

HACKER CYBERSECURITY

CODING GAME



A CYBERSECURITY PUZZLE GAME WHERE PLAYERS THINK LIKE ETHICAL HACKERS, USING LOGIC AND STRATEGY TO DECODE ENCRYPTED MESSAGES, DEFEND NETWORKS, AND OUTSMART CYBER THREATS.

Overview:

Hacker Cybersecurity Coding Game is an interactive puzzle game designed to teach students fundamental cybersecurity concepts through hands-on problem-solving. Players take on the role of ethical hackers, navigating security challenges, breaking encrypted codes, and preventing cyber threats in a simulated environment. The game promotes critical thinking, logical reasoning, and an understanding of real-world cybersecurity issues.

Time to Play:

- Approximately 30–45 minutes per session
- Can be played as a one-time activity or an ongoing challenge over multiple lessons

Objective:

Students work through a series of cybersecurity challenges to decode encrypted messages, secure digital networks, and understand key principles of online security. The goal is to successfully complete tasks while reinforcing problem-solving skills and computational thinking.

Learning Goals:

Cybersecurity Awareness – Students will develop an understanding of digital security, encryption, and ethical hacking principles.

Problem-Solving & Logical Thinking – The game requires strategic decision-making and logical analysis to solve cybersecurity puzzles.

Introduction to Cryptography – Players will explore encryption, decryption, and the role of keys in cybersecurity.

Ethical Hacking Concepts – Encourages students to think like ethical hackers to secure digital systems while reinforcing responsible online behavior.

Teaching Ideas

- **Cybersecurity Escape Room Challenge** – Set up stations where students must complete different cybersecurity tasks (e.g., cracking a cipher, identifying phishing attempts, or securing a password).
- **Classroom Cyber Defense Strategy** – After playing, have students create their own "security guidelines" for protecting personal and school data.
- **Integrate with Coding** – Pair the game with introductory coding lessons on encryption algorithms using Python or Scratch.
- **Real-World Connections** – Discuss real-world cybersecurity breaches and relate them to strategies learned in the game.

Suggested Classroom Adaptations

- **Individual Play** – Great for independent problem-solving practice.
- **Small Group Collaboration** – Students can work together to solve security challenges, fostering teamwork and communication.
- **Competitive Cybersecurity Tournament** – Host a classroom competition where students advance through different levels of cybersecurity puzzles.

Next Steps

- Consider integrating this game into a larger **cybersecurity unit** with discussions on careers in cybersecurity.
- Connect with local cybersecurity professionals or college students for a guest lecture on digital security.



CSTA Standards:

Algorithms & Programming

- **2-AP-11:** Create programs that use variables to store and modify data.
 - *If paired with coding activities, students could explore encryption algorithms and password security techniques.*
- **2-AP-12:** Design and iteratively develop programs that combine control structures, including nested loops and compound conditionals.
 - *Students analyze security scenarios where decision-making logic is crucial in cybersecurity strategies.*

Impacts of Computing

- **2-IC-21:** Discuss issues of bias and accessibility in the design of existing technologies.
 - *Students explore cybersecurity ethics, including biases in security measures and digital accessibility concerns.*
- **3A-IC-26:** Demonstrate ways a given algorithm applies to problems across disciplines.
 - *Understanding encryption and decryption as algorithms applicable in cybersecurity, online transactions, and communications.*

Cybersecurity

- **2-NI-04:** Model the role of protocols in transmitting data across networks and how they enable secure communications.
 - *Students can explore how encrypted messages are sent securely over a network.*
- **3A-NI-05:** Discuss real-world cybersecurity problems and identify strategies for how personal information can be protected.
 - *The game directly aligns with this standard by teaching password security, encryption, and defense strategies.*
- **3A-NI-06:** Recommend security measures to address various scenarios based on factors such as efficiency, feasibility, and ethical impacts.
 - *Students must think critically about securing digital systems while considering ethical hacking principles.*

****Connection to Real-World Computing**

The Hacker Cybersecurity Coding Game introduces students to real-world cybersecurity challenges, helping them think like ethical hackers and digital security analysts. By solving encryption puzzles and securing networks, students engage with core cybersecurity principles used in banking, government security, and corporate IT defense. The decision-making and problem-solving involved in the game reflect how professionals prevent cyber attacks and safeguard sensitive information in today's digital landscape.