



Crack the Code

Gray Hayes – Salamanca High School



Cyber Security Lesson Plan

Lesson Title: Crack the Code

Grade Level: 6-8

Learning Objectives/Outcomes: Upon completion student will be able to Understand and explain :

- 1) Why it's important to keep messages secret and personal information private
- 2) What a Cipher is and how it works to encode and decode messages
- 3) What a Public and a Private Key is

NYSED CS Learning Standards: The lesson activities focus on the Concept of Cybersecurity in the Topics of Risk 6-8.CY.1 and Safeguards 6-8.CY.2, 3, & 4

How you will facilitate learning: Students will watch a NOVA LABS video on encrypting and decrypting messages and engage in a series of games and challenges to crack a range of secret messages.

Description of Activity: What are some types of things you want kept secret? The Internet uses cyber codes to keep our information secret. Watch Cyber Codes video. Answer the following questions: - Why are codes important for security? - What different codes do you use in your life? Students will work in pairs to solve a series of cybersecurity challenges to decode encrypted messages. For extra credit and challenge, students can develop their own cipher codes to stump classmates and the teacher.

Summary: Students learn the importance of keeping personal data and messages safe as they are shared or saved on networks and servers. They learn multiple ways to encrypt messages in order to keep their contents private by encoding and decoding messages using a range of cipher strategies.

Learning Types: Presentation, Project, Writing Assignment, Observation, Oral Questioning, Other

Materials List: Video link, projector/large viewing screen. Handouts of progressively more challenging cipher code puzzles. Clear plastic sleeves and indelible pen for student with Tactile Sensory Disorder.

Accommodations: Students with special needs will be granted extra time, repeated oral directions, dimmed lighting, and help as needed.

Crack the Code Lesson Organization

- Introduce the topic of secrets & privacy
- Show [Cyber Codes](#) video from NOVA LABS
- Divide students into teams of 2 or 3
- Distribute WozED handouts to student teams (special accommodations for students with disabilities)
- Read directions aloud for auditory learners and display instructions on screen for visual learners
- Allow students to work at their own pace. Move from team to team to check on progress
- Offer additional challenges to students who are ahead
- Collect student handouts for assessment progress reports



Can you crack the codes? Look at the Code Papers below. There are instructions and clues for each type of code. Work with a family member to decode the messages using the four hints to decipher each code. Write down what you think each message says.

CODE PAPER 1
REVERSE THE WORD

noitamrofni ruoy tcetorp
sdrowssaP



CODE PAPER 2
HALF REVERSE

pbzchgre ynathntr vf
pnyyrq pbqr

INSTRUCTIONS:

This code is written so that the first half of the alphabet is reversed with the second half of the alphabet.

A stands for N, and N stands for A
B stands for O, and O stands for B
C stands for P, and P stands for C

It can be solved by writing out the letters from A to M and directly below that writing the letters from N to Z, then swapping the appropriate letters in the code.



CODE PAPER 3 BLOCK CIPHER

cum yrp bio etr ryt sia
esn cit

INSTRUCTIONS:

This code is written by writing the message out in a rectangular block and then putting the columns into words. To decode it, put the words back into columns of the rectangular block and read the message across in rows.

EXAMPLE: "THIS IS VERY EASY"

THIS
SVERY
EASY!

THE CODED MESSAGE IS: TSE HVA IES SRY IY!

TO DECODE THE MESSAGE, RETURN THE CODE WORDS TO BLOCK FORMATION AND READ THE MESSAGE.



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