Codes and Ciphers
Cryptography and Cybersecurity

One way of protecting a private message is to use a code. Here are three codes you can use with your friends. Give them a try—you'll learn how encryption works, which is an important way to keep information safe online.

1. Caesar (Shift) Cipher

Use the wheel to set two letters "equal" to each other. Each letter is shifted to that new position. Decode the message where I=C. The outer letter "I" should match the inner plain text "C".

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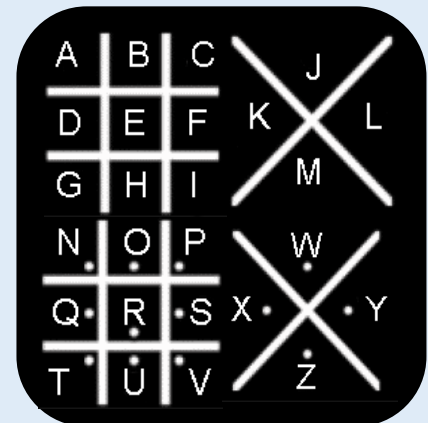
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2. Pigpen Cipher

This is easier than it looks, once you have the right key.

First draw two tic-tac-toe grids. Below that draw two Xs.

Then put dots in each of the second tic-tac-toe box and the second X. Add the letters of the alphabet as shown to the right.

Each letter is represented by the lines (or the pigpen) that surround it and any dots. For example ⌐• = S. Now you can read pigpen!

_ _ _ _ _ _ _ _ _!

3. Binary Encoding / ASCII Chart

Computers "talk" in 0's and 1's. One way computers *encode* letters is to use ASCII encoding.

Using the ASCII chart (right), decode the message.

1000011 1010010 1011001 1010000
1010100 1001111

_ _ _ _ _ _

_	0100000	I	1001001	R	1010010
A	1000001	J	1001010	S	1010011
B	1000010	K	1001011	T	1010100
C	1000011	L	1001100	U	1010101
D	1000100	M	1001101	V	1010110
E	1000101	N	1001110	W	1010111
F	1000110	O	1001111	X	1011000
G	1000111	P	1010000	Y	1011001
H	1001000	Q	1010001	Z	1011010

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Cryptography

The practice and study of secure communications.

It helps keep computer messages secret and secure!

Cryptography in Daily Life

- Secret Messages

- Secure Credit Card Transactions

- Passwords for websites (grades, banking, apps)

- Text Messages

Cryptocurrencies are tokens that can be traded for money

Currency = different types of money!

Cryptocurrency is a digital form of currency that uses cryptography to exchange money safely. It is an encrypted data file that hold a value of currency. Examples of cryptocurrency include Bitcoin, Ethereum, and Dogecoin.

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