CYBERSECURITY
FOR K-12 STUDENTS

Build student skills with free Lesson Plans and Project Ideas from Science Buddies and Symantec Corporation

Today's students use digital tools and online services every day, from school assignments to social interactions.

Helping K-12 students understand cybersecurity risks and build habits that protect private information, devices, and personal safety is critically important.

The Cybersecurity collection at Science Buddies features classroom Lesson Plans, STEM projects, and career information to support student exploration.

www.sciencebuddies.org/
cybersecurity

Cybersecurity STEM Careers

- Cryptographer
- Information Security Analyst
- Penetration Tester
- Security Incident Responder

Lesson Plans
Guided classroom activities

- Password Duel: play an in-class guessing game to teach students how to make their passwords harder to guess. (Grades 3-5)

- Denial-of-Service Attack: model a denial-of-service attack and brainstorm and test ways to protect the network against it. (Grades 6-8)

Project Ideas
Independent student exploration

Elementary School

- Is a Deleted File Really Gone?: learn how a computer's file system works and about overwriting and file shredding.

Middle School

- Do People Use Different Passwords for Different Accounts?: conduct a survey to identify trends in human behavior.

- How Secure Are Your Security Questions?: how hard is it to find the answers to common security questions?

- Keeping It Private: explore how simple materials can block an RFID tag or card's information from being read.

High School

- Crack the Code: use Python to compare decoding Caesar ciphers by brute force and frequency analysis.

- Hacking the Air Gap: explore ways data can be stolen from a computer without an Internet connection.

- Password Security: explore how easy passwords are to guess and write and test a simple password-guessing program.

- Preventing SQL Injection Attacks: set up a virtual server and explore SQL injection and ways to safeguard against it.

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