

## WEEK 1 SCHEDULE

### (1) **Monday**

- (a) Morning Activity 1. Introduction to classical ciphers. Scytale activity and Caesar shift. Build a Scytale project.
- (b) Morning Activity 2. Introduction to modular arithmetic and affine ciphers.
- (c) Afternoon Computer Lab. Introduction to Sage. Introduction to converting numbers to letters in sage.

### (2) **Tuesday**

- (a) Morning Activity 1. Modular arithmetic continued. Focus on inverses and multiplication tables.
- (b) Morning Activity 2. Vigenère Ciphers. Columnar Transposition Project (including breaking it activity).
- (c) Afternoon Computer Lab. Introduction to loops and functions. Build Caesar shift and Affine Cipher Functions. Brute force autodecryption.

### (3) **Wednesday**

- (a) Morning Activity 1. Modular arithmetic equations. GCDs.
- (b) Morning Activity 2. General substitution ciphers and autokey.
- (c) Afternoon Computer Lab. Frequency analysis and autocorrelation to break Vigenère

### (4) **Thursday**

- (a) Morning Activity 1. Euclidean Algorithm and Bezout numbers.
- (c) Morning Activity 2. Scavenger hunt.
- (d) Afternoon Computer Lab. Implement general substitution cipher. Make tools to help with decryption of general substitution ciphers. If time, also do autokey.