Unit	Unit Title	Recommended Instructional Days
Unit 2	**Computer Programming, Course C**	**Trimester 2**

Disciplinary Concept:	**Practice:**	**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CSDT within Unit**
CS **IC** **AP** **DA**	Fostering an Inclusive Computing and Design Culture Collaborating Around Computing and Design Recognizing and Defining Computional Problems Creating Computational Artifacts Testing and Refining Computional Artifacts Communicating About Computing and Design	
Core Idea:	**Performance Expectation/s:**	

Individuals use computing devices to perform a variety of tasks accurately and quickly. Computing devices interpret and follow the instructions they are given literally. A computing system is composed of software and hardware. Describing a problem is the first step toward finding a solution when computing systems do not work as expected. Computing technology has positively and negatively changed the way individuals live and work (e.g., entertainment, communication, productivity tools). Individuals collect, use, and display data about individuals and the world around them. Individuals develop and follow directions as part of daily life. A sequence of steps can be expressed as an algorithm that a computer can process. Real world information can be stored and manipulated in programs as data (e.g., numbers, words, colors, images). Computers follow precise	8.1.2.CS.1: Select and operate computing devices that perform a variety of tasks accurately and quickly based on user needs and preferences. 8.1.2.CS.2: Explain the functions of common software and hardware components of computing systems. 8.1.2.CS.3: Describe basic hardware and software problems using accurate terminology. 8.1.2.IC.1: Compare how individuals live and work before and after the implementation of new computing technology. 8.1.2.DA.1: Collect and present data, including climate change data, in various visual formats. 8.1.2.AP.1: Model daily processes by creating and following algorithms to complete tasks. 8.1.2.AP.2: Model the way programs store and manipulate data by using numbers or other symbols to represent information. 8.1.2.AP.3: Create programs with sequences and simple loops to accomplish tasks. 8.1.2.AP.4: Break down a task into a sequence of steps. 8.1.2.AP.5: Describe a program's sequence of events, goals, and	**Essential Question/s:** What is online meanness and how does it make you feel? Why is it important to learn how to identify an algorithm? What is a bug in a program and how do I debug code? What is sequencing in programming and how is a sequential algorithm used? What are loops, and how can I use them to replace repeated patterns? What are events and event handlers and how can I use them to improve my program? Why do we collect and show information, and what can we learn when we look at it in different ways? What does the word " binary" mean, and how does the computer use it to store data? Why is it helpful to have a plan before we build something new with computers? **Activity Description** Discuss key vocabulary, ask "Why do you think someone would be mean to someone else online?" Present several scenarios to students and record and discuss responses. Discuss S-T-O-P and why it is important. Wrap up activity: Draw a picture about what you should do if you experience someone being mean to you online. Write a sentence explaining what you should do if you experience someone being mean to you online (Course C, Lesson 1)

sequences of steps that automate tasks. Complex tasks can be broken down into simpler instructions, some of which can be broken down even further. People work together to develop programs for a purpose, such as expressing ideas or addressing problems. The development of a program involves identifying a sequence of events, goals, and expected outcomes, and addressing errors (when necessary).	expected outcomes. 8.1.2.AP.6: Debug errors in an algorithm or program that includes sequences and simple loops.	Discuss why it is important to accept others who are different from ourselves and why it is important to make everyone feel accepted and included (Course C, Lesson 1). Write code to program your robotic friends (unplugged activity) (Course C, Lesson 2). Bridging activity to transition from unplugged to online. Illustrate puzzle as whole group modeling and discussing the code and how to debug if mistakes are made. Solve puzzles online by programming with Angry Birds (Course C, Lesson 3). Make predictions on where a program may fail. Discuss the debugging process in an age appropriate way (Course C, Lesson 4). Watch video "The Collector." Create sequential algorithms to get Laurel the Adventurer to pick up treasure as she walks along a path (Course C, Lesson 5). Watch video "Artist Intro with JR Hildebrand." Create art with code (Course C, Lesson 6). Engage in unplugged activity looking for patterns of repetition in the movements of classmates and determining how to simplify those repeated patterns using loops (Course C, Lesson 7). Discuss vocabulary, engage in bridging activity previewing online puzzles as a class. Watch video, "Programming with Rey and BB-B. Engage in online activity using loops to help BB-B efficiently traverse a maze. (Course C., Lesson 8). Discuss vocabulary, watch "The Harvester." Engage in an online skill buiidng activity using creativity and logical thinking ot determine what code needs to be repeated and how many times (Course C, Lesson 9). Create sticker art. Plan out design, program design and share with class. Engage in free play (Course C, Lesson 10).
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	
Self Awareness	• Recognize one's feelings and thoughts • Recognize the impact of one's feelings and thoughts on one's own behavior • Recognize the importance of self-confidence in handling daily tasks and challenges	
Self-Management	• Understand and practice strategies for managing one's own emotions, thoughts, and behaviors.	
Social Awareness	• Recognize and identify the thoughts, feelings, and perspectives of others	

Responsible-Decision Making Relationship Skills	• Demonstrate an awareness of the differences among individuals, groups, and others' cultural backgrounds. • Demonstrate an understanding of the need for mutual respect when viewpoints differ. • Demonstrate an awareness of the expectations for social interactions in a variety of settings. • Develop, implement, and model effective problem-solving and critical thinking skills • Identify the consequences associated with one's actions in order to make constructive choices • Establish and maintain healthy relationships • Utilize positive communication and social skills to interact effectively with others • Identify ways to resist inappropriate social pressure • Demonstrate the ability to prevent and resolve interpersonal conflicts in constructive ways • Identify who, when, where, or how to seek help for oneself or others when needed	Engage in an unplugged activity as a whole group. Illustrate slides and discuss accessing prior knowledge and learned skills. Illustrate and explain the assessment by having students complete it independently. (Course C, Lesson 11). Create a Flappy Bird game, customizing their game by changing visuals and rules (Course C, Lesson 12). Watch video "Introduction to Play Lab" and discuss. Create an animated game using events (Course C, Lesson 13). Collect, visualize and analyze of a simple set of data creating bar graphs and pie grapes to represent and compare the data (Course C, Lesson 14). Practice storing, searching, retrieving, modifying and deleting the pattern blocks to simulate what computers do with data (Course C, Lesson 15). Decode binary back to letters and encode letters into binary. Relate the idea of storing letters on paper to the idea of storing information in a computer. Create a binary bracelete that represents student's name (Course C, Lesson 16 - unplugged). Using their own design and step by step process, students plan a project that allows for broad creativity (Course C, Lesson 17). **Interdisciplinary Connections:** **Math:**2.OA.A.1 **ELA:** 2.L.6, 2.SL.1, 2.SL.1.a, 2.SL.1.b, 2.SL.2, 2.SL.6
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:	**Benchmarks:**
• Observations • Discussions • Self Assessments/Reflection • Lesson Activity Worksheets/Drawings • Independent Online Activities	• Performance Assessment **Summative Assessments:** • District Department Assessment

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**
• Code.Org (Course C) • Common Sense Media	• Reteaching worksheets • Spanish version of lesson activities	• Dictionary for native language • Code.Org: Course C earlier versions available in different languages	• Enrichment/Extension activities

Supplemental Resources

Technology:
- Chromebooks, MacBook
- Projector, Interactive Whiteboard
- Clever
- Code.Org
- GAFE
- Kami
- YouTube
- Commonsensemedia.org

Other:
- Pencils, crayons, markers, paper
- Common Sense Media and Code.Org handouts/unplugged activities

Differentiated Student Access to Content:
Recommended *Strategies & Techniques*

Core Resources	**Alternate Core Resources**	**ELL Core Resources**	**Gifted & Talented Core**

	IEP/504/At-Risk/ESL		
• 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 choice board with varied leveled activities • In-Class Paraprofessional Translation Support	• 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. • Provide choice board with varied leveled activities

	Disciplinary Concept:	
NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	***Core Ideas:***	• **Brainstorming can create new, innovative ideas.** • **Critical thinkers must first identify a problem then develop a plan to address it to effectively solve the problem.** • **Individuals should practice safe behaviors when** • **using the Internet.** • **Digital communities allow for social interactions that can result in positive or negative outcomes.** • **Digital tools can be used ot display data in various ways.** • **Digital tools have a purpose.**

	Performance Expectation/s:	**9.4.2.CI.1; 9.4.2.CI.2; 9.4.2.CT.3; 9.4.2.DC.3; 9.4.2.DC.6; 9.4.2.IML.2; 9.4.2.TL.1; 9.4.2.TL.4**
	Career Readiness, Life Literacies, & Key Skills Practices	
	• **Act as a responsible and contributing community member and employee.** • **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.**	

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*		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*