<table>
<tr><th>Unit</th><th colspan="2">Unit
Title</th><th>Recommended
Instructional Days</th></tr>
<tr><td>2</td><td colspan="2">Computer Science: Computing Systems</td><td>Trimester 2</td></tr>
<tr><td>Disciplinary Concept:</td><td>Practice:</td><td rowspan="3">Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CSDT within Unit</td><td rowspan="3"></td></tr>
<tr><td>CS
IC
AP
DA</td><td>Fostering an Inclusive Computing and Design Culture

Collaborating Around Computing and Design

Recognizing and Defining Computational Problems

Developing and Using Abstractions

Testing and Refining Computational Artifacts

Communicating About Computing and Design</td></tr>
<tr><td>Core Idea:</td><td>Performance Expectation/s:</td></tr>
<tr><td>Protocols, packets, and addressing are the key components for the reliable delivery of information across networks.

The information sent and received across networks can be protected from unauthorized access and modification in a variety of ways. The evolution of malware leads to understanding the key security measures and best practices needed</td><td>8.1.8.NI.1: Model how information is broken down into smaller pieces, transmitted as addressed packets through multiple devices over networks and the Internet, and reassembled at the destination.

8.1.8.NI.2: Model the role of protocols in transmitting data across networks and the Internet and how they enable secure and errorless communication.</td><td colspan="2"><u>Essential Question/s:</u>
1. In what ways can devices on a network be linked together? How do MAC and IP addresses work together to allow devices to communicate on a network?

2.How do network devices use MAC addresses and IP addresses to send and receive information within a network and across networks?

3. In what ways are we connected to the network, and what happens if someone in the network experiences a cyber attack? : What security strategies can we apply to protect our hardware?

4. How do we safely store and share information using cloud computing? What are the advantages and disadvantages of the different cloud deployment models?</td></tr>
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to proactively address the threat to digital data Network security depends on a combination of hardware, software, and practices that protect data while it is at rest, in transit, and in use. Software and hardware determine a computing system's capability to store and process information. The design or selection of a computing system involves multiple considerations and potential trade-offs. Troubleshooting a problem is more effective when knowledge of the specific device, along with a systematic process, is used to identify the source of a problem. The information sent and received across networks can be protected from unauthorized access and modification in a variety of ways. The evolution of malware leads to understanding the key security measures and best practices needed to proactively address the threat to digital data.	8.1.8.NI.3: Explain how network security depends on a combination of hardware, software, and practices that control access to data and systems. 8.1.8.NI.4: Explain how new security measures have been created in response to key malware events 8.1.12.NI.2: Evaluate security measures to address various common security threats. 8.1.8.CS.2: Design a system that combines hardware and software components to process data. 8.1.8.CS.3: Justify design decisions and explain potential system trade-offs. 8.1.8.CS.4: Systematically apply troubleshooting strategies to identify and resolve hardware and software problems in computing systems. 8.1.8.NI.3: Explain how network security depends on a combination of hardware, software, and practices that control access to data and systems. 8.1.8.NI.4: Explain how new security measures have been created in response to key malware events.	5. How can different online services help us accomplish tasks and stay connected in our daily lives? How does information travel across the internet to me from some of my favorite applications? 6. What would happen if you lost all your important files – homework, photos, or game progress? How would you get them back? **Activity Description**: 1. Students will explore the fundamental concept of network topologies – how devices are physically or logically connected to one another within a computer network to share data and resources. students to the fundamental concepts of MAC and IP addresses, explaining their roles in network communication 2. Students to fundamental networking concepts, focusing on the devices that connect computers within a network and how they find and communicate with each other. 3. Students will learn about the many ways we interact with the network through our devices. Students will discuss peripheral hardware devices, the vulnerabilities they create in our systems, and how to protect against those vulnerabilities. 4. Students will discuss how data storage and sharing has changed over time with cloud computing, and groups will identify safe practices for cloud computing to share with their school community. 5. Students will understand different online services and how they can be used. Students will examine two protocols used to send packets across a network, Transmission Control Protocol and User Datagram Protocol, and consider which protocol is used in some of their favorite apps and services online. 6. Students will learn how backups serve as digital lifesavers, safeguarding their important files, such as homework assignments, family photos, and game progress, from unexpected loss. **Interdisciplinary Connections:** **ELA** W7, W.8.7., W.8.2. ELA RI.8.7., NJSLSA.SL2., NJSLSA.SL5., NJSLA SL.8.2., NJSLA SL.8.5, NJSLSA.R7, NJSLSA.SL2, SL.8.2., NJSLSA.SL4., NJSLSA.SL5., NJSLSA.SL6., SL.8.5.
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	

Self Awareness Self-Management Social Awareness Responsible-Decision Making Relationship Skills	• Recognize one's feelings and thoughts • Recognize the importance of self-confidence in handling daily tasks and challenges. • Recognize the skills needed to establish and achieve personal and educational goals. • Recognize and identify the thoughts, feelings, and perspectives of others. • Demonstrate an awareness of the differences among individuals, groups, and other' cultural backgrounds • Develop, implement, and model effective problem-solving and critical thinking skills • Evaluate personal, ethical, safety and civic impact of decisions. • Utilize positive communication and social skills to interact effectively with others • Identify who, when, where, or how to seek help for oneself or others when needed	

Assessments (Formative) ***To show evidence of meeting the standard/s, students will successfully engage within:***	**Assessments (Summative)** ***To show evidence of meeting the standard/s, students will successfully complete:***
Formative Assessments: • Exit Slips	**Benchmark:** • Performance Assessment • Unit Assessments

• Quizzes • Lesson Activity Worksheets • Presentations / videos	• Projects **Summative Assessments:** • District/Department Assessments

Differentiated Student Access to Content:
Teaching and Learning *Resources/Materials*

Core Resources	**Alternate Core Resources *IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core Resources**
• Cyber.org • Hardware / Software	• Reteaching worksheets • Spanish version of lesson activities	• Dictionary for native language • Google Translate • Translation by classroom Paraprofessional	• Enrichment/Extension activities

Supplemental Resources

Technology:
- Chromebooks, MacBook
- Projector
- Smartboard
- projectstem.org
- semiconductor.withgoogle.com
- ABCya! Games
- https://mitmedialab.github.io/
- Scratch
- https://contours2classification.herokuapp.com/student
- https://teachablemachine.withgoogle.com/

Other:
- Google Classroom
- Google Meet Conferencing Tool
- GAFE (Docs, Sheets, Slides, Drawings, Sites)
- YouTube
- Pens, Pencils, Paper, Markers, Crayons, chart paper, envelopes

Differentiated Student Access to Content: **Recommended *Strategies & Techniques***			
Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
Deliver instruction utilizing varied learning styles including audio, visual, and tactile/kinesthetic, provide individual instruction as needed, modify assessments and/or rubrics, repeat instructions as needed.	Utilize a multi-sensory (VAKT) approach during instruction, provide alternate presentations of skills by varying the method (repetition, simple explanations, additional examples, modeling, etc.), modify test content and/or format, allow students to retake test for additional credit, provide additional times and preferential seating as needed, review, restate and repeat directions, provide study guides, and/or break assignments into segments of shorter tasks.	Extend time requirements, preferred seating, positive reinforcement, check often for understanding/review, oral/visual directions/prompts when necessary, supplemental materials including use of online or paper bilingual dictionaries, and modified assessment and/or rubric.	Provide extension activities related to the topic being discussed. Create an enhanced set of introductory activities, integrate active teaching/learning opportunities, incorporate authentic components, propose interest-based extension activities, and connect students to related talent development opportunities.

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept:**	
	Core Ideas:	• **An individual's strengths, lifestyle goals, choices, and interests affect employment and income** • **An individual's strengths, lifestyle goals, choices, and interests affect employment and income** • **Communication skills and responsible behavior in addition to education, experience, certifications, and skills are all factors that affect employment and income.**
	Performance Expectation/s:	9.1.8.PB.5, 9.2.8.CAP.2, 9.2.8.CAP.4:, 9.2.8.CAP.18,

	Career Readiness, Life Literacies, & Key Skills Practices
	Consider the environmental, social, and economic impacts of decisions **Demonstrate creativity and innovation** **Utilize critical thinking to make sense of problems and persevere in solving them** **Use technology to enhance productivity, increase collaboration and communicate effectively** **Work productively in a team while using cultural/global competence**

New Jersey Legislative Statutes and Administrative Code (place an "X" before each law/statute if/when present within the curriculum map)									
	Amistad Law: *N.J.S.A. 18A 52:16A-88*		Holocaust Law: *N.J.S.A. 18A:35-28*	X	LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*	X	Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*		Standards in Action: *Climate Change*