



**Elective Virtual Learning**

# **6th Grade Intro to Gateways**

**Intro to Cryptology Through Micro:it**

**May 11, 2020**



7th & 8th Grade Multimedia  
Lesson: May 11, 2020

**Objective/Learning Target:**  
**I can develop my understanding of cryptography,  
encryption and ciphers.**

# Warm-Up

## Crack the Code

Do you have what it takes?

In the coded message to the right, the Roman Numerals have replaced some of the letters.

Change the numerals for the right letter to decode the message.

Some numerals have been left out so you will have to work at these.

Write down how long it takes you.

**The message:**

V \_ \_ I    II \_ \_    D \_ L X \_ C II

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II \_ \_    \_ \_ L I \_ L 7 C X V    \_ L M \_    L X X \_ M \_ I

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**The code:**

A	C	D	E	G	H	I	L	M	N	O	R	S	T	V
L	D	I								C	X	V	II	M



**Hint:** *the message is from one of Augustus' soldiers*

# Warm-Up

In Cracking the code on the previous slide, you had to use the computational skill of logical reasoning to problem solve and work out the code.

Can you create your own code, known as a Cypher. Have you learned this word before? We will learn more about that on the next slides.

For now, try making your own cypher

## Can you create your own Cypher?

1. Devise your own substitution or shift cipher below. You do not need to use all the boxes, depending on your message.


### When you have your Cypher:

2. Write a message on a piece of paper using your cipher.
3. Swap your message with someone (without the cipher)
4. How easy was it for someone to decode your cipher?  
If it was too easy, how could you make it more difficult?

If they need help, you can share your key!

## Lesson Introduction/Background Information:

In your warm ups you were using cryptography.

Cryptography is

- used to send messages so they can only be read by the intended recipient
- used from ancient times to current day
- ciphers are used to scramble and descramble messages and information which is known as encryption.
- Today computers use encryption and encrypt data all the time to keep things running smooth and keep us safe online.

Cypher is the code from the Cryptograph. How the word Cypher came to mean to encode something is not clear but the word "cipher" (minority spelling "cypher") in former times meant "zero" (or nothing). Cipher then came to mean concealment of clear messages or encryption.

**So let's understand how this works.**

**Watch the short explanation of Cryptography.**

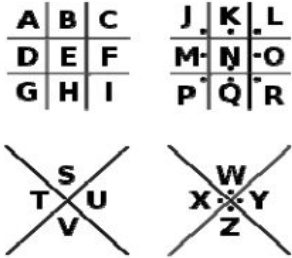


# Practice:

Here are two other fun cyphers you can try.

## Pigpen cipher (substitution)

- Symbol substitution cipher, used in 18th Century
- substituted each letter of the alphabet with a symbol
- can you work out what the phrase is?



What does this Say?



## The Caesar cipher (shift)

- first used by Julius Caesar @ 58BC
- Used to ensure commands to his army appeared meaningless to enemies
- is an example of a shift cipher
- each letter is 'shifted' 3 places

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

What does this really say?

Zahf ha Ovtl

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*Answers will be in the next lesson!*

## Continued Practice:

Do you know about Code Cracking in WWII?

[Check out the Story of Alan Turing](#)

## Self-Assessment:

Encryption in our lives today

what types of encryption can you think of in your life?

IS IT?

- buying something online (https)
- logging in to online banking
- paying using your mobile phone
- encryption increases security and confidentiality

Grab a piece of paper and write some of these down as we learn more in the coming lesson

[Did you Crack the code in the warm up?](#) ←clicky clicky!

Email your  
teacher if you  
have questions



[lisa\\_douthit@idschools.org](mailto:lisa_douthit@idschools.org)

# Did you crack the code?

Send the chariot, the gladiators have arrived!



Extend your Learning

Don't know what a Roman Numeral is?

[Check this out!](#)

Don't know who Augustus was? Find out more [here.](#)