

Cipher Reference Sheet

Enigma Workshop

The challenge text was made with one of the five ciphers below. Your first job is to work out which. Read the telltale signs before you start counting anything.

Caesar shift

One key: a number from 1 to 25.

Every letter moves the same number of places along the ordinary alphabet. With a shift of 3, A becomes D and Z becomes C.

Telltale signs: the pattern of letter frequencies keeps its shape and simply slides along. There are only 25 possibilities, so it falls to patient trial and error.

Vigenère

One key: a keyword.

Write the keyword repeatedly under the message. Each letter is shifted by the value of the keyword letter sitting above it. The alphabet itself never changes.

Telltale signs: a string that repeats in the ciphertext tends to reappear at a fixed spacing, and that spacing is usually a multiple of the keyword length.

Playfair

One key: a keyword, written into a five by five grid. I and J share a square.

Letters are worked in pairs. Each pair is replaced using the row, column and rectangle rules of the grid.

Telltale signs: the ciphertext always has an even number of letters, J never appears, and no pair contains the same letter twice.

Quagmire III

Two keys: one keyword builds an alphabet, one keyword supplies repeating shifts.

The keyword alphabet is written out first, keyword followed by the unused letters. Each plaintext letter is then counted forward along that alphabet by the current shift. The alphabet stays as it is for the whole message.

Telltale signs: spacing tests point to a repeating key, as with Vigenère, but a standard Vigenère solver returns nothing readable.

Hutton, version 1

Two keys: one keyword builds a register, one keyword is the shift key.

Write the register out as the keyword followed by the unused letters of the alphabet. Give the shift key letters the values A equals 1 through Z equals 26 and apply them in a repeating cycle. For each plaintext letter, find it in the register, count forward by the current shift with wrap around at the end, and write down the letter you land on. Then swap those two letters in the register before you move on.

Telltale signs: spacing tests look like a repeating key but come out weak, because the register is rearranged after every single letter.

Two working notes. The last two ciphers need their keywords in the right order. If your first attempt gives nonsense, swap the two keywords and run it again. And keep a clean copy of your register or grid on scrap paper. One miscounted letter early on ruins everything that follows.