

**Field Trip #1**

Developed by:

Subject:

Short description:

Educational Level:

Field trip type:

Educational

Outcomes:

Content:

Notes to instructor:

**Cryptography**

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Cryptography

Students learn fundamentals of basic cryptography. They will be able to encrypt & decrypt messages, as well as perform basic cryptanalysis.

9<sup>th</sup> – 12<sup>th</sup> Grade

Lecture with activity

The Student Will Be Able To:

- Explain how a shift cipher works
- Encrypt a message
- Decrypt a message
- Perform cryptanalysis on a secret message

This activity should be done in a computer lab or a classroom with laptop computers. The instructor should have a computer connected to an overhead projector for lecture & demonstration. Java runtime environment must be present as well as connection to the Internet to reach the referenced Java applets. It may also be helpful to have pre-encrypted messages with various plaintexts encrypted via different keys so students can use input to cryptanalysis exercises. Lecture slides are also provided.