Marking Period	Unit Title	Recommended Instructional Days
4	**Environmental Design - Design Thinking**	Approximately 10 days **(Once Per Week)**

Disciplinary Concept:	Practice:	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CSDT within Unit
IC ED ETW	Fostering an Inclusive Computing and Design Culture Collaborating Around Computing and Design Communicating About Computing and Design	**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-CSDT within Unit**
Core Idea:	**Performance Expectation/s:**	
The development and modification of computing technology is driven by an individual's needs and wants and can affect individuals differently. Engineering design is a systematic and creative process of communicating and collaborating to meet a design challenge. Often, several design solutions exist, each better in some way than the others The technology developed for the human designed world can have unintended consequences for the environment. Technology must be continually developed and made more efficient to reduce the need for non-renewable resources.	8.1.5.IC.1: Identify computing technologies that have impacted how individuals live and work and describe the factors that influenced the changes 8.2.5.ED.1: Explain the functions of a system and its subsystems. 8.2.5.ED.2: Collaborate with peers to collect information, brainstorm to solve a problem, and evaluate all possible solutions to provide the best results with supporting sketches or models. 8.2.5.ED.3: Follow step by step directions to assemble a product or solve a problem, using appropriate tools to accomplish the task. 8.2.5.ETW.2: Describe ways that various technologies are used to reduce improper use of resources. 8.2.5.ETW.3: Explain why human-	**Essential Question/s:** What areas of our daily life are studied by environmental engineers and how do engineers impact environmental change? What is the engineering design thinking process and how can it be used to solve a problem? How do different forms of Transportation impact our environment? **Activity Description:** Research careers in environmental engineering and create a Google Slides presentation with text and illustrations (for example, wind energy engineer, environmental engineer, environmental engineering technician)as well as salary, job growth and number of expected jobs in the field.. The presentation should also include how the engineer's job impacts the environment. Share with class.

	designed systems, products, and environments need to be constantly monitored, maintained, and improved. 8.2.5.ETW.5: Identify the impact of a specific technology on the environment and determine what can be done to increase positive effects and to reduce any negative effects, such as climate change.	Research wind turbines. Create a wind turbine from materials given and test using cardboard boxes to represent buildings and show how they affect the flow of "wind" blowing from a fan. Research how different forms of transportation impact our environment. Discuss as a whole group and tell students they will be working on a project to design an eco-friendly car. **Interdisciplinary Connections: Content** NGSS 3-5-ETS1-1, NGSS 3-5-ETS1-2
Social and Emotional Learning: *Competencies*	**Social and Emotional Learning:** *Sub-Competencies*	
Self Awareness Self-Management Social Awareness Responsible-Decision Making	• Recognize one's personal traits, strengths, and limitations • Recognize the importance of self-confidence in handling daily tasks and challenges • Recognize the skills needed to establish and achieve personal and educational goals • Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one' goals • Recognize and identify the thoughts, feelings, and perspectives of others • Demonstrate an understanding of the need for mutual respect when viewpoints differ • Develop, implement, and model effective problem-solving and critical thinking skills	

Relationship Skills	● Utilize positive communication and social skills to interact effectively with others	

Assessments (Formative)	Assessments (Summative)
To show evidence of meeting the standard/s, students will successfully engage within:	*To show evidence of meeting the standard/s, students will successfully complete:*
Formative Assessments: ● Exit Slips ● Quizzes ● Self Assessments/Reflection ● Lesson Activity Worksheets	**Benchmark:** ● Performance Assessment ● 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
● Environmental design projects	● Reteaching worksheets ● Spanish version of lesson activities	● Dictionary for native languages	● Enrichment/Extension activities

Supplemental Resources

Technology:
- Chromebooks, MacBook
- Projector
- Smartboard

Other:
- Schoology
- GAFE (Docs, Sheets, Slides, Drawings, Sites)
- YouTube
- Science Buddies https://www.sciencebuddies.org/stem-activities/wild-winds-turbulent-flow-around-structures
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- https://www.teachengineering.org/activities/view/cub_intro_lesson02_activity1
- Pens, Pencils, Paper and other necessary materials for projects

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.	● Special Education: Adhere to IEP/504. 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 dictionary, 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.** ● **Different digital tools have different purposes.** ● **The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.** ● **Curiosity and a willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation skills.** ● **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.TL.1, 9.4.5.TL.5**
	Career Readiness, Life Literacies, & Key Skills Practices	
	● **Collaboration with individuals with diverse perspectives can result in new ways of thinking and/or innovative solutions.** ● **Curiosity and willingness to try new ideas (intellectual risk-taking) contributes to the development of creativity and innovation.** ● **The ability to solve problems effectively begins with gathering data, seeking resources, and applying critical thinking skills.** ● **Different digital tools have different purposes.** ● **Collaborating digitally as a team can often develop a better artifact than an individual working alone.**	

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*

Continued: | x | Standards in Action: *Climate Change*