Unit 1: Confidentiality with Symmetric Encryption

1) **Idiom of the day**

"Firewall someone"

To block someone or restrict access, just like a firewall in tech.
Example: The company firewalled former employees from accessing sensitive systems.

2) **ACTIVITY 1. Warm-up activity**

Warm-Up Activity "The Shared Key Secret"

Objective: Introduce the concept of symmetric encryption and confidentiality in a relatable and engaging way by simulating the use of a shared secret.

Instructions:

1. **Materials:**
   - A virtual bard or large sheet of paper for displaying the activity.
   - A list of "secret keys" (e.g., a simple word or phrase like "BlueSky").
   - Explain: "In symmetric encryption, a single key is used to both encrypt and decrypt information. Let's simulate this idea with a simple activity."
   - Dive students in pairs. If there's an odd number, form a group of three.

Activity:

- **Step 1:** Provide each pair with the "secret key." For example, the key could be, "Add +2 to each letter's position in the alphabet to encode your message."
(A = C, B = D, etc. For Z, loop back to A.) (The teacher can decide what is the code rule.)
- **Step 2:** Teacher provides two or three sentences to each pair and then they will encrypt it using the key.
For example:
Message: "MEET AT NOON"
Encrypted: "OGGV CV PQQP"
   - **Step 3:** Partners exchange encrypted messages and use the same key to decrypt them.
     If they successfully decrypt, they share the original message with each other.

Discussing time:

- How important was it to have the same key?
- What challenges might arise if someone else got access to the key?