

On the Subject of the Indigo Cipher

Roses are red. Violets are blue. Indigo cipher is here, and you are doomed.

On the module, you will see 3 screens, a keyboard, 2 arrows, and a submit button that displays the current page you're on.

Pressing the right arrow takes you to the next page. Pressing the left arrow takes you to the previous page. There is a total of 2 pages.

On page 1, the top screen shows a 6 letter encrypted word, the middle screen shows an encrypted logic key, the bottom screen shows a word.

On page 2, the top and middle screen shows a 6 digit binary number, the bottom screen shows an logic operation.

Follow the mechanics down below to decrypt your word:

Step 1: Fractionated Morse Cipher

Take the word from the bottom screen on page 1 and convert it to a letter key using the rules below:

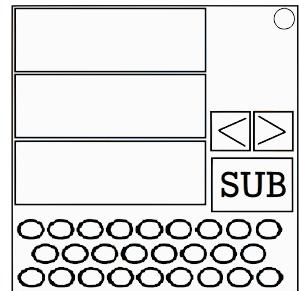
- Remove any duplicate letters in the word.
- Take the entire alphabet, and remove the letters shown in the word.
- If the number of ports is odd, place the alphabet at the end of the word.
- Otherwise, place the alphabet in front of the word.

Now that you have the letter key, place the following underneath the key:

```
.....-----XXXXXXX
...---XXX...---XXX...---XX
.-X.-X.-X.-X.-X.-X.-
```

Take the encrypted logic key from the middle screen on page 1, and for each letter, convert it to the symbols according to your key you made.

Now read it as morse, top to bottom, right to left, treating the Xs as spaces between the letters.



Morse Code Table

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	- - - - - - -

After all of that, you should have a 6 letter logic key, that doesn't translate to a word unfortunately. This will be used for the logic cipher in step 3.

Example

E	Q	U	I	P	A	B	C	D	F	G	H	J	K	L	M	N	O	R	S	T	V	W	X	Y	Z
.	-	-	-	-	-	-	-	-	-	x	x	x	x	x	x	x	
.	.	.	-	-	-	x	x	x	.	.	.	-	-	-	x	x	x	.	.	.	-	-	x	x	
.	-	x	.	-	x	.	-	x	.	-	x	.	-	x	.	-	x	.	-	x	.	-	x	.	

J	M	L	B	H	N	P
-	-	-	.	-	-	.
-	x	-	x	.	x	-
.	.	x	.	x	-	-

- - . - x . - - x . x . - . x - x - . - - => QWERTY

Step 2: Condi Cipher

For this, you will need the same letter key you made in step 1 and the 6 letter encrypted word from the top screen on page 1.

Place the following 2 rows underneath the letter key (you don't need the dots, dashes, and Xs anymore):

0000000001111111112222222

12345678901234567890123456

Treat the top row of the numbers as the tens place and the bottom row as the ones place.

For your starting offset, use the sum of the serial number digits.

For each letter of the encrypted word from the top screen on page 1, do the following steps:

- Find the letter in the letter key.
- Shift to the left a number of times equal to the current offset.
- The new letter you end up on becomes the new encrypted letter.
- The same position of that letter, using the number underneath, becomes your new offset.

Now you should have a new encrypted word and ready to move on to the final step of this cipher.

Example

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

A - 16 => M, 16

S - 16 => I, 04

D - 04 => P, 05

F - 05 => P, 05

G - 05 => A, 06

H - 06 => A, 06

Step 3: Logic Cipher

Now that you have your logic key from step 1 and the new encrypted word from step 2, it's time to begin the final step.

The first part of this step is to figure out which logic gate you'll be using. Turn the numbers on the bottom screen on page 2 into 6 digit binary numbers. Then using the left number as the left bits, the middle number as the right bits, and the third number as the resulting bits, find out which gate it is by using the following table:

LB	RB	AND	OR	XOR	NAND	NOR	XNOR	->	<-
0	0	0	0	0	1	1	1	1	1
0	1	0	1	1	1	0	0	1	0
1	0	0	1	1	1	0	0	0	1
1	1	1	1	0	0	0	1	1	1

After figuring out which gate the cipher is using, then using the encrypted word, the logic key, and the 2 6 digit binaries on the top and middle screen on page 2, do the following steps:

- 1: Turn the first letter of the encrypted word into its alphanumeric position, minus 1 (A = 0, B = 1 ... Z = 25).
- 2: If the top screen binary bit at the same position as that letter is a 1, add 26 to it.
- 3: Then turn the number into a 5 digit binary.
- 4: Do the same 3 steps above for the logic key, and use the binary on the middle screen instead of the top screen.
- 5: For each of the 5 bits of the 2 binaries, apply the logic gate so it turns into the resulting bit. Treat the first binary you got as the left bits, and the second binary you got as the right bits.
- 6: Turn the resulting binary back into a number and into its corresponding letter (0 = A, 1 = B ... 25 = Z).
- 7: Do this for each letter of the encrypted word and logic key to get your decrypted word.

Encrypted word: TTEIDS

Logic Key: BRBANA

Top Binary: 001010

Middle Binary: 100101

Logic Gate: AND

T, B => 19, 1 + 0, 1 => 19, 27 => 10011 + 11011 + AND => 10011 => 19 => T

T, R => 19, 17 + 0, 0 => 19, 17 => 10011 + 10001 + AND => 10001 => 17 => R

E, B => 4, 1 + 1, 0 => 30, 1 => 11110 + 00001 + AND => 00000 => 0 => A

I, A => 8, 0 + 0, 1 => 8, 26 => 01000 + 11010 + AND => 01000 => 8 => I

D, N => 3, 13 + 1, 0 => 29, 13 => 11101 + 01101 + AND => 01101 => 13 => N

S, A => 18, 0 + 0, 1 => 18, 26 => 10010 + 11010 + AND => 10010 => 18 => S

If you don't know how to convert decimal to binary and vice versa, there's a binary table on the next 2 pages that shows both 5 bit and 6 bit binaries for numbers 0 - 63.

Once you finally have your decrypted word, you can submit it. Once you start typing, all the screens will go black and the bottom screen will show what you are typing.

To clear it, just click one of the arrows. This goes to one of the pages and clears any input you put in. It will not let you go over 6 letters on input.

Once you are satisfied with your input, press the button labeled "SUB" to submit your answer. On a strike, the module will go back to the first page of the module, but it does not regenerate.

Number	6 Bits	5 Bits
0	000000	00000
1	000001	00001
2	000010	00010
3	000011	00011
4	000100	00100
5	000101	00101
6	000110	00110
7	000111	00111
8	001000	01000
9	001001	01001
10	001010	01010
11	001011	01011
12	001100	01100
13	001101	01101
14	001110	01110
15	001111	01111
16	010000	10000
17	010001	10001
18	010010	10010
19	010011	10011
20	010100	10100
21	010101	10101
22	010110	10110
23	010111	10111
24	011000	11000
25	011001	11001
26	011010	11010
27	011011	11011
28	011100	11100
29	011101	11101
30	011110	11110
31	011111	11111

Number	6 Bits
32	100000
33	100001
34	100010
35	100011
36	100100
37	100101
38	100110
39	100111
40	101000
41	101001
42	101010
43	101011
44	101100
45	101101
46	101110
47	101111
48	110000
49	110001
50	110010
51	110011
52	110100
53	110101
54	110110
55	110111
56	111000
57	111001
58	111010
59	111011
60	111100
61	111101
62	111110
63	111111