

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

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

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

Rules:

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

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

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

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

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

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

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

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

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

Otherwise, if the 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.

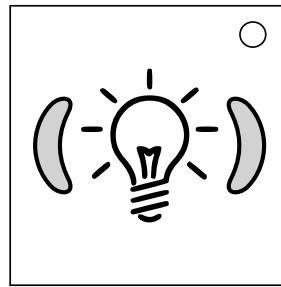
Otherwise, if the first button you pressed had the letter E in the word, the right submit is actually correct.

Lastly, press the correct submit button.

On the Subject of 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.

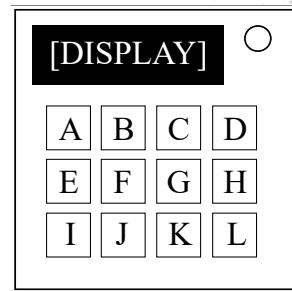
Step 6 • If the bulb went off when you pressed **I**, press the button that you pressed in Step 1, then screw the bulb back in.
• Otherwise, press the button that you pressed in Step 2 or 3, then screw the bulb back in.

- 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 Caesar Cipher

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

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



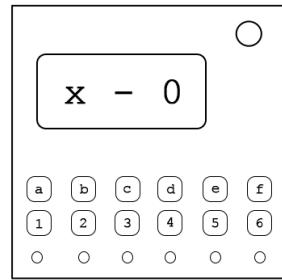
For example: if the offset is -2, **D** becomes **B** and **L** becomes **J**. The table below can be used to calculate the required offset. If the offset column contains an = sign, that value should be used, regardless of other rules that apply.

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

On the Subject of 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.

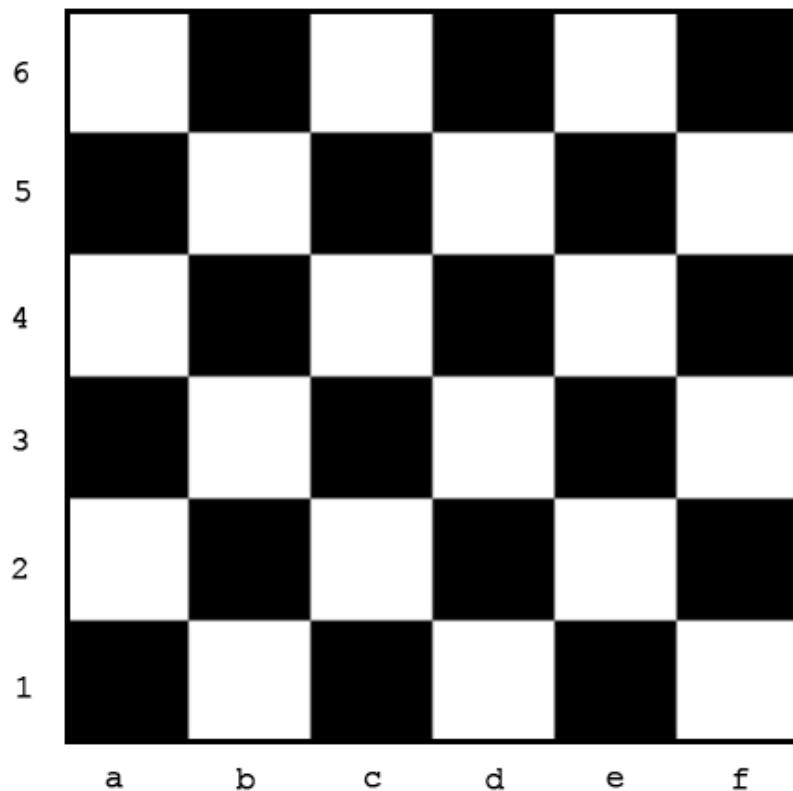
- There are six unique coordinates that represent six positions on the chessboard.
- Use the numbered keys in the bottom row to browse through the different coordinates. A green LED below the button will indicate the position of the currently selected coordinate.
- Using the reference table below, each 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>Position #1: Monarchy vs Theocracy</p> <p>Occupied by a king if Position #5 is occupied by a queen. Otherwise, the field is occupied by a bishop.</p>
<p>Position #2: Commander of the Army</p> <p>Occupied by a rook if the last digit of the serial number is odd. Otherwise, the field is occupied by a knight.</p>
<p>Position #3: A Matter of Regents</p> <p>Occupied by a queen if there are less than two rooks on the board. Otherwise, the field is occupied by a king.</p>
<p>Position #4: The Iron Tower</p> <p>Always occupied by a rook.</p> <p><i>"Neither of two evils must thy strike claim; Instead smite the darkness between the same."</i></p>
<p>Position #5: Conflict between Good and Evil</p> <p>Occupied by a queen if the field is white. Otherwise, the field is occupied by a rook.</p>
<p>Position #6: The Scepter, the Sword and the Crosier</p> <p>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

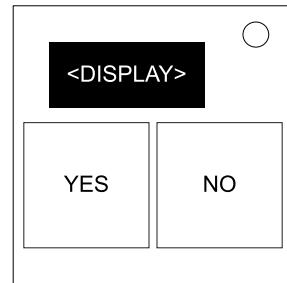
Use the following graphic as a reference for the chess board layout



On the Subject of Color Flash

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

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



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

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

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

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

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

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

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

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

Continuation of previous table...

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Otherwise, press No.

On the Subject of Colored Squares

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

- Press all squares in the correct group to progress the module.
- Pressing a square will cause it to light up white. Light all squares to disarm the module.
- Press the color group containing the fewest squares to begin, then use the table to determine the next group to press in each stage.
- “Group” refers to all squares of a particular color, or all unlit squares in the topmost row or leftmost column containing unlit squares.
- Pressing an incorrect square will result in a strike and reset the module.
- Lit squares will remain lit for the duration of the module, but unlit squares may change color in each stage.

Color	Color	Color	Color
Color	Color	Color	Color
Color	Color	Color	Color
Color	Color	Color	Color

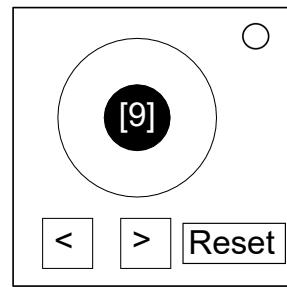
Currently Lit Squares	Previous Group of Squares Pressed						
	Red	Blue	Green	Yellow	Magenta	Row	Column
1	Blue	Column	Red	Yellow	Row	Green	Magenta
2	Row	Green	Blue	Magenta	Red	Column	Yellow
3	Yellow	Magenta	Green	Row	Blue	Red	Column
4	Blue	Green	Yellow	Column	Red	Row	Magenta
5	Yellow	Row	Blue	Magenta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

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.

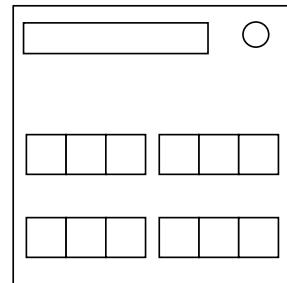
Third number:

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

On the Subject of Connection Check

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

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



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

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

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

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

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

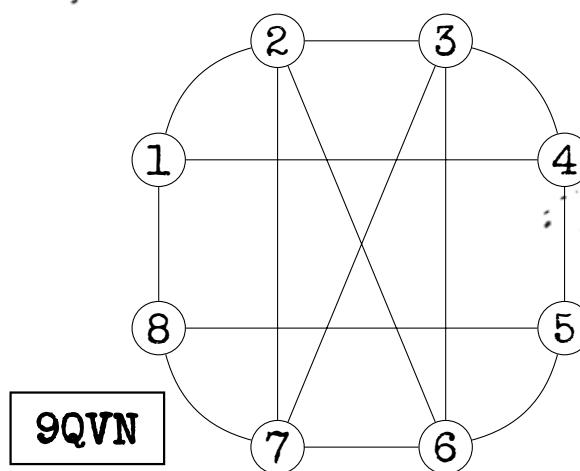
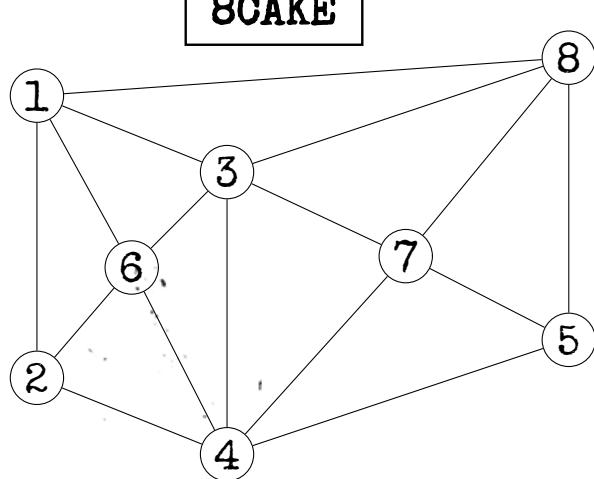
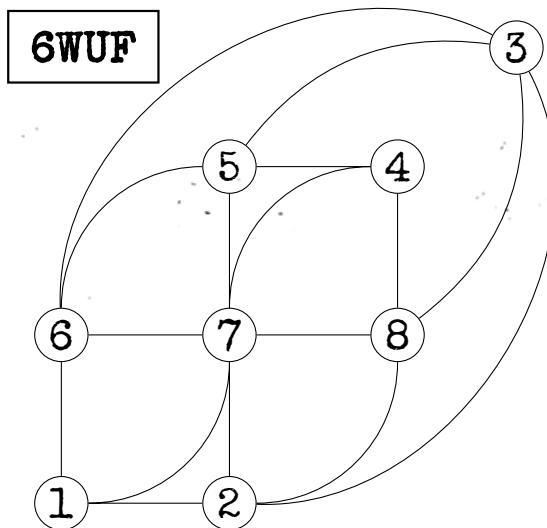
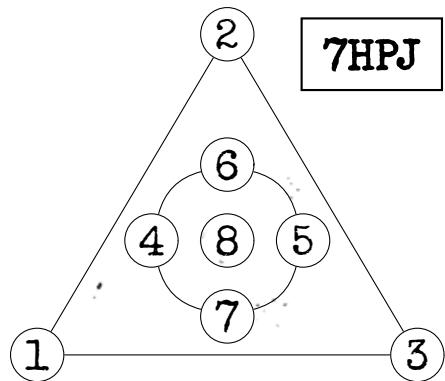
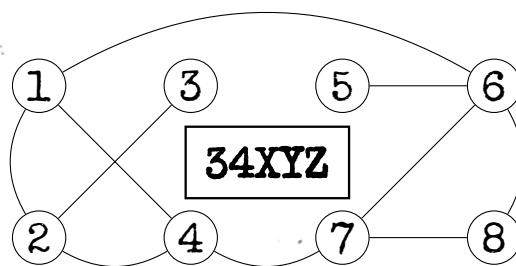
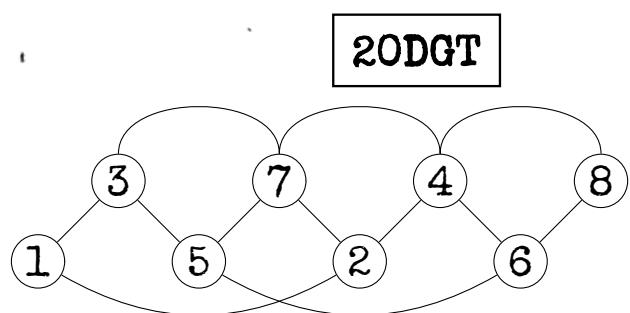
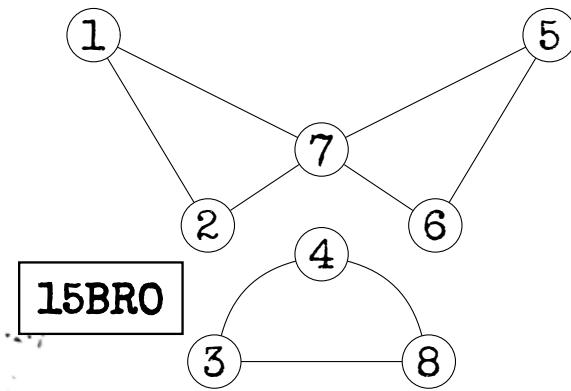
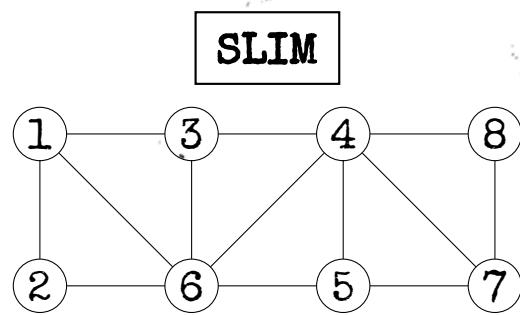
Otherwise, if there are **at least three "2"** on the module, look at the **second** character of the serial number.

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

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

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

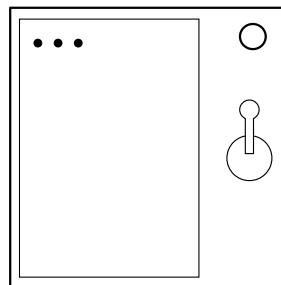
Otherwise, **count the number of batteries** on the bomb. Use that number to decide which character of the serial number you should look at. E.g.: if there are 3 batteries, look at the third character of the serial number.



On the Subject of 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	NOVEMBER 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 Cryptography

WLMY ETGXFD EQCD ED PQKW WT CMFF EZYDFB.

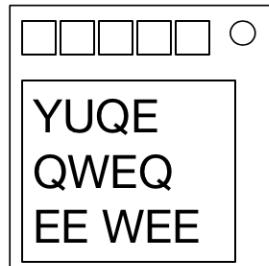
SEE APPENDIX CD43 FOR AN EXCERPT OF "A CHRISTMAS CAROL".

SEE APPENDIX CD44 FOR FREQUENT LETTERS AND WORDS.

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

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

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



APPENDIX CD43

Excerpt from Charles Dickens' "A Christmas Carol".

Scrooge knew he was dead? Of course he did. How could it be otherwise? Scrooge and he were partners for I don't know how many years. Scrooge was his sole executor, his sole administrator, his sole assign, his sole residuary legatee, his sole friend, and sole mourner. And even Scrooge was not so dreadfully cut up by the sad event, but that he was an excellent man of business on the very day of the funeral, and solemnised it with an undoubted bargain. The mention of Marley's funeral brings me back to the point I started from. There is no doubt that Marley was dead. This must be distinctly understood, or nothing wonderful can come of the story I am going to relate. If we were not perfectly convinced that Hamlet's Father died before the play began, there would be nothing more remarkable in his taking a stroll at night, in an easterly wind, upon his own ramparts, than there would be in any other middle-aged gentleman rashly turning out after dark in a breezy spot -- say Saint Paul's Churchyard for instance -- literally to astonish his son's weak mind.

Scrooge never painted out Old Marley's name. There it stood, years afterwards, above the warehouse door: Scrooge and Marley. The firm was known as Scrooge and Marley. Sometimes people new to the business called Scrooge Scrooge, and sometimes Marley, but he answered to both names. It was all the same to him.

Oh! But he was a tight-fisted hand at the grind-stone, Scrooge! A squeezing, wrenching, grasping, scraping, clutching, covetous, old sinner! Hard and sharp as flint, from which no steel had ever struck out generous fire; secret, and self-contained, and solitary as an oyster. The cold within him froze his old features, nipped his pointed nose, shrivelled his cheek, stiffened his gait; made his eyes red, his thin lips blue and spoke out shrewdly in his grating voice. A frosty rime was on his head, and on his eyebrows, and his wiry chin. He carried his own low temperature always about with him; he iced his office in the dogdays; and didn't thaw it one degree at Christmas.

External heat and cold had little influence on Scrooge. No warmth could warm, no wintry weather chill him. No wind that blew was bitterer than he, no falling snow was more intent upon its purpose, no pelting rain less open to entreaty. Foul weather didn't know where to have him. The heaviest rain, and snow, and hail, and sleet, could boast of the advantage over him in only one respect. They often 'came down' handsomely, and Scrooge never did.

Nobody ever stopped him in the street to say, with gladsome looks, 'My dear Scrooge, how are you? When will you come to see me?' No beggars implored him to bestow a trifle, no children asked him what it was o'clock, no man or woman ever once in all his life inquired the way to such and such a place, of Scrooge. Even the blind men's dogs appeared to know him; and when they saw him coming on, would tug their owners into doorways and up courts; and then would wag their tails as though they said, 'No eye at all is better than an evil eye, dark master!'

But what did Scrooge care! It was the very thing he liked. To edge his way along the crowded paths of life, warning all human sympathy to keep its distance, was what the knowing ones call 'nuts' to Scrooge.

APPENDIX CD44Word and Letter Frequency in Charles Dickens' "A Christmas Carol".Frequent 2 letter words

- 16x TO
- 11x NO
- 10x HE
- 9x IN
- 8x OF
- 7x IT

Frequent 3 letter words

1. 23x AND
2. 22x THE
3. 22x HIS
4. 14x WAS
5. 11x HIM
6. 4x OUT

Frequent 4 letter words

1. 6x SOLE
2. 4x THAT

Frequent 5 letter words

1. 4x THERE
2. 4x WOULD

Frequent 6 letter words

1. 4x MARLEY

Frequent 7 letter words

1. 12x SCROOGE

Frequent 8 letter words

1. 2x BUSINESS

Frequent 9 letter words

1. 2x SOMETIMES

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 English Tests

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

...Oh, carp.

See Appendix: Grammar for more information.

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

Question 1/3

We need to *diffuse* this bomb quickly.

diffuse defuse



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 lay is laid . Confusingly, the past tense of lie is lay !
Literally means word for word . 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 do ” is to “I have done ” as “I could do ” is to “I could have done ”. (Exceptions apply, but very very 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 capital
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 grātiā</i> , or “for example”
peak: summit; peek: sneak a look; pique: 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: separate
seas: plural of sea; sees: a form of "to see"; seize: to grab or take by force; C's: more than one C
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

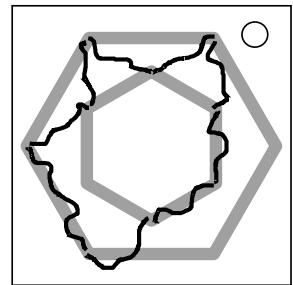
Other pairs/sets of words include: ad/add, aloud/allowed, altar/alter, arc/ark, baited/bated, base/bass, blew/blue, brake/break, carat/caret/carrot/karat, ceiling/sealing, cent/scent/sent, cereal/serial, choral/coral/corral, coarse/course, creak/creek, dear/deer, discussed/disgust, elicit/illicit, everyday/every 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.

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 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.

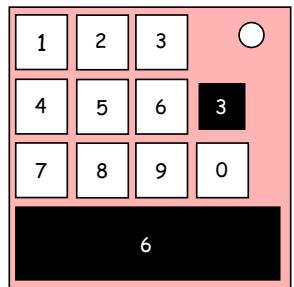
[4]: In the case the converted currency is less than 10, the noted number is 0.

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

On the Subject of 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.

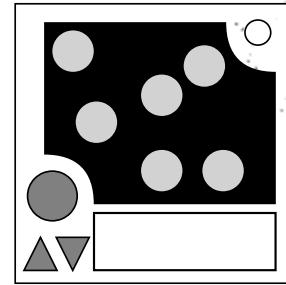
All other numbers:

- 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.

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

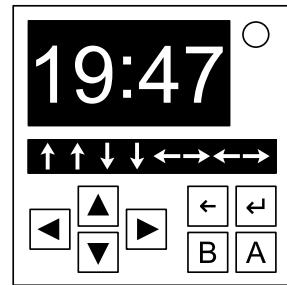
W = Patience

9 = Thoughtfulness

On the Subject of the Gamepad

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

See Appendix MathConcepts: Mathematical Concepts for more information.



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

Global Overrides	
Apply all matches <u>after</u> determining the two commands.	<ul style="list-style-type: none"> 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	$\blacktriangle\blacktriangledown\blacktriangleright\blacktriangleright$
$x = 12n$	$\blacktriangle A \blacktriangleleft\blacktriangleleft$
$a+b = 10$ AND last digit of serial number is odd	$AB \blacktriangle\blacktriangleright$
$x = 6n + 3$ OR $x = 10n + 5$	$\blacktriangledown\blacktriangleleft A \blacktriangleright$
$x = 7n$ AND $y \neq 7n$	$\blacktriangle\blacktriangleleft\blacktriangle A B$
$x = c \times d$	$A\blacktriangle\blacktriangleleft\blacktriangle$
x is a perfect square	$\blacktriangleright\blacktriangleright A \blacktriangledown$
$x = 3n - 1$ OR bomb has unlit ind. labeled SND	$\blacktriangleright A B A$
$60 \leq x < 90$ AND bomb has no batteries	$BB \blacktriangleright\blacktriangleleft$
$x = 6n$	$ABA \blacktriangleright$
$x = 4n$	$\blacktriangledown\blacktriangledown\blacktriangleleft\blacktriangle$
else	$A\blacktriangle\blacktriangleleft B \blacktriangleright$
	y is prime
	$\blacktriangle\blacktriangleright\blacktriangle\blacktriangleright$
	$y = 8n$
	$\blacktriangledown\blacktriangleright B A$
	$c-d = 4$ AND bomb has a Stereo RCA
	$\blacktriangleright A \blacktriangledown\blacktriangledown$
	$y = 4n + 2$ OR bomb has lit ind. labeled FRQ
	$B A \blacktriangleright A$
	$y = 7n$ AND $x \neq 7n$
	$\blacktriangle\blacktriangleleft\blacktriangle A,$
	y is a perfect square
	$\blacktriangle\blacktriangledown B \blacktriangleright$
	$y = a \times b$
	$A\blacktriangle\blacktriangleleft\blacktriangle$
	$y = 4n - 1$ OR bomb has a PS/2 port
	$\blacktriangle B B B$
	$c > d$ AND bomb has 2 or more batteries
	$AA\blacktriangle\blacktriangledown$
	$y = 5n$
	$B A B \blacktriangleleft$
	$y = 3n$
	$\blacktriangleright\blacktriangle\blacktriangle\blacktriangle$
	else
	$B\blacktriangle A \blacktriangledown$

Appendix MathConcepts: Mathematical Concepts

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

Prime Numbers

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

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

Perfect Squares

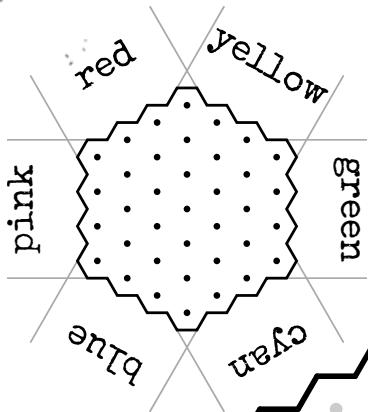
A perfect square is any whole number multiplied by itself.

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

Highly Composite Numbers

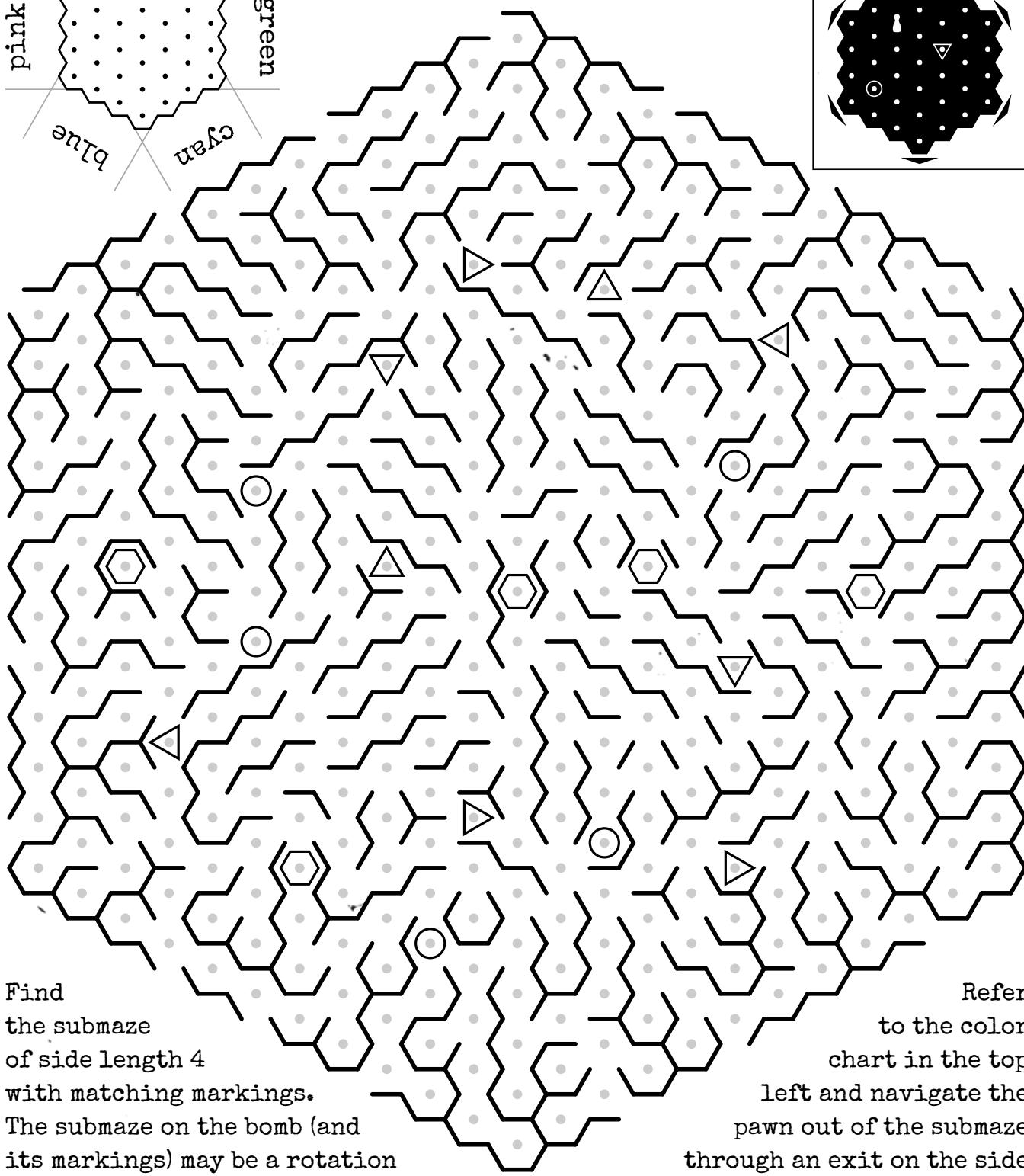
A highly composite number (HCN) has more divisors than any smaller positive integer. For example, 6 can be divided by 1, 2, 3, and 6, which is more than the last HCN, 4, which has 1, 2, and 4. 8 can be divided by 1, 2, 4, and 8, but a smaller number (6) has an equal number of divisors, so it is not a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

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



On the Subject of Hexamazes

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

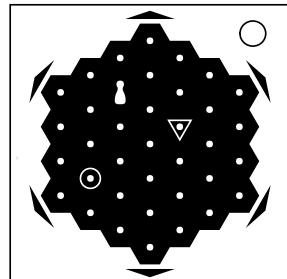


Find
the submaze
of side length 4
with matching markings.

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

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

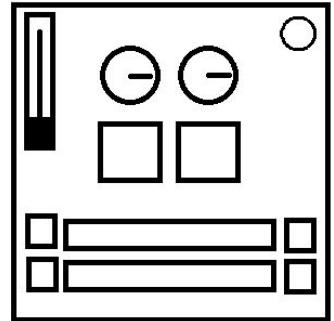
Warning: Do not cross the lines shown in the
maze. These lines are invisible on the bomb.



On the Subject of Laundry

Sorting and folding are the least of your worries.

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



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

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

Use washing instructions based on the material, drying instructions based on the color, and use ironing and special instructions based on the item.

But, prioritize the following rules from top to bottom:

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

Input the solution through putting The Washing Symbol Top-Left, The Drying Top-Right, Ironing on the top display and Special on the bottom display.

Table L41: Clothing Item Reference

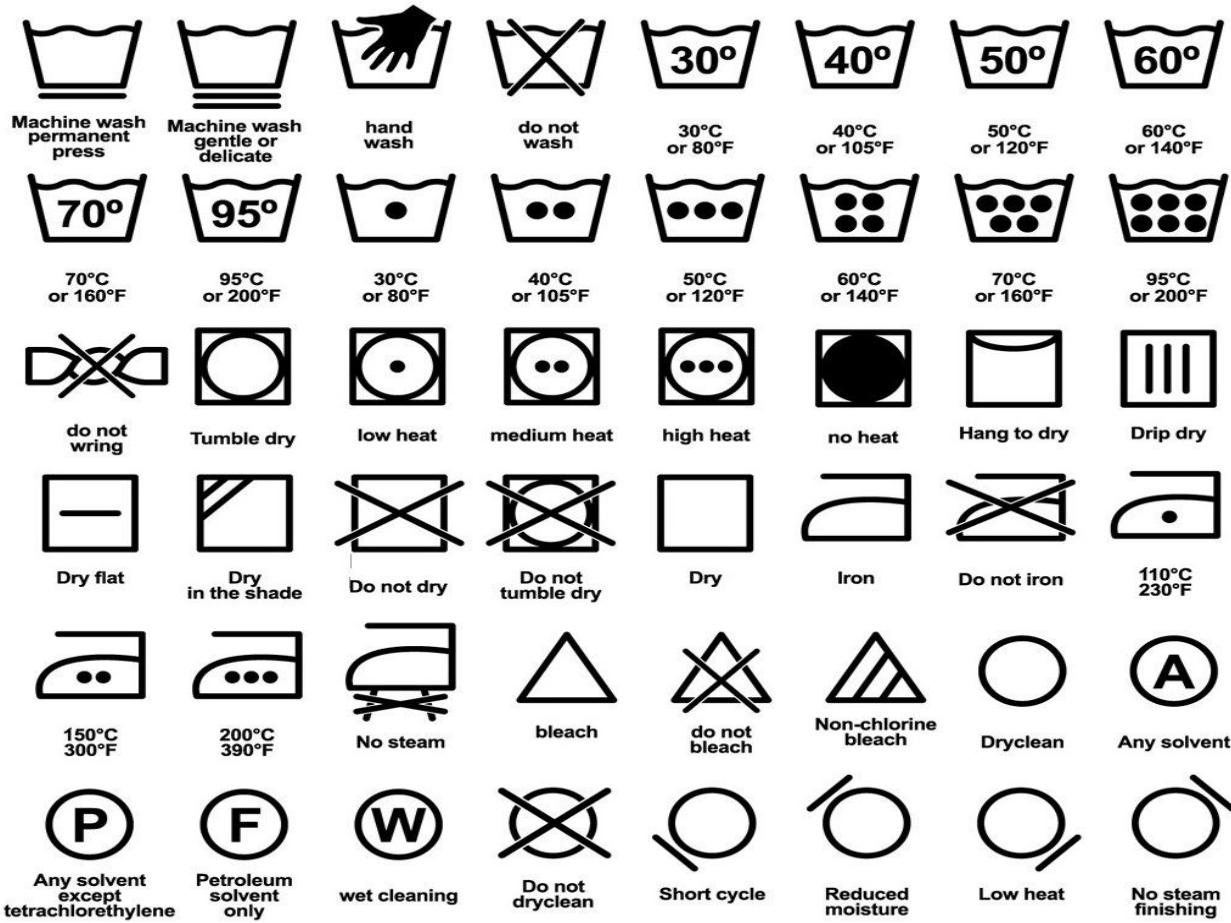
	CLOTHING ITEM	WASHING	DRYING	IRONING	SPECIAL
0	Corset	140°F	Dry Flat	2 dots	△
1	Shirt	105°F		No steam	No Tetrachlore-thylene
2	Skirt	30°C	Hang To Dry		Reduced Moisture
3	Skort		Tumble Dry	3 Dots	Circle Top Left
4	Shorts	Do Not Wring	Shade	150°C	
5	Scarf	95°C	Dry		Do not Dry Clean

Table L42: Clothing Material Reference

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

Table L43: Clothing Color Reference

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

Laundry Symbol Reference

On the Subject of Lettered Keys

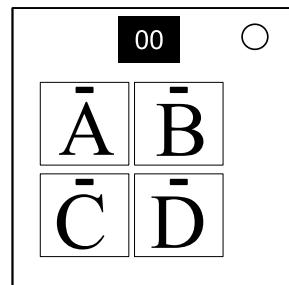
I haven't thought of anything yet...

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:

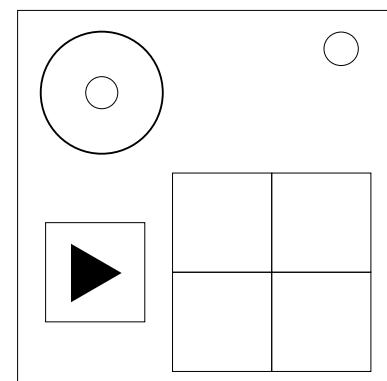
1. If the number indicated is equal to sixty-nine, Press the button with the label 'D'
2. If the number indicated is divisible by six, press the button with the label 'A'
3. If there are two or more batteries on the bomb and the number is divisible by three, press the button with the label 'B'
4. If the Serial number contains a 'C' 'E' or '3' and the number is greater than or equal to twenty-two, and less than or equal to seventy-nine, then press the button labelled 'B'
5. Otherwise, if the serial number contains a 'C' 'E' or '3', then press the button labelled 'C'
6. If the indicated number is less than forty-six, then press the button labelled 'D'
7. Otherwise, press the button labelled 'A'



On the Subject of Listening

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

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



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

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

On the Subject of Logic

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

- Each row will display 3 letters. Each letter will represent a statement.
- If ALL statement in the top row is true. That row is true.
- If ANY statement in the bottom row is true. That row is true.
- Use T/F button to the right to select True/False.
- Press "Submit" when done.

<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F
<input type="radio"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	F
				SUBMIT

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

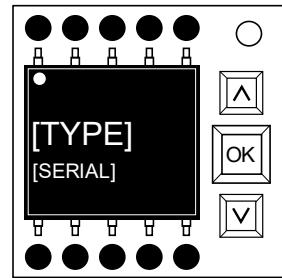
See Appendix C for port identification reference.

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 Microcontrollers

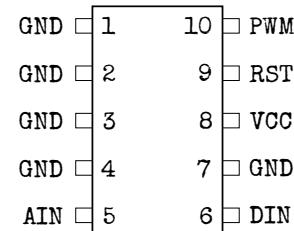
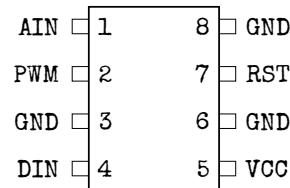
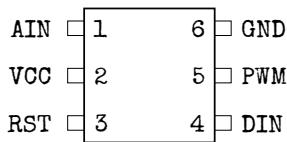
It's called "micro"-controller yet this thing in there is pretty big. Probably because it can cause a pretty big explosion...

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

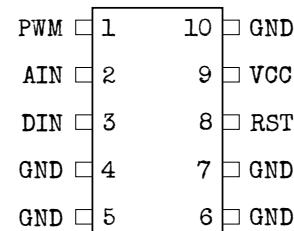
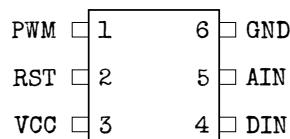
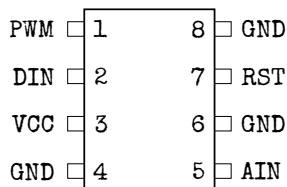


Pin Configurations

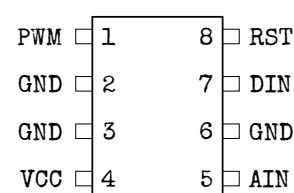
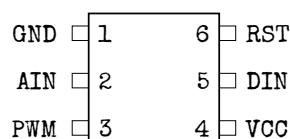
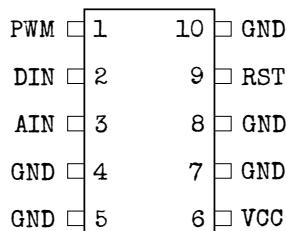
Strike (STRK) Controller:



Diode (LEDS) Controller:

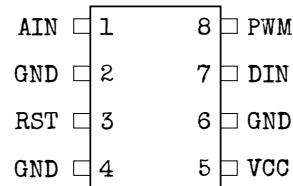
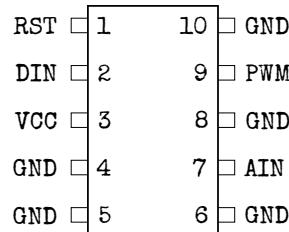
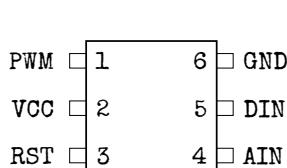


Countdown (CNTD) Controller:



continued on next page ...

Explosion (EXPL) Controller:



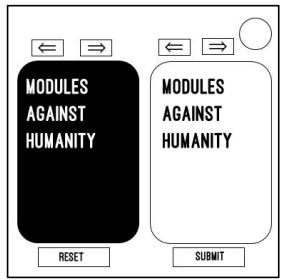
Component Color Codes

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

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

On the Subject of Modules Against Humanity

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



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

To get the secondary cards:

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

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

To get the final cards:

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

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

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

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

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

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

Notes:

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

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

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

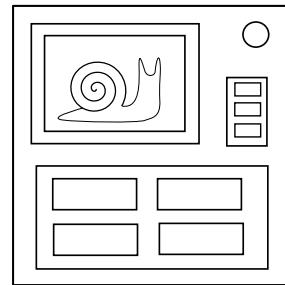
Pressing the reset button will return the module to the initial state.

Pressing the reset button will not cause a strike.

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

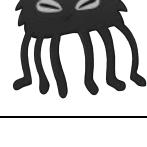
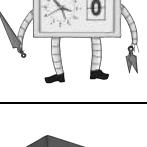
On the Subject of Monsplode, Fight!

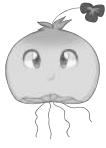
Are you still a fan of some animated series from your childhood? It looks like you stumbled upon another fan.



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

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

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

Monsplode™	Name	Type	Special Rules
	Magmy	FIRE	If there are less than 3 batteries on the bomb, its type is ROCK.
	Pouse	ELECTR	If net damage of a move is 6 or more, it takes 0 damage instead.
	Ukkens	POISON	Takes no damage from WATER type moves.
	Asteran	GRASS	If there is a CAR indicator present, its type is WATER.
	Violan	GRASS	If there is a CLR indicator present, its type is WATER.
	Zenlad	GRASS	Takes +3 damage from ELECTR type moves.
	Zapra	ELECTR	If there is less than 3 batteries on the bomb, its type is NORMAL.
	Myrchat	POISON	If there is no lit indicator on the bomb, its type is DARK.

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

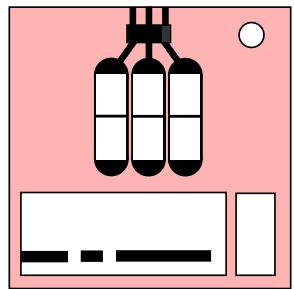
Move Name	Move Type	Base Damage		Move Name	Move Type	Base Damage
Candle	FIRE	2		Spectre	GHOST	5
Cave In	ROCK	3		Splash	WATER	0
Double Zap	ELECTR	4		Tac	NORMAL	5
Earthquake	ROCK	5		Tangle	GRASS	2
Flame Spear	FIRE	6		Tic	NORMAL	3
Fountain	WATER	6		Toe	NORMAL	1
Grass Blade	GRASS	4		Torchlight	FIRE	4
Heavy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

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

On the Subject of Morseomatics

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

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



Transmitted morse is interpreted based on gaps between button holds.

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

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

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

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

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

After performing all steps, perform whatever rule applies below:

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

How to Interpret

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

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

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

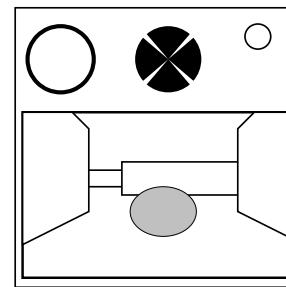
1 ● - - - - -
 2 ● . - - - -
 3 ● . . - - -
 4 ● . . . - -
 5 ● -
 6 - -
 7 - - - - . .
 8 - - - - - .
 9 - - - - - - .
 0 - - - - - - -

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

On the Subject of the Mouse In The Maze

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

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



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

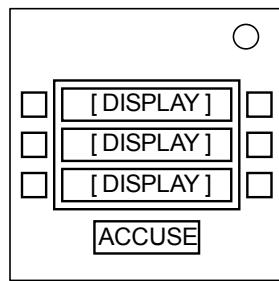
On the Subject of Murder

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

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.



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

Suspects:

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

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

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

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

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

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

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

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

Otherwise, the suspects can be located using row 6.

Weapons:

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

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

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

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

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

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

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

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

Otherwise, the weapons can be located using row 8.

Locations:

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

On the Subject of the Mystic Square

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

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

X		X
	X	
X		X

<

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

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

Determining the desired constellation:

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



1	2	3
4	5	6
7	8	

	C1 > C2,C3	C2 > C1,C3	C3 > C1,C2	else																																				
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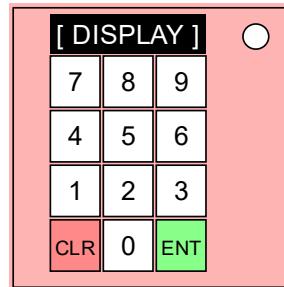
On the Subject of Number Pads

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

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.



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

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

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

Level 1:

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

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

Otherwise, take the fourth path.

Level 2:

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

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

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

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

Level 3:

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

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

Level 4:

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

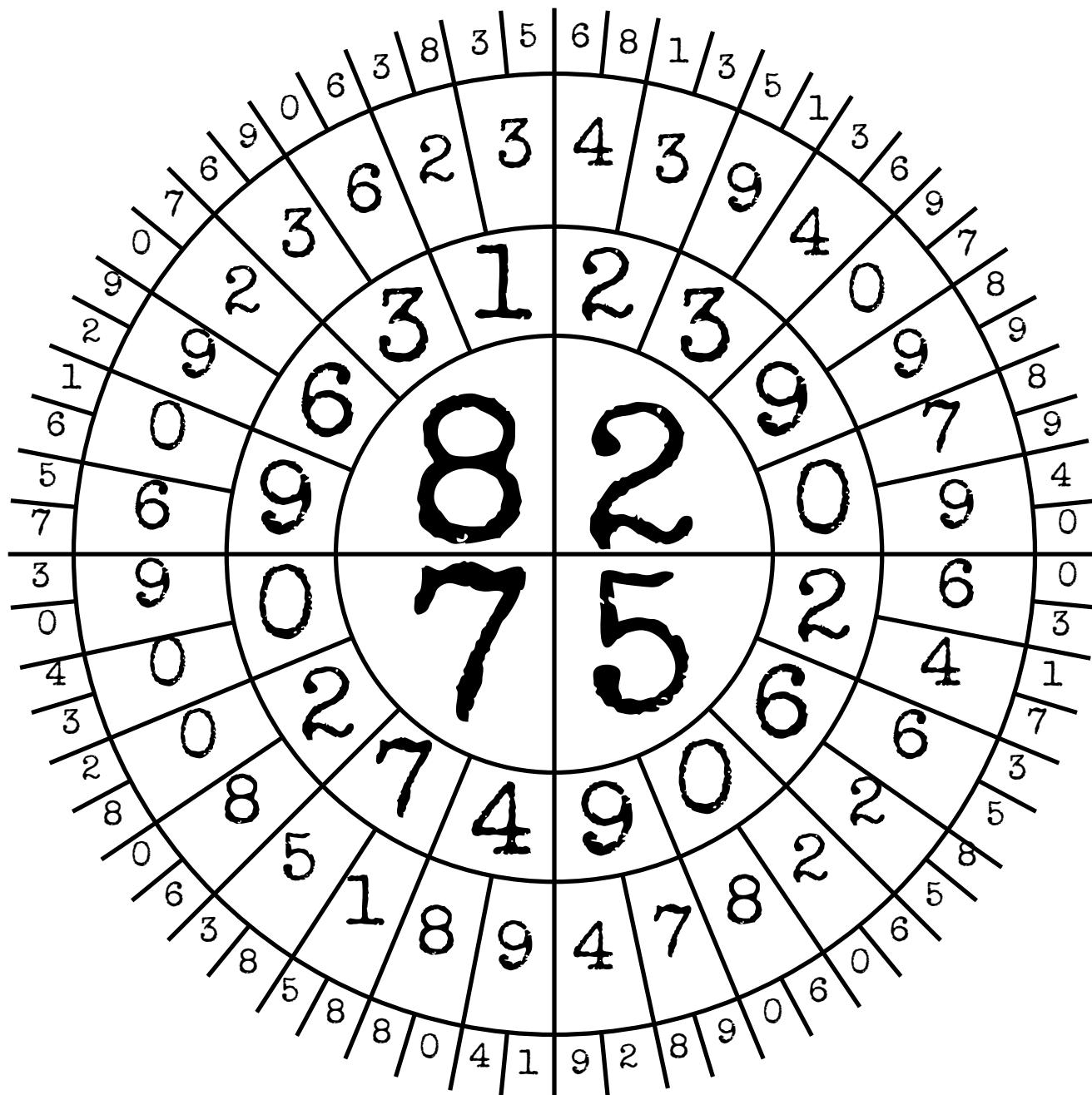
Otherwise, take the second path.

Final Instructions:*(follow all instructions in this order)*

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

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

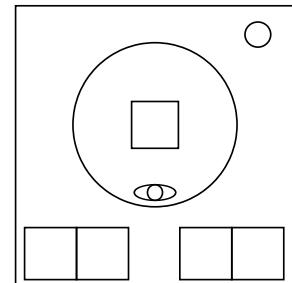
If both criteria above are not met, swap the first and fourth digits.

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

On the Subject of Orientation Cube

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

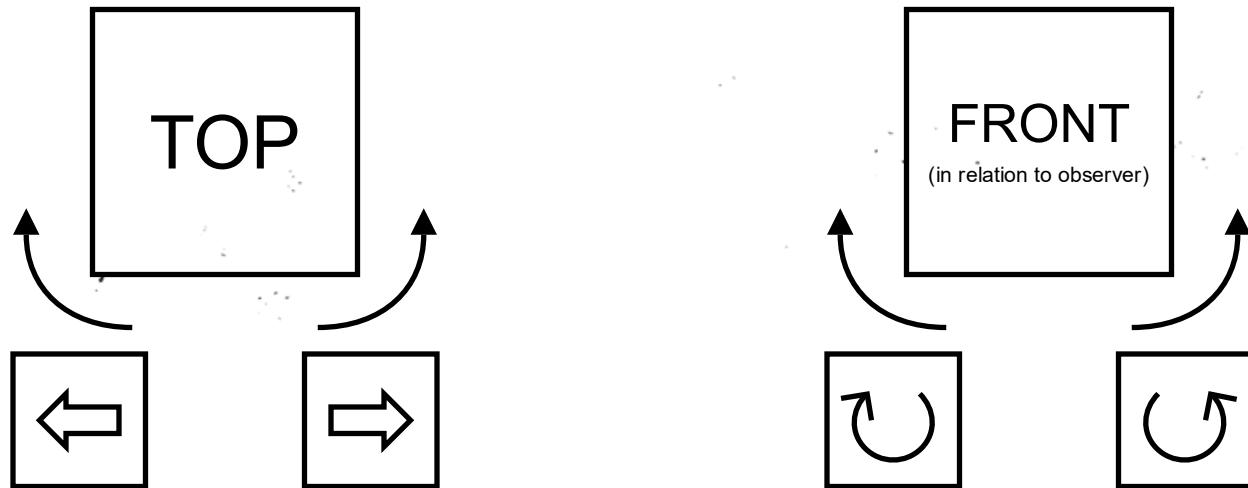
In order to diffuse this part of the bomb you will need good 3D orientation skills. A virtual cube needs to be rotated into a specific orientation using the four keys along the bottom. Unfortunately there is no display to indicate the current orientation of the virtual cube so you will have to imagine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

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

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

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

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

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

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

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

Otherwise:

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

On a strike:

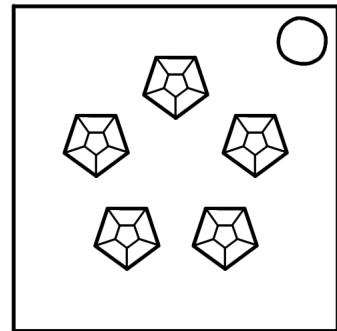
If you get strike then the virtual cube will be reset to the initial position. Be aware you may need to select a new rule if the observer is now in a different position.

On the Subject of Perspective Pegs

Everything is different from the perspective of another.

Step 1: Key Colour

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



Step 2: Sequence Permutation

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

Step 3: Key Sequence

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

Table 1.1 Key Colour

Regard the difference between alphabetic positions to be positive.

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

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

Table 1.2 Sequence Permutation

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

Determine which column to use based on battery count.

Perform permutations from top to bottom:

1 - 2 Batteries		3 - 4 Batteries		0, 5+ Batteries	
Prime	Alternate	Prime	Alternate	Prime	Alternate
R YY	B PY	B PB	Y BG	P YB	R GB
Y PG	P BR	YY P	B RP	Y RP	R YR
R GP	B GR	G RB	Y PB	G YR	G BP
Y BG	B YY	R PY	G BG	B YG	P GR
PP R	R YP	Y GG	P BR	R PY	G YB
B GB	P YG	G PB	Y GY	P PG	P BR
Y GB	G PY	P RP	B BG	R YY	BB R
PG G	G YR	R YR	R PB	Y GP	P YY

On the Subject of Piano Keys

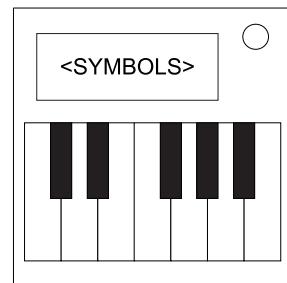
What do you get when you drop a piano down a mine shaft? A flat minor.

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.

See the next page for piano/keyboard reference.

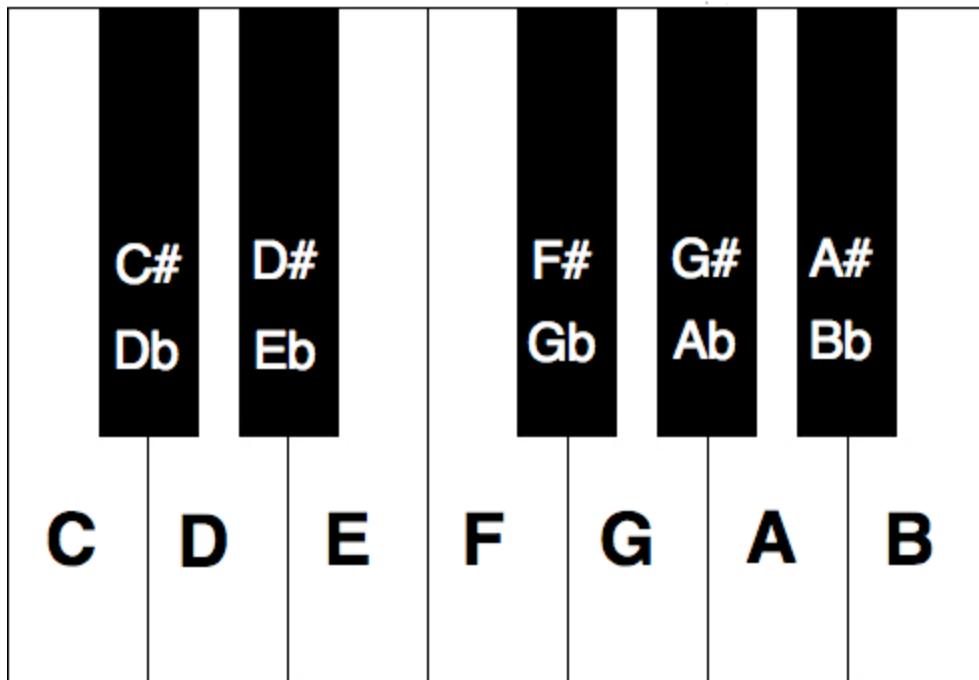


- A piano keys module will present with 3 musical symbols in the top indicator and a 12-note keyboard to input with.
- Each rule consists of one or more required symbol(s) and optional further requirements based on the bomb casing.
- Follow the list of rules down until one matches the criteria for the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

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

Piano/Keyboard Reference

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



On the Subject of Cruel Piano Keys

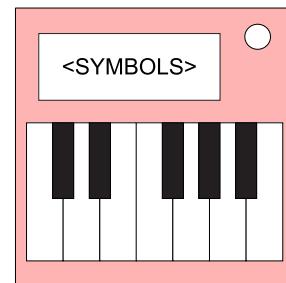
The devil's interval approaches...

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.

See the third page for serialism & music terminology reference.



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

Table 1.

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

Table 2.

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

Notes:

*: 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.

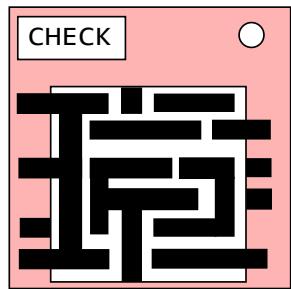
Transpositions apply a translation of the tone row up or down by a given number of semitones. For example, the Prime row A B C D E transposed up by 1 semitone would be A[#] C C[#] D[#] F.

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 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.

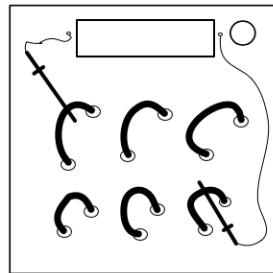


Red Input	Yellow Input
<ul style="list-style-type: none"> • For: Serial contains a '1' • For: Exactly 1 RJ45 port • Against: Any duplicate ports • Against: Any duplicate serial characters 	<ul style="list-style-type: none"> • For: Serial contains a '2' • For: One or more Stereo RCA ports • Against: No duplicate ports • Against: Serial contains a '1' or 'L'
Green Input	Blue Input
<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 	<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
Red Output	Yellow Output
<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 	<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
Green Output	Blue Output
<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 	<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 Probing

Not that kind of probing...

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



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

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

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

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

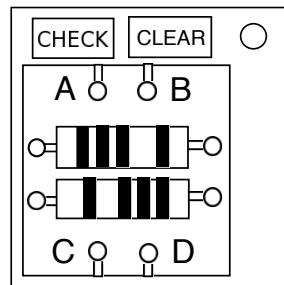
NOTE: Be aware that each time a strike is gained the frequencies in each wire may change.

On the Subject of Resistors

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

- Leonardo da Vinci, on procrastination

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



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

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

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

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

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

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

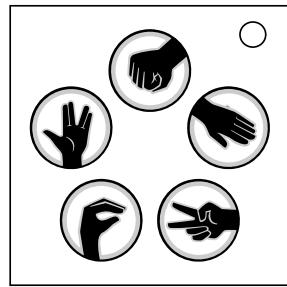
Color	First Band	Second Band	Multiplier
Black	0	0	1Ω
Brown	1	1	10Ω
Red	2	2	100Ω
Orange	3	3	$1,000\Omega$
Yellow	4	4	$10,000\Omega$
Green	5	5	$100,000\Omega$
Blue	6	6	$1,000,000\Omega$
Violet	7	7	$10,000,000\Omega$
Gray	8	8	—
White	9	9	—
Gold	—	—	0.1Ω
Silver	—	—	0.01Ω

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

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

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

To disarm this module, determine which of the five icons to press.



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

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

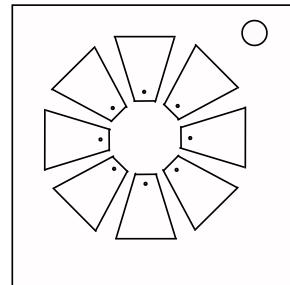
Which icon beats which? It's very simple. Scissors cuts paper. Paper covers rock. Rock crushes lizard. Lizard poisons Spock. Spock smashes scissors. Scissors decapitates lizard. Lizard eats paper. Paper disproves Spock. Spock vaporizes rock. And, as it always has, rock crushes scissors.

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

On the Subject of Round Keypads

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

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

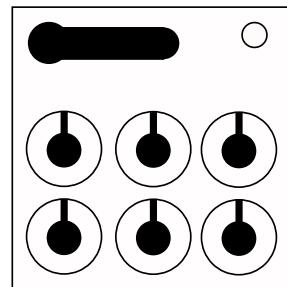


Q	Ё	©	б	Ψ	б
À	Ӯ	ӭ	Ҕ	Ҕ	Ӯ
Ӷ	҃	҅	Ҋ	Ҋ	Ӷ
ӵ	҇	҈	҉	҉	ӵ
Ҏ	★	Ҍ	ҋ	ҋ	Ҏ
ӷ	ӷ	Ӹ	ӹ	ӹ	ӷ
ҏ	ҏ	ҏ	Ӵ	Ӵ	ҏ
Ғ	Ғ	Ғ	Ғ	★	Ғ

On the Subject of the Safety Safe

This safe either contains immense riches, or is empty.

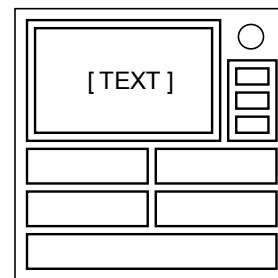
- All 6 dials must be oriented correctly to solve the module.
- Each dial has a tell, where it clicks louder. This is the starting location for each dial.
- Follow the rules below to determine how far to rotate each dial after the starting location.
- Turn the lever to check the solution. Any correct 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 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	EAEEAE	BEEDA
SEA SHELLS	ABABA	EAAEEA	D BEAC	ABDBAA
SEA SELLS	ACACEAC	DBAEC	E BDADAB	CECEC

Table 2:

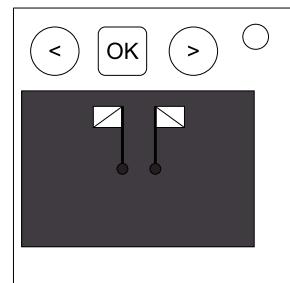
ON THE SEA SHORE	A = shoe D = sit	B = shih tzu E = sushi	C = she
ON THE SHE SORE	A = can D = 2	B = toucan E = cancan	C = tutu
ON THE SHE SURE	A = witch D = twitch	B = switch E = stitch	C = itch
ON THE SEESAW	A = burglar alarm D = burger	B = Bulgaria E = llama	C = armour

On the Subject of Semaphore

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

See the next page for semaphore reference.

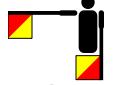
- A semaphore module will present with a previous button, a next button, an OK button and a semaphore indicator.
- Use the previous and next buttons to navigate through the semaphore sequence, starting from the left-most semaphore character to the right-most semaphore character.
- The semaphore sequence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

		 Error / Attention		
				
				
				
				
				 Cancel / Annul

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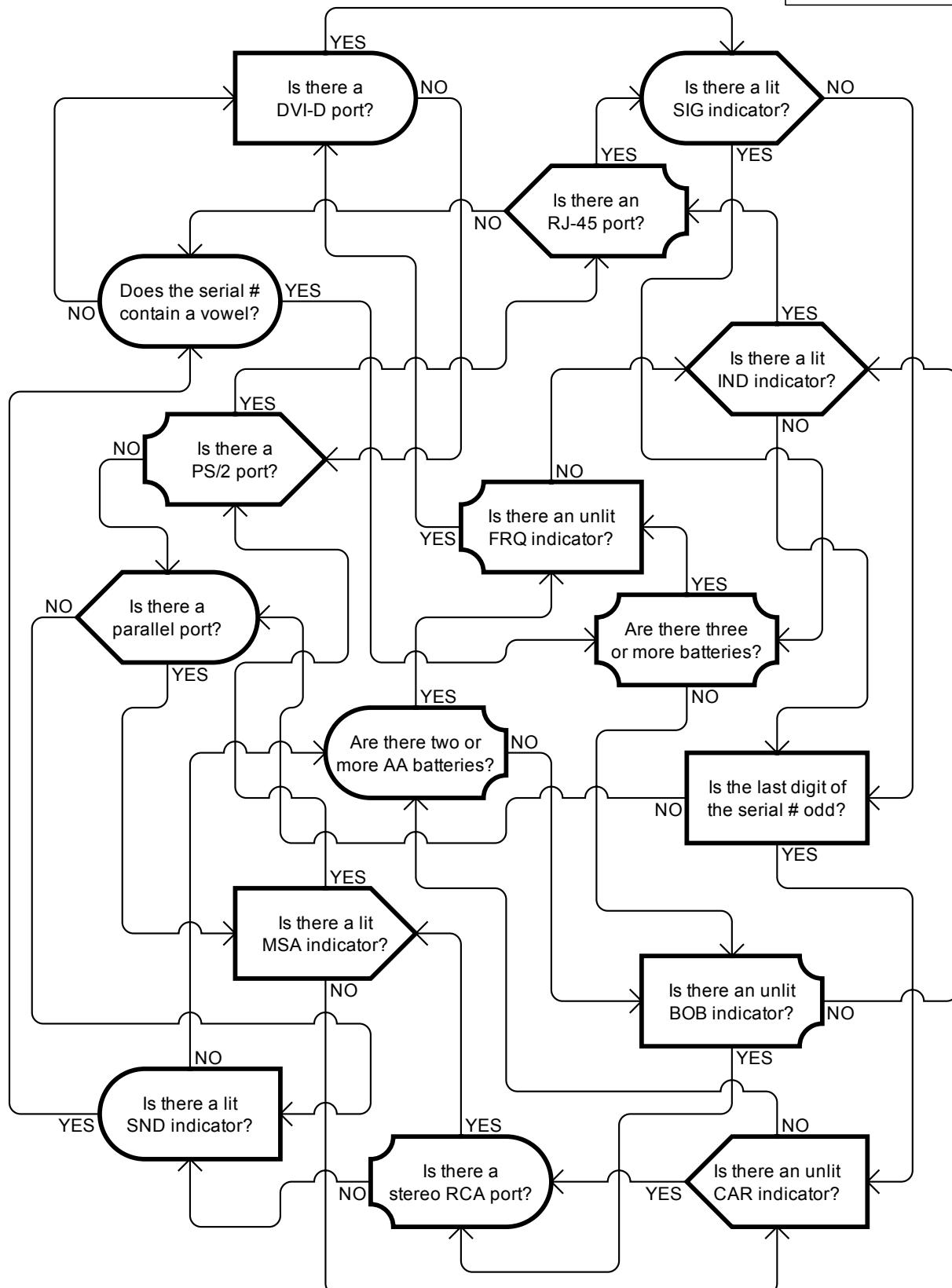
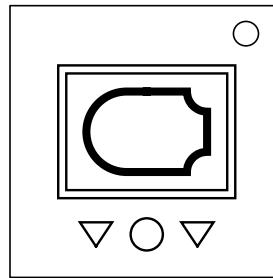
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On the Subject of Shape Shift

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

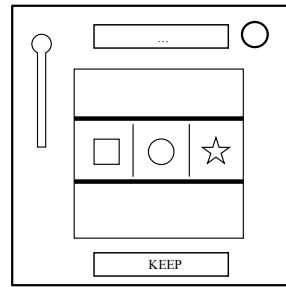
Starting at the shape displayed on the module, follow the flowchart and submit the first shape which is visited twice.



On the Subject of 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.

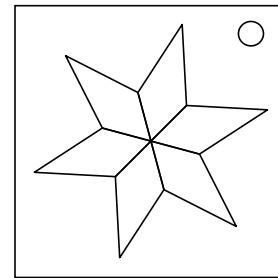
UNDERLINED words are placeholders, substitute them for the correct word using the matrix below and the keyword found on the module's display. This keyword changes when the lever is pulled.

		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 Simon Screams

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

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



	A	C	D	E	F	H
≥ 3 indicators	Y	O	G	R	B	P
≥ 3 ports	P	Y	R	B	O	G
≥ 3 numbers in #	O	G	B	P	R	Y
≥ 3 letters in #	G	B	O	Y	P	R
≥ 3 batteries	R	P	Y	O	G	B
≥ 3 bat. holders	B	R	P	G	Y	O

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

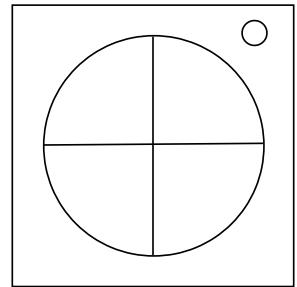
red	orange	yellow	green	blue	purple

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

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 Skewed Slots

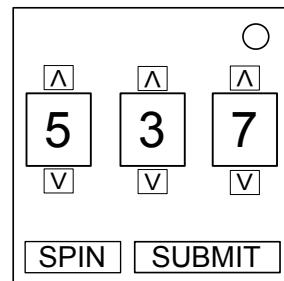
This has to be illegal somehow...

See Appendix A for indicator identification reference.

See Appendix B for battery identification reference.

See Appendix C for port identification reference.

See Appendix Math for a mathematical terms reference.



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

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

All Slots

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

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

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

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

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

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

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

1st Slot

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

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

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

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

Otherwise, subtract 2 from it.

2nd Slot

If there is a unlit BOB indicator, leave this number unchanged.

Otherwise, if the number is 0, add the original digit from the 1st display.

Otherwise, if the number is in the Fibonacci sequence, add the next number from the Fibonacci sequence based on the first occurrence of the number.

Otherwise, if the number is greater than or equal to 7, add 4.

Otherwise, multiply it by 3.

3rd Slot

If there is a serial port on the bomb, add the largest number from the serial number.

Otherwise, if the original digit is the same as any of the other original digits, leave this number unchanged.

Otherwise, if the number is greater than or equal to 5, add up all the individual digits in the binary form of the original digit for the new number.

Otherwise, add 1 to the number.

Appendix Math: Mathematical Terms Reference

Fibonacci Sequence

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, ...

Prime Numbers

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29

Binary Conversions

Decimal	Binary Form
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
10	1010

On the Subject of Souvenir

Something to remember your explosion by.

- Answer all the questions correctly.
- When the module congratulates you, be polite and say thank you.

[Question]

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

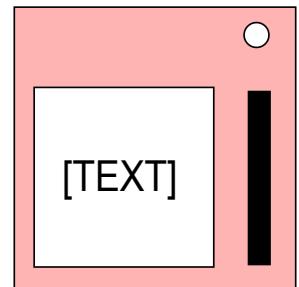
Questions that may come up:

- What were the markings in 3D Maze?
- What was the cardinal direction in 3D Maze?
- Which one of these letters was wrong when you got a strike in Adjacent Letters?
- What was your strength/intelligence/dexterity before you took the potion in Adventure Game?
- Which item was the n th correct item you used in Adventure Game?
- Using which item gave you a strike in Adventure Game?
- How many pixels were black/white in the top/bottom left/right quadrant in Bitmaps?
- What was the n th coordinate in Chess?
- What were the initial colors on Connection Check in reading order?
- What were the colors on Connection Check when you got a strike?
- What is the n th-stage displayed number in Forget Me Not?
- What was the color of the pawn in Hexamaze?
- What was the correct code you entered in Listening?
- Which creature was displayed in Monsplode, Fight!?
- Which one of these moves was selectable in Monsplode, Fight!?
- What color was the torus in Mouse in the Maze?
- Which color sphere was the goal in Mouse in the Maze?
- What was the observer's initial position in Orientation Cube?
- Which peg was first/second/third in the solution to Perspective Pegs?
- What was the n th slot in the m th stage in Silly Slots?
- Which color(s) flashed in the n th stage in Simon States?
- What were your button presses in The Bulb?
- What was the n th query response from Two Bits?

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.

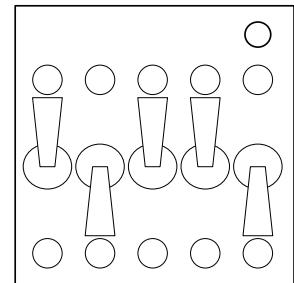
If the strip is flashing, follow these rules instead:

- 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.

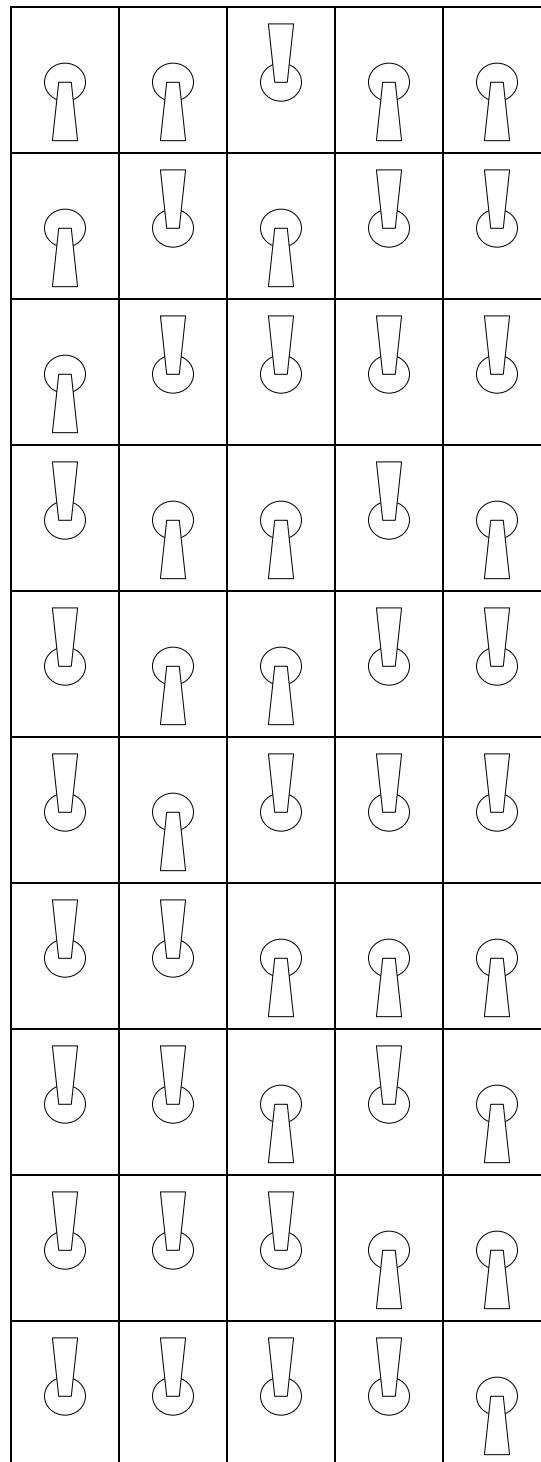
On the Subject of Switches

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.



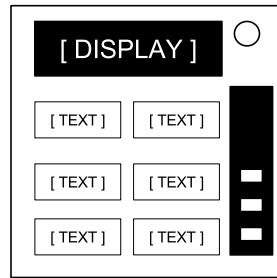
Avoid the following switch states:



On the Subject of Third Base

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

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



Step 1:

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

NHXS
eye

IH6X
eye

XI8Z
eye

I809
eye

XOHZ
eye

H68S
eye

80XN
eye

Z8IX
eye

SXHN
eye

6NZH
eye

H6SI
eye

608I
eye

NX08
eye

66I8
eye

S89H
eye

SNZX
eye

9NZS
eye

8I99
eye

ZHOX
eye

SI9X
eye

SZN6
eye

ZSN8
eye

HZN9
eye

X9HI
eye

IS9H
eye

XZNS
eye

X6IS
eye

8NSZ
eye

Step 2:

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

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

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.

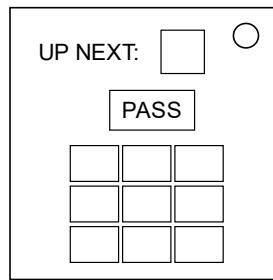


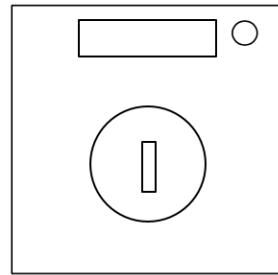
Table 1: Tic-tac-toe piece placement location chart

	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 Turn The Key

How can something so simple be so infuriating?

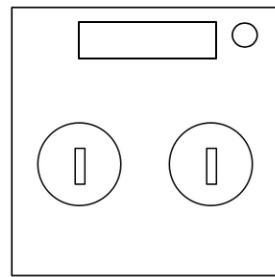
Turn the key when the bomb's timer matches the time on the display, no sooner, no later.



On the Subject of Turn The Keys

Order is everything.

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



LEFT KEY

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

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

But before you have done any of the following:

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

RIGHT KEY

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

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

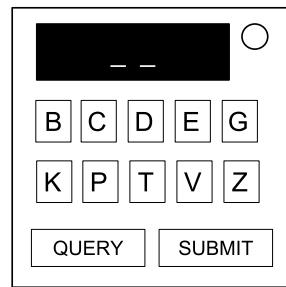
But before you have done any of the following:

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

On the Subject of 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.

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

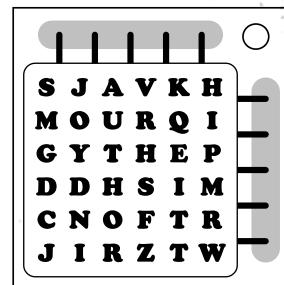
The response code from the device from the query in Step 2 is now your current code. Perform Step 2 an additional 2 times, using the new code each time.

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 Word Search

LZIEAJDHARDERBNCOJWTHANPQIEYBZITLOOKSYWH

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



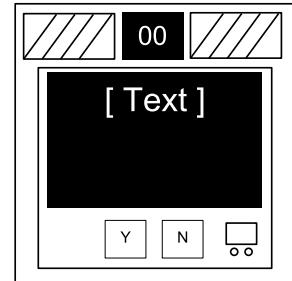
1. The chart below contains boxes with letters in the corners. For each of the four letters in the corners of the display, find a box on the chart that has that letter in the same corner.
2. Once all the relevant boxes have been located, use the last digit of the serial number (even or odd) to determine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

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

On the Subject of Answering Questions

I hope you studied, it's quiz night!

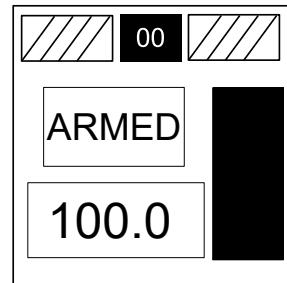
- Respond to the computer prompts by pressing "Y" for "Yes" or "N" for "No".



On the Subject of Filibuster

What's this game called? Ok, let's do that.

- A warning countdown signals the module is about to be armed.
- If you hear annoying beeping, talk.
- Keep talking.



Filibuster Settings

This mod requires a microphone. It will look for the default recording device and listen to it to determine the volume.

There is a *modSettings.json* file in the mod's folder (*SteamLibrary\steamapps\workshop\content\341800\739663396*) to customize the thresholds. You can open this file in a text editor to edit the settings. Restart the game if you are changing these values.

This is the default for the file:

```
{"MicThreshold": 25.0, "FailureThreshold": 3}
```

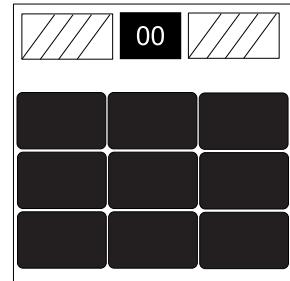
MicThreshold – a value from 0.0 – 100.0 to adjust for your microphone.

FailureThreshold – an integer value for the number of seconds of failing the mic check before a strike. I recommend this stay in the range of 1 – 10.

On the Subject of Lights Out

Who knew turning out all the lights was a hard task?

- Press the buttons to switch off all the lights.
- When pressed, a button will invert the lit state of the button itself and the lit state of the adjacent buttons in the four major cardinal directions.



On the Subject of Math

Math is still easy. But is it easy when you have to answer questions over and over to stop an explosion? Only one way to find out.

Answer the question. Enter the numbers with the keypad and press '=' to submit your answer. Use '-' to toggle the sign.

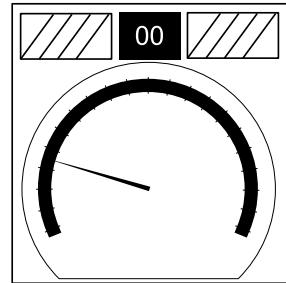
Don't blow up!

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

On the Subject of Motion Sense

Don't move. Its explosiveness is based on movement.

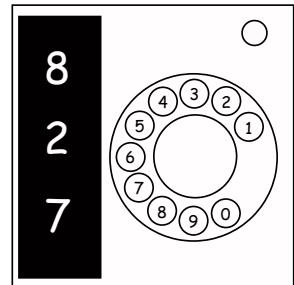
- When activated, this module will monitor all rotation activity of the bomb for the duration of the module activation.
- The more you rotate the bomb while active, the higher the needle will rise on the indicator.
- A strike is given if the needle on the gauge reaches the end of the scale.
- The back-light of the gauge will change color and an audible sound will be made when the gauge reaches 80% or more.
- Setting the bomb down, or conversely picking the bomb up, will cause rotation activity and will cause the needle to rise when the module is active.



On the Subject of Rotary Phones

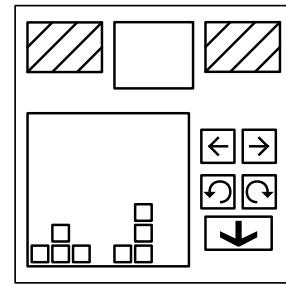
Hello, this is emergency services, please hold...

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



On the Subject of Tetris

Chances are you've already played many iterations of this game. At this point, how can we be sure that Tetris isn't some kind of meta-virus that propagates itself through game developers and modders?

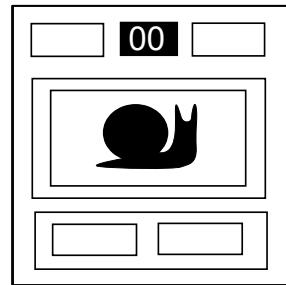


- To deactivate the module, the player will be required to place 3 Tetris pieces onto the game board.
- Pieces can be rotated, moved left and right, and placed using the arrow buttons.
- Pieces will not fall with time, but instead will be placed as far down as possible.
- Completely filling a row will cause that row to be removed, and other rows will fall down to fill the empty space.
- If the board fills up, the player will be unable to place new blocks, and will gain strikes.

On the Subject of Who's That Monsplode?

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

- The shadow of a Monsplode™ will appear on the screen.
- Picking the name of the Monsplode™ correctly will add 20 seconds to the counter.
- You can't have more than 80 seconds in the counter.
- If you make a mistake, the bomb will register a strike.



Monsplode™	Name	Monsplode™	Name	Monsplode™	Name
	Buhar		Lanaluff		Magmy
	Bob		Melbor		Docspplode
	Mountoise		Nibs		Clondar
	Aluga		Lugirit		Zapra
	Caadarim		Vellarim		Ukkens
	Flaurim		Gloorim		Zenlad
	Asteran		Violan		Pouse
	Myrchat				