Day 4: Cryptography Teacher: B. FEJZO

Procedure

1. Ask students to visit the website: www.nsa.gov/kids

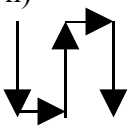
2. Define the Cipher as a way to make a word or message secret by changing or rearranging the letters in the message

3. Ask students to decode this cryptogram: GREAS IT METS

4. Explain how to make a Scytale using 2 identical cardboards. Ask students to pick a partner, encode a message and the decode it

5. Explain how to make a cipher using A Winding Way (up and down)

   i.e. THE GAMES START TODAY 18 letters matrix 5x4



6. Ask students to create 6 groups with 2 students in each group (pair up with someone you don't know already). 3 groups will be Makers of Code, 3 groups will be Breakers of Code. Makers will create a code using A Winding Way, while breakers will try to break it. The group who breaks the code fastest wins.

7. Explain how to make a cipher using the Caesar Cipher, which is the shifting of the alphabet by a certain number. Makers will switch places with Breakers. The group who breaks the code fastest wins.

8. Explain how to create Cipher Disks by using the printouts.

9. Ask Makers and Breakers to rearrange in new groups and encode and decode messages using Cipher Disks

10. Explain how to encode a message using Caesar Cipher numerically (A: 1, B: 2…Y: 25, Z: 26 and Space:0). Cut the encoded matrix in groups of 3 and create the encoded n x 3 matrix A. Get a 3x3 Key matrix K 3x3. Multiply them using TI 83 calculator and send this new matrix B to your friend. Also, don't forget to send the key. Your friend multiplies B and the inverse of K to get back the original message.

11. Student rearrange in Makers and Breakers to encode and decode messages. The group who breaks the code fastest wins.