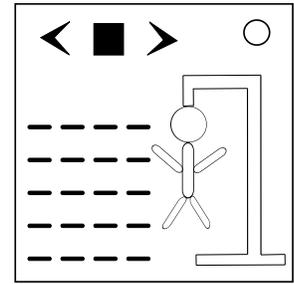


## On the Subject of Encrypted Hangman

*You can't tell me this harmless school game doesn't encourage suicide... But everyone loves it.*

### Module description:

The module consists of 2 arrow buttons which are located on the top of the module. Between those is a screen with a letter displayed on it. Beneath that are a bunch of underscores. On the right a hangman will appear when you interact with the module. The background looks like a blackboard.



### How to solve the module:

Literally play Hangman! BUT the message is encoded. To solve the module, figure out what the encoded message is. You can do this by looking at what module has the required amount of letters or by querying some letters.

When all letters have been submitted and no underscores are left on the screen, the module solves. This must be accomplished before the hangman is completed. The gallows has 4 pieces of wood and the hangman itself consists of a head, a body, 2 legs and 2 arms. This means a 10th wrong query will incur a strike.

A strike will reset the module. Any wrong letters are not recorded.

### What is the message?

The message is always the name of a module\* on the same bomb. But the message is encoded using one of 7 ciphers listed on the next page. The cipher may use a key which is determined by edgework, as described in the table.

The name is the full name (including "the") but without any spaces or any numbers or any other special characters such as - \* ! % '. Since the chalkboard is not very large, only a maximum of 24 letters are displayed and will need to be submitted. Any additional letters are displayed in that case.

**WARNING:** Hangman must be disarmed before any instance of the module identified by its message. Solving any matching module before Hangman incurs a strike and the module will reset. Some modules are exempt from this even if they appear as the message, see the row for Hangman in the [table of ignored modules](#).

\* - If the module contains diacritic letters in its name, Hangman will replace those letters with their english counterparts. Some modules are also excluded from being chosen by Hangman as the message, specifically those without any english letters in their name.

**Appendix - C1PH3R2**

Cipher	How does it work?	What is the key?
Caesar Cipher	In Caesar Cipher, all letters are shifted a certain number of places down the alphabet. That certain number of times is the key. If the key is 2: A → C; X → Z; Z → B; etc.	first digit in S# (0 → 10)
Atbash Cipher	In Atbash Cipher, all letters are shifted to the opposite position in the alphabet. A ↔ Z; B ↔ Y; C ↔ X; etc.	no key
Rot-13 Cipher	In Rot-13, all letters are shifted by exactly 13. A ↔ N; B ↔ O; C ↔ P; etc.	no key
Affine Cipher	In Affine Cipher, the letter's alphabetical position (A-Z26) is multiplied by the key, modulo 26. This number represents the alphabetical position of the encrypted letter (with 0 = Z). If the key is 3: A → C ( $1*3 = 3$ ); Q → Y ( $17*3 = 51, 51\%26 = 25$ ); etc.	(Last Digit in S#)*2+1
Modern Cipher	In Modern Cipher, all letters are shifted a certain number of places down the QWERTY keyboard layout. That certain number of times is the key. The full sequence is QWERTYUIOPASDFGHJKLZXCVBNM. If the key is 2: Q → E; A → D; B → M; etc.	Sum of the S# digits.
Vigenère Cipher	In Vigenère Cipher, every letter in the message is added to the letter with the same position as the key. Take this sum modulo 36 and look what letter is represented by this value. Each letter has a specific value which you can find in the <a href="#">Vigenère Cipher manual</a> . The key is always as long as the message itself. If the key is "ABCDE" and the message is "KTANE": A + K = 8 + 32 = 40%36 = 4 = R; B + T = 0 + 25 = 25 = T; ... The encrypted message is then "RTZLG". This cipher uses numbers too. If the message or the key has numbers leave them as they are. If numbers occur in the encrypted message they will be substituted with A0J9.	The key is the serial number. Adapt the length of the serial number by repeating it. (With S# of ABCDEF and a length of 9, the key is ABCDEFABC.)

Cipher	How does it work?	What is the key?
Playfair Cipher	<p>Playfair Cipher uses a 5x5 grid. Begin by placing all distinct characters (no duplicates) of the key in reading order into such a grid. Then fill up the rest using the alphabet. All J's are substituted by I's.</p> <p>With a key of "Playfair Cipher" the grid looks like this:</p> <pre> P L A Y F I R C H E B D G K M N O Q S T U V W X Z </pre> <p>Next the message is split into pairs of 2 characters. If there is an odd number of letters, an X is added at the end. If any pair have the same letter change the second one to Z. If they are Z then change the second one to X.</p> <p><u>For each pair:</u></p> <ul style="list-style-type: none"> <li>• If the letters are in the same row in the table, shift both letters one to the right in that row. In the example grid above, DK → GM; ST → TN; etc.</li> <li>• If the letters are in the same column in the table, shift both letters down in that column. In the example grid above, PU → IP; GW → QL; etc.</li> <li>• Otherwise, the letters are in the corners of a rectangle formed by the given letters. Take the other corner in the same row. In the example grid above, PX → YU; HN → IS; etc.</li> </ul>	Serial number (Numbers should be translated into letters using A0J9)