

STEM Choice Activity

EXPLORE THE SCIENCE OF HIDDEN WRITING

Questions? contact: ghanlon@beverlyschools.org

CRYPTOGRAPHY is the science of secrets and literally means 'hidden writing'.

It is a method of hiding and protecting information by using a secret code, or a **cipher**, only decipherable by its intended receiver. Today, modern cryptography is essential to the secure Internet and cybersecurity.

Exploring the Caesar Cypher

The earliest use of **secret coded messages** or **ciphers** date back to around 100 BC. It was developed and used by Julius Caesar to send secret messages to his generals in the field in the event that one of his messages got intercepted, his opponent could not read them. This obviously gave him a great strategic advantage.

How it Works

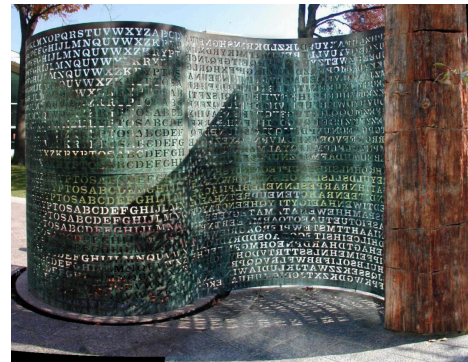
To code or decode a Caesar cipher you shift all the letters in a message a certain number of letter spaces to hide it. For example:

“Be Cool. Be Brave. BMS.” coded **6 spaces** using the Caesar cipher would be: **“Hk iuur. Hk Hxgbk. HSY.”**

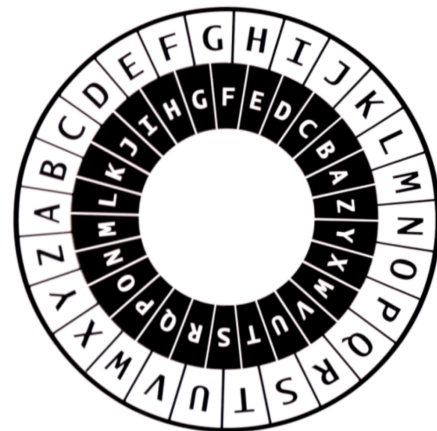
This jumbled message becomes what we call **“ciphertext”**. The recipient of this **ciphertext** would be told how many spots to shift to reveal the hidden message. The number of spots they would shift it would be **26 (number of letters in the alphabet) - 6 (number of spaces it was coded by) = 20 spaces**.

Try using the Digital Caesar Cipher Tool

<https://www.xarg.org/tools/caesar-cipher/>



Kryptos, an unsolved cipher, stands outside the CIA building in Washington D.C.



Check out this video by Khan Academy on the Caesar Cipher:

<https://youtu.be/sMOZf4GN3oc>