Content Objectives: Students will know:

- Applications of multiplication and division in cryptography
- Modular congruence
- Multiplicative inverses in modular arithmetic
- The pigeonhole principle
- History of secret codes
- The inverse of composite operations (optional section)
- The terms affine cipher and double encipherment (optional section)

Skill Objectives: Students will be able:

- To encipher and decipher using a multiplier
- To calculate a multiplicative inverse in modulo 26
- To encipher and decipher with double encipherment (optional section)

Essential Understandings: Students will understand:

- There are restrictions in the use of affine ciphers.
- Deciphering an affine message requires a new type of modular inverse.

Essential Questions: Students will explore:

- How does the security of affine compare with other ciphers?
- What is the main trade-off for increased security?
- Why is it important to have a well-defined cipher?