Marking Period	Unit Title	Recommended Instructional Days
2/3	**Unit: Computer Programming/Coding**	Approximately 20-22 days **(Meet Once Per Week)**

Disciplinary Concept:	**Practice:**	**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CSDT within Unit**
AP DA	Collaborating Around Computing and Design Recognizing and Defining Computational Problems Developing and UsingAbstractions Creating Computational Artifacts Testing and Refining Computational Artifacts Communicating About Computing and Design	
Core Idea:	**Performance Expectation/s:**	
Data can be organized, displayed, and presented to highlight relationships. Individuals can select, organize, and transform data into different visual representations and communicate insights gained from the data. Many factors influence the accuracy of inferences and predictions. Different algorithms can achieve the same result. Some algorithms are more	• 8.1.5.DA.1: Collect, organize, and display data in order to highlight relationships or support a claim. • 8.1.5.DA.4: Organize and present climate change data visually to highlight relationships or support a claim. • 8.1.5.DA.5: Propose cause and effect relationships, predict outcomes, or communicate	**<u>Essential Question/s:</u>** How can I apply learned skills (sequences & conditions) to create a maze using an online coding platform? What are Booleans and why are they important in programming? What is an Equality Operator and when should we use one in coding? What are arrays and how are they used in programming?

appropriate for a specific use than others. Programming languages provide variables, which are used to store and modify data. A variety of control structures are used to change the flow of program execution. Programs can be broken down into smaller parts to facilitate their design, implementation, and review. Programs can also be created by incorporating smaller portions of programs that already exist. Individuals develop programs using an iterative process involving design, implementation, testing and review.	using data. ● 8.1.5.AP.1: Compare and refine multiple algorithms for the same task and determine which is the most appropriate. ● 8.1.5.AP.2: Create programs that use clearly named variables to store and modify data. ● 8.1.5.AP.3: Create programs that include sequences, events, loops, and conditionals. ● 8.1.5.AP.4: Break down problems into smaller, manageable sub-problems to facilitate program development. ● 8.1.5.AP.5: Modify, remix, or incorporate pieces of existing programs into one's own work to add additional features or create a new program. ● 8.1.5.AP.6: Develop programs using an iterative process, implement the program design and test the program to ensure it works as intended.	How can I differentiate between variables? What are the roles of variables in programming? What are strings and integers? What are "If Statements" and how do they describe real world cause and effect? What is climate change? How can we affect positive climate change? **<u>Activity Description</u>**: Watch videos "What is a Sequence?" and "What are Conditions?" (Smeeborg Game Course) to review. Create a maze with sequences and conditions using an online coding platform "Maze Maker." Watch a video about Booleans and discuss their purpose in programming. Engage in online activities to practice using booleans in coding - Push the Button (Boolean Practice - 7 levels). Watch a video "What is Equality in Programming?" Engage in online activities. Help Fuzz get through the tunnels and get to the end of the maze! Make sure Fuzz collects the key that is equal in shape and color to the key hole on the tunnel (The Key to Fun - Intro to Equality). Watch a video "What are Arrays?" Engage in online activities to help Fuzz collect a set of keys that are needed to open a tunnel. Order matters! The keys must be the same shape, color, and in the same sequence as the keyholes on the tunnel." Complete the 7 levels. Practice using booleans to help Fuzz get through the tunnels and get to the end of the maze: Button Boogie! and True, False or Fun! Complete 13 levels. Equality practice: Ship Shape! and E-quality Time! Help Fuzz get through the tunnels and get to the end of the maze! Make sure Fuzz collects the key that is equal in shape and color to the key hole on the tunnel. Complete 14 levels.
Social and Emotional Learning: ***Competencies***	**Social and Emotional Learning:** ***Sub-Competencies***	
Self Awareness	● Recognize one's feelings and thoughts ● Recognize one's personal traits, strengths, and limitations	

Self Management Social Awareness Responsible-Decision Making Relationship Skills Relationship Skills	• Recognize the importance of self-confidence in handling daily tasks and challenges • Understand and practice strategies for managing one's own emotions, thoughts, and behaviors. • 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 • Develop, implement, and model effective problem-solving and critical thinking skills • Utilize positive communication and social skills to interact effectively with others	Help Fuzz collect a set of keys that are needed to open a tunnel. Order matters! The keys must be the same shape, color, and in the same sequence as the keyholes on the tunnel. Practice using arrays - Array Parade! and Hip, Hip, Array! Complete 13 levels. Discuss conditions and how they relate to weather. Introduce I*f Flash, then Clap* (Kodable) connecting weather to if statements. Students participate in a hands-on activity simulating thunder and lightning and making predictions. Extend *If Flash, then Clap* activity by engaging in a whole group activity discussing climate change and what causes it. Discuss if what we do matters? Utilizing the NASA Kids Climate website, students will investigate climate and look into the past and future while brainstorming ways they can promote positive climate change. Work in groups to create a Slides presentation or drawing (Canva) that illustrates their ideas. Construct and personalize an asteroid-blaster game using the online Kodable platform. Use the object-oriented programming languages of JavaScript and Swift to program defense Towers and protect the Power Flowers from evil approaching Slimes: Bug World. **Interdisciplinary Connections:** **ELA** RL3.1, RL3.4, RF.3.4, SL3.1, SL3.6, W.3.5, W.3.6, L3.2 Science: NGSS ESS2.D
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 • Quizzes		**Benchmark:** • Performance Assessment • Unit Assessment **Summative Assessments:**

• Self Assessments/Reflection • Lesson Activity Worksheets • Presentations	• 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**
• Kodable Programming Platform	• Reteaching worksheets • Spanish version of lesson activities • Coding Activity Choice Board	• Dictionary for native language • Google Translate • Translation by classroom Paraprofessional • Coding Activity Choice Board	• Enrichment/Extension activities • Coding Activity Choice Board

Supplemental Resources

Technology:
- Chromebooks, MacBook
- Projector
- Smartboard
- Clever Portal
- Kodable
- Nasa Climate Kids
  - https://climatekids.nasa.gov/climate-change-meaning/
  - https://climatekids.nasa.gov/time-machine/
- Schoology
- GAFE
- YouTube

Other:
- Pens, Pencils, Paper, Markers, Crayons, chart paper, envelopes
- light bulb, rubber balloon, brown paper bags
- Kodable Unplugged Lesson Activities

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.

	Disciplinary Concept:	
NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	***Core Ideas:***	• **Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.** • **Curiosity and a willingness to try new ideas contributes to the development of creativity and innovation skills.** • **The ability to solve problems effectively begins with gathering data,**

		seeking resources, and applying critical thinking skills. • Culture and geography can shape an individual's experiences and perspectives. • Digital tools can be used to modify and display data in various ways that can be organized to communicate ideas. • Digital engagement can improve the planning and delivery of climate change actions. • Different digital tools have different purposes. • Collaborating digitally as a team can often develop a better artifact than an individual working alone.
	Performance Expectation/s:	**9.4.5.CI.1; 9.4.5.CI.2; 9.4.5.CI.3; 9.4.5.CT.1; 9.4.5.CT.3; 9.4.5.CT.4; 9.4.5.DC.8; 9.4.5.GCA.1; 9.4.5.IML.2; 9.4.5.TL.3; 9.4.5.TL.5**
	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.** • **Work productively in teams 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*		LGBT and Disabilities Law: *N.J.S.A. 18A:35-4.35*		Diversity & Inclusion: *N.J.S.A. 18A:35-4.36a*	X	Standards in Action: *Climate Change*