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@CS4NJ

#CSPDWeek2026

#CompSciNJ

@csteachersorg

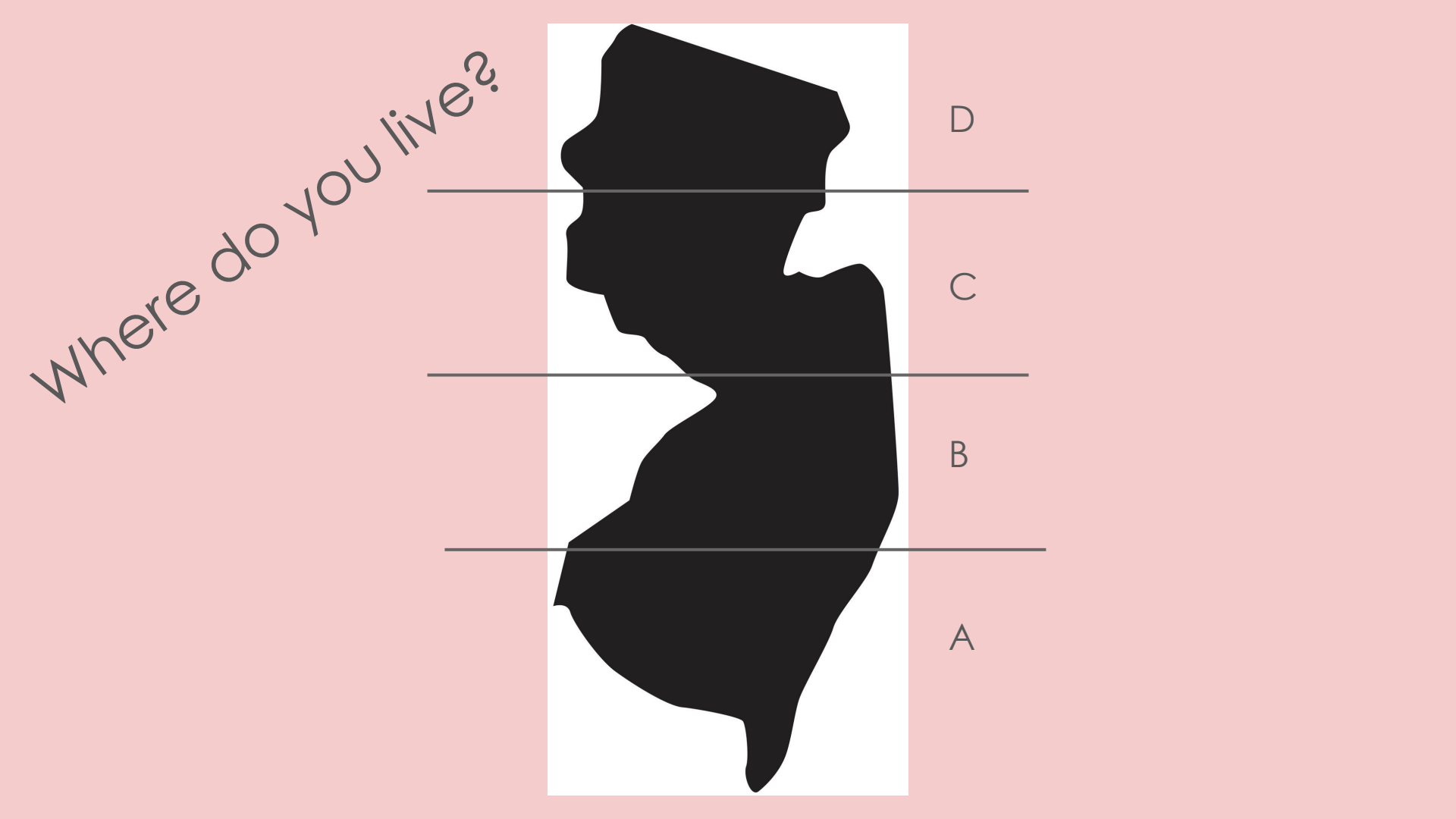


New Jersey CSPDWeek

This material is based upon work supported by the National Science Foundation under Award No. 2607763.

NEW Cybersecurity Standards 9-12

Abby Lahr



Where do you live?

D

C

B

A

in the most polite way, why are you here?

Schedule

- 1) Look at the standards as a whole
- 2) Break them down
- 3)

Remember being in math class and your teacher gave you a word problem?

8.1: Computer Science

Networks and Cybersecurity (NC): By the end of grade 12, students understand how data travels across networks and how systems are protected from unauthorized access and vulnerabilities. They explore protocols, security measures, and ethical responsibilities, developing artifacts that demonstrate readiness for postsecondary success in secure and connected digital environments.

K-2	3-5	6- 8	9-12
8.1.NC.K-2.1 Recognize that the Internet is a group of connected devices. 8.1.NC.K-2.2 Describe how the Internet enables individuals to connect with others worldwide.	8.1.NC.3-5.1 Explain the different ways data is transmitted over the Internet.	8.1.NC.6-8.1 Model how data travels across the Internet through multiple routes and devices and how that redundancy ensures reliable transmission.	8.1.NC.9-12.1 Articulate the roles of protocols and hardware in transmitting data on the Internet.
8.1.NC.K-2.3 Compare how keeping devices secure is like keeping property in the real world safe. 8.1.NC.K-2.4 Explain why access to devices needs to be secured.	8.1.NC.3-5.2 Describe physical and digital security measures for protecting sensitive personal information.	8.1.NC.6-8.2 Outline how data can be read, changed, corrupted, and restricted. 8.1.NC.6-8.3 Explain how security measures adapt in response to new digital threats.	8.1.NC.9-12.2 Secure data against unauthorized and unintended access or modification, both when it is being stored and transmitted. 8.1.NC.9-12.3 Evaluate security measures to address various common security threats.

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9-12

8.1.NC.9-12.1 Articulate the roles of protocols and hardware in transmitting data on the Internet.

8.1.NC.9-12.2 Secure data against unauthorized and unintended access or modification, both when it is being stored and transmitted.

8.1.NC.9-12.3 Evaluate security measures to address various common security threats.

8.1.NC.9-12.1 Articulate
the roles of protocols and
hardware in transmitting
data on the Internet.

8.1.NC.9-12.1 Articulate the roles of protocols and hardware in transmitting data on the Internet.

um what?

students need to be able to explain...

what rules and equipment are needed to get information from one place to another on the internet?

What vocab words or concepts does this entail?

Protocols

TCP

UDP

IP

HTTP

...whatever comes up in your
curriculum

Hardware

Computers

Routers

Switches

Cables

...whatever comes up in your
curriculum

What lesson do you
already teach that comes
to mind when reflecting on
this standard?

Unit 5 - Devices & Networks

[Unit 5 - Assessment](#)

Section 5.1 - Computer Components

[Lesson Plan](#)

5.1.1 - Computer Components

[Lesson Guide](#)
[PowerPoint](#)

[Lab - Installing PC Components](#)
[Lab - Installing PC Components PPT](#)

Section 5.2 - Networking Fundamentals

[Lesson Plan](#)

5.2.1 - Network Connections

[Lesson Guide](#)
[PowerPoint](#)

[Activity - Net Puzzles](#)
[Activity - Net Puzzles Answers](#)

5.2.2 - Network Naming

[Lesson Guide](#)
[PowerPoint](#)

[Lab - ARP with Wireshark](#)
[Lab - ARP with Wireshark Answers](#)
[Lab - ARP with Wireshark PPT](#)

Section 5.3 - Protocols & Packets

[Lesson Plan](#)

5.3.1 - Communicating in a Network

[Lesson Guide](#)
[PowerPoint](#)

[Activity - Mobster Net Instructions](#)
[Tags - Do Not Deliver](#)
[Tags - Deliver](#)

5.3.2 - Packet Delivery & Protocols

[Lesson Guide](#)
[PowerPoint](#)

[Lab - Instructor PPT - Packet Analysis with Wireshark](#)
[Lab - Teacher Notes - Packet Analysis with Wireshark](#)
[Lab - Packet Analysis with Wireshark Student Worksheet](#)
[Lab - Packet Analysis with Wireshark Answers](#)

Hardware

Protocols

Cyber.org > Technology Plus > Unit 4: Networking

2.8.1 – Basic Network Concepts

Students will identify key components of a computer network and explain how devices communicate using protocols, addresses, and ports.

aka: shortens all the previous lessons into one; more in depth than CSP lessons

[Lesson Guide](#)

AP CSP Big idea 4 - Computer Systems & Networks

Topic 4.1 The Internet

Ready made lessons already out there for CSP will cover **8.1.NC.9-12.1**

code.org Unit 2 The Internet

Hardware → Lessons 2, 4

Protocols → Lessons 3, 5, 6

Putting Them Together → 4, 5, 6

What other CSP curriculum do you use that has good lessons for this?

breakkkkkkkk

Data at Rest or Data in Transit

Student records on online platform

Streaming Disney Plus

Sending an email

Photos on your phone

Google doc you're creating

Online banking

8.1.NC.9-12.2 Secure data against unauthorized and unintended access or modification, both when it is being stored and transmitted.

...protect the data

Protecting Data can mean focusing on...

- Data States
- Encryption
- Authentication
- Confidentiality
- Integrity
- Accessibility
- Privacy
- Network Security
- Human Factors
- Backup & Recovery

What lesson do you
already teach that comes
to mind when reflecting on
this standard?

- CSP: Lesson 6: HTTP & DNS - secure protocols for data on internet
- AI Foundations Exploring AI & CS: Unit 4: Lesson 6, 7, 9, 10, & ?
- Cybersecurity and Global Impacts: All lessons (this unit is also in AI foundations)



when was the last
time you actually
looked on here?

codeHS

Course Catalog

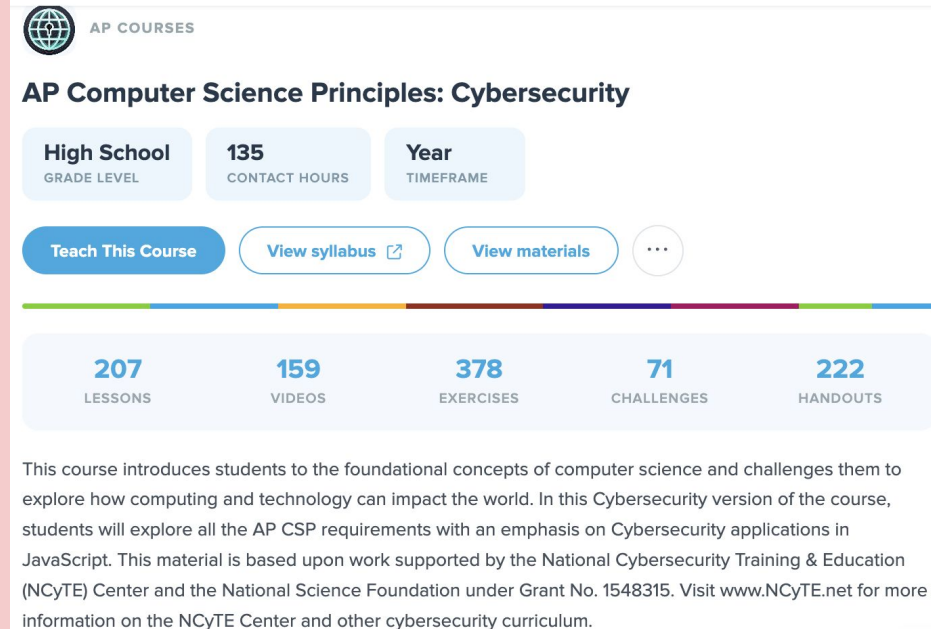
They have TWO csp courses

AP CSP Cybersecurity: Units

- Encryption
- The Internet

Regular AP CSP

- Cryptography
 - Caesar Ciphers
- Asymmetric Encryption
- Viewing Websites
- DNS



The screenshot shows the course page for "AP Computer Science Principles: Cybersecurity" on the codeHS platform. The page features a header with the "AP COURSES" logo, the course title, and three tabs: "High School" (Grade Level), "135" (Contact Hours), and "Year" (Timeframe). Below these are three buttons: "Teach This Course", "View syllabus" (with an external link icon), and "View materials", followed by a three-dot menu. A horizontal progress bar is visible. At the bottom, a statistics bar displays: 207 Lessons, 159 Videos, 378 Exercises, 71 Challenges, and 222 Handouts. A descriptive paragraph at the very bottom explains the course's focus on foundational computer science concepts with a cybersecurity emphasis, mentioning support from the National Cybersecurity Training & Education (NCyTE) Center and the National Science Foundation.

AP Computer Science Principles: Cybersecurity

High School
GRADE LEVEL

135
CONTACT HOURS

Year
TIMEFRAME

Teach This Course

View syllabus 

View materials

...

207
LESSONS

159
VIDEOS

378
EXERCISES

71
CHALLENGES

222
HANDOUTS

This course introduces students to the foundational concepts of computer science and challenges them to explore how computing and technology can impact the world. In this Cybersecurity version of the course, students will explore all the AP CSP requirements with an emphasis on Cybersecurity applications in JavaScript. This material is based upon work supported by the National Cybersecurity Training & Education (NCyTE) Center and the National Science Foundation under Grant No. 1548315. Visit www.NCyTE.net for more information on the NCyTE Center and other cybersecurity curriculum.

cyber.org

- Pringles Can Enigma - drop in [lesson](#)
- Morse Code [Activity](#)
- Cybersecurity 1 Course
 - 1.1.1 CIA Triad
 - Unit 3 - Data Safety & Best Practices
 - Unit 4 - Cryptography & Linux
 - Units 8, 9, 10
 -

Data moving → Unit 5

Data protection → Unit 1, 3, 4, 8, 9

Evaluate the protection → Unit 3, 8, 9, 10

breakkkkkkk

Finish the Sentence

The biggest cybersecurity mistake people make is...

8.1.NC.9-12.3

Evaluate security measures
to address various
common security threats.

so there is a cyber
problem, what is the best
way to protect against it?

What vocab words or concepts does this entail?

threats

phishing
malware
password attacks
data breaches
social engineering

...whatever comes up in your
curriculum

protections

passwords
MFA
encryption
software updates
antivirus software
firewalls
least privilege

...whatever comes up in your
curriculum

What lesson do you
already teach that comes
to mind when reflecting on
this standard?

cyber.org

- Cyber 1 → 2.1.1 PSA Videos for Social Engineering
- Cyber 1 → Unit 3, 7, 8, 9

Cyber Safety [Videos](#)

Unit 3 - Data Safety & Best Practices

[Unit 3 - Assessment](#)

Section 3.1 - Securing the System

[Lesson Plan](#)

3.1.1 - System Vulnerabilities	Lesson Guide PowerPoint	Activity - CVE Named Vulnerabilities
		Activity - CVE Named Vulnerabilities Answer Key
3.1.2 - System Hardening Part 1	Lesson Guide PowerPoint	Lab - MBSA Vulnerability Scan
		Lab - MBSA Vulnerability Scan Answer Key
3.1.3 - System Hardening Part 2	Lesson Guide PowerPoint	Lab - MBSA Vulnerability Scan PPT
		Activity - Extension - Benchmark Selections Project
		Activity - Extension - CIS Microsoft Windows 10 Benchmark Reference
		Activity - Bingo Teacher Instructions
		Activity - Bingo Game Securing the System PPT
		Activity - Bingo Blank Sheets
		Activity - Bingo Prefilled Cards

Section 3.2 - IoT Threat Modeling

[Lesson Plan](#)

3.2.1 - Threat Modeling & IOT	Lesson Guide PowerPoint	Resource - Lesson 3.2.1 - Articles
		Activity - IoT Spoons Game Teacher Instructions
		Activity - IoT Spoons Game
		Activity - My IoT Threat Model

code.org

Curriculum → AI Foundations: Exploring AI and CS

The Fabric of the Internet & AI → Lessons 9, 11

Cybersecurity & Global Impacts

Although not a lesson, a great place where we can bring in current events and have discussions.

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how does the internet work?

9-12

8.1.NC.9-12.1 Articulate the roles of protocols and hardware in transmitting data on the Internet.

how do we protect data?

8.1.NC.9-12.2 Secure data against unauthorized and unintended access or modification, both when it is being stored and transmitted.

given a threat, which protection works best?

8.1.NC.9-12.3 Evaluate security measures to address various common security threats.

devices needs to be secured.

8.1.NC.K-5.4 Explain why access to

digital threats.

measures adapt in response to new

8.1.NC.8-8.3 Explain how security

security threats.

measures to address various common

8.1.NC.9-12.3 Evaluate security

stored and transmitted.

Other curriculums

Ring Curriculum → request [access](#)

old cyber standards

- 8.1.NC.9-12.1 Analyze vulnerabilities and identify methods to protect networks and data.
- 8.1.NC.9-12.2 Analyze encryption techniques used to protect confidentiality and integrity.
- 8.1.NC.9-12.3 Evaluate security measures to address common security threats.

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