RC CyberEdge

Day 5: Cyber Heroes Graduation

A Cyber Heroes Activity

Day 5: Cyber Heroes Graduation

Story:

Congratulations! You've completed your training and are now official Cyber Heroes. One final challenge remains!

Game Rules:

Students go through a cybersecurity escape room with puzzles based on what they learned. Challenges include solving riddles, identifying fake messages, and creating a secure password. Everyone who completes the challenge earns a Cyber Hero Certificate!

Lesson:

- **Review of cybersecurity concepts learned throughout the week.**
  - Review key terms like phishing, malware, strong passwords, cyberbullying, and responsible online behavior.
  - Discuss real-world examples and scenarios to reinforce understanding.

Activity: Escape the Cyber Maze

- A team-based cybersecurity escape room with puzzles based on what they learned.

Detailed Instructions for the Game:

1. **Game Setup:**
   - Design a series of cybersecurity-themed puzzles and challenges.
   - Each solved puzzle provides a clue or code to unlock the next level.
   - The final level represents "escaping the cyber maze" and becoming official Cyber Heroes.
2. **Team Formation:**
   - Divide students into teams.
   - Encourage collaboration and teamwork.
3. **Puzzles:**
   (a) **Puzzle 1: Secret Code (Decryption and Encoding with Shift Cipher) – Elementary Level**
   - **Scenario:** The kingdom of Cyberland is in danger! The only way to unlock the magical door to the kingdom is to decipher the secret code that will grant you entry. The code has been hidden by an evil wizard using a secret cipher, and you need to figure it out before time runs out. After

decoding the secret message, you must send your own encrypted message to the kingdom's defenders!

- **Message to Decode:** jgnnq!2
- **Clues:**
  - The message has 7 characters: letters, a symbol, and a number.
  - Shift each letter backwards by 2 in the alphabet to decrypt the message.
  - The number 2 and symbol '!' stay the same.
  - Once you decrypt the letters, you will have your final message.
- **Decoded Message:** hello!2
- **Next Task:** Now that you know the secret message is "hello", you need to send a real message to the kingdom's defenders! Encrypt the message "help me!" using the same method.
- **Steps to Encode:** Shift each letter forward by 2 in the alphabet. Keep the symbol and number the same.
- **Encoded Message:** jgnr!o
- **Math Connection:** This puzzle involves letter shifting where each letter is shifted by 2 forward or backward in the alphabet. It also includes symbol and number handling to keep the puzzle fun and engaging.

(b) **Puzzle 2: Mystery Lock (Decryption and Encoding with Caesar Cipher) – Middle School Level**

- **Scenario:** You've found an ancient scroll in the ruins of Cyberland! On the scroll is a mysterious message that needs to be encrypted using a Caesar cipher before the kingdom's treasure can be unlocked. The scroll has instructions on how to hide the message, but you need to figure out the right shift for the letters and numbers. After decoding the treasure map's message, you must create an encrypted message to send to your fellow adventurers.
- **Message to Decode:** wkhvduh!4
- **Clues:**
  - The message has 9 characters: letters, a number, and a symbol.
  - Shift each letter backwards by 3 in the alphabet to decode the message.
  - The number 4 and symbol '!' stay the same.
  - Once you decode the message, you will have the final treasure clue!
- **Decoded Message:** treasure!4
- **Next Task:** Now that you have the message "treasure," you need to send an encrypted message to your adventurer team. Your new message is "find the key!". Use the same cipher technique to encrypt it.
- **Steps to Encode:** Shift each letter forward by 3 in the alphabet. The symbol and number stay in place.
- **Encoded Message:** ilqg wkh nhb!
- **Math Connection:** This puzzle uses the Caesar cipher where letters are shifted by a fixed number (3). Students will also practice number and symbol handling while encoding and decoding messages.

(c) **Puzzle 3: Cipher Wheel Challenge (Decryption and Encoding with Shift Cipher) – Elementary Level**

- **Scenario:** You've discovered an ancient cipher wheel that holds the key to unlocking a secret treasure map! The wheel can shift letters and numbers in the alphabet to reveal the message. You need to decrypt the message to find the treasure. Once decrypted, you must create your own message to send to the Kingdom's defenders.
- **Message to Decode:** vkrhlg!5
- **Clues:**
  - The message has 7 characters: letters, numbers, and symbols.
  - Shift each letter backwards by 3 to decode the message.
  - The number 5 and symbol '!' stay in place.
  - Once you decrypt the letters, you will have your final password.
- **Decoded Message:** secret!5
- **Next Task:** The kingdom is under attack, and you need to send a message for help! Your new message is "send help!". Encrypt it using the same method.
- **Steps to Encode:** Shift each letter forward by 3 in the alphabet. The number 5 and symbol '!' stay in place.
- **Encoded Message:** vhqg khow!5
- **Math Connection:** This puzzle involves alphabet shifting where the letters are moved by 3 places forward or backward. It also focuses on handling numbers and symbols without altering them. (d) **Puzzle 4: The Number Code Challenge (Decryption and Encoding with Mathematical Substitution) – Middle School Level**
- **Scenario:** You've entered the kingdom's royal vault, but to get inside, you need to solve a complex puzzle involving math and encryption. Use the numbers in the scrambled code and shift them based on a pattern to unlock the vault. After decoding, you must send your encrypted message to the kingdom's defenders.
- **Message to Decode:** 7v!2x8
- **Clues:**
  - The code has 6 characters: letters, numbers, and symbols.
  - Shift the numbers by adding 3 to each one.
  - Shift the letters: The first letter is 'v', which is the 22nd letter in the alphabet. Shift it backwards by 4 places. The second letter is 'x', which is the 24th letter in the alphabet. Shift it backwards by 3 places.
  - The symbol '!' stays the same.
- **Decoded Message:** 3r!5u5
- **Next Task:** You need to send an encrypted message back to your team. The message is "unlock the door". Encrypt it using the same rules!
- **Steps to Encode:** Shift the letters by adding 4 to the alphabet positions. Shift the numbers by subtracting 3. The symbol stays the same.
- **Encoded Message:** yplprx vhlw!2
- **Math Connection:** This puzzle involves addition and subtraction with numbers and shifting letters. It combines basic math operations with encryption and decryption.

(e) **Phishing Email Analysis:**

- **Scenario:** A suspicious email is intercepted. You need to identify the red flags to find a hidden code.
- **Email:**
  - **Subject:** "Urgent: Verify Your Account!"
  - **Body:** "Dear Customer, Your account has been flagged for unusual activity. Click this link immediately to verify: 'bit.ly/fakebanklink'. Failure to do so will result in account suspension. Thank you, Your Bank."
- **Question:** How many red flags can you identify in this email?
- **Hidden Code:** The number of red flags is the hidden code.
- **Solution:** 4 (Urgent language, generic greeting, shortened link, threat of suspension) (f) **Malware Identification:**
- **Scenario:** A computer is showing strange symptoms. Match the symptoms to the correct malware type to reveal a clue.
- **Symptoms:**
  - A. Computer files are encrypted and inaccessible.
  - B. Pop-up ads appear frequently.
  - C. Computer slows down and sends emails without your knowledge.
- **Malware Types:**
  - 1. Ransomware
  - 2. Adware
  - 3. Spyware
- **Clue:** Arrange the number of the correct malware type in the order of the symptoms from A to C.
- **Solution:** 123

(g) **Cyberbullying Scenario:**

- **Scenario:** A student, Alex, is receiving mean comments and embarrassing photos posted on their social media profile. The bully is using a fake account.
- **Question:** What steps should Alex take to respond to this cyberbullying situation?
- **Unlock Code:** The number of steps is the unlock code.
- **Solution:** 3 (Document the evidence, block the bully, report to a trusted adult or platform) (h) **Safe Website Recognition:**
- **Scenario:** You need to identify a safe website from a list to find the final key.
- **Websites:**
  - A. 'bank-login.ru'
  - B. 'official-software.com/updates'
  - C. 'free-games-download.net'
- **Question:** Which website is most likely safe?
- **Key:** The letter of the safe website is the key.
- **Solution:** B

4. **Game Play:**

- Teams work together to solve the puzzles within a set time limit.
- Provide hints or clues as needed.
- The first team (or all teams) to unlock the final level "escapes the cyber maze" and become official Cyber Heroes.

5. **Debrief:** After the game, discuss:

- What cybersecurity concepts were used to solve the puzzles?
- How did teamwork contribute to the success of the teams?
- What real-life scenarios relate to the puzzles and challenges?
- How can we apply the knowledge gained from the game to protect ourselves online?

Cyber Hero Pledge
Before you go, sign the Cyber Hero Pledge:

- I will protect my personal information.
- I will use strong passwords.
- I will not click on suspicious links.
- I will be a responsible digital citizen.