

# Cybersecurity in

# K12 COMPUTER SCIENCE



**Computing is not only a fundamental part of our daily lives—our energy grid, national defense, finance, healthcare, and other systems depend upon it.**

Cyber attacks continue to grow in sophistication and frequency. Addressing these threats requires developing a larger workforce within the US with a foundation in computer science. **We must start building this foundation in our K-12 system.**

## ***A Broken Pipeline***

Cybersecurity cuts across many domains of study, but its roots are in computer science. Expanding access to K-12 computer science in the US will help meet the specialized needs of the cybersecurity workforce by building a diverse pipeline of students interested in various aspects of technology.

## ***Cybersecurity in K-12 Computer Science***

Beyond giving students access to the foundational aspects of computer science, we can also expose students to specific cybersecurity concepts within K-12. For example, students can understand how technology impacts their lives (e.g., social networking, cyberbullying, mobile computing). In high school introductory computer science courses, all students can learn the basic principles of security, such as cryptography, threats, and authentication. This will inspire more students to take specialized courses in cybersecurity.



## ***Cybersecurity in the K-12 CS Framework***

The K-12 CS Framework serves as a high-level guide to inform the development of computer science standards, curriculum, and professional development. The National Institute for Cybersecurity Education, International Association of Privacy Professionals, National Integrated Cyber Education Research Center, and experts from higher education have also contributed to this project.

Specific examples of cybersecurity topics in the Framework include:

- Online piracy and ethics
- Digital citizenship
- Confidentiality
- Integrity
- Availability
- Authentication
- Encryption
- Viruses, phishing, firewalls

Learn more at [k12cs.org](http://k12cs.org).

The K-12 CS Framework was led by the Association for Computing Machinery, Code.org, Computer Science Teachers Association, Cyber Innovation Center, and the National Math and Science Initiative, and developed along with 14 states and the CS education community.