

Marking Period	Unit Title	Recommended Instructional Days
4	Human Impact	20
NJSLS - Science: <i>Title</i>	NJSLS - Science: <i>Performance Expectations</i>	Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit
HS-LS2 Ecosystems: Interactions, Energy and Dynamics	HS-LS2-2 Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales. HS-LS2-7 Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.	
HS-LS4 Biological Evolution: Unity and Diversity	HS-LS4-6 Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.	
HS-ETS1 Engineering Design	HS-ETS1-1 Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.	

<p>LS4.D: Biodiversity and Humans</p>	<p>its more or less original status (i.e., the ecosystem is resilient), as opposed to becoming a very different ecosystem. Extreme fluctuations in conditions or the size of any population, however, can challenge the functioning of ecosystems in terms of resources and habitat availability. (HS-LS2-2)</p> <p>-Moreover, anthropogenic changes (induced by human activity) in the environment—including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change—can disrupt an ecosystem and threaten the survival of some species. (HS-LS2-7)</p> <p>-Biodiversity is increased by the formation of new species (speciation) and decreased by the loss of species (extinction). (secondary to HS- LS2-7)</p> <p>-Humans depend on the living world for the resources and other benefits provided by biodiversity. But human activity is also having adverse impacts on biodiversity through overpopulation, overexploitation, habitat</p>	<p>Interdisciplinary Connections: Content: ;NJSL#:</p> <p><u>Connections to NJSL – English Language Arts</u></p> <ul style="list-style-type: none"> ● RST.9-10.8 Determine if the reasoning and evidence in a text support the author’s claim or a recommendation or solving a scientific or technical problem. (HS-LS2-7) ● RST.11-12.1 Accurately cite strong and thorough evidence from the text to support analysis of science and technical texts, attending to precise details for explanations or descriptions. (HS-LS2-2) ● RST.11-12.7 Integrate and evaluate multiple sources of information presented in diverse formats and media(e.g., quantitative data, video, multimedia) in order to address a question or solve a problem. (HS-LS2-7) ● RST.11-12.8 Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information. (HS-LS2-7) ● WHST.9-12.2 Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (HS-LS2-2) ● WHST.9-12.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. (HS-LS2-7) <p><u>Connections to NJSL – Mathematics</u></p> <ul style="list-style-type: none"> ● MP.2 Reason abstractly and quantitatively. (HS-LS2-2), (HS-LS2-7) ● MP.4 Model with mathematics. (HS-LS2-2) ● HSN-Q.A.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale
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<p>ETS1.A: Defining and Delimiting Engineering Problems</p>	<p>environmental impacts. (secondary to HS-LS2-7, HS-LS4-6)</p> <p>-Both physical models and computers can be used in various ways to aid in the engineering design process. Computers are useful for a variety of purposes, such as running simulations to test different ways of solving a problem or to see which one is most efficient or economical; and in making a persuasive presentation to a client about how a given design will meet his or her needs. (secondary to HS-LS4-6)</p> <p>-Criteria and constraints also include satisfying any requirements set by society , such as taking issues of risk mitigation into account, and they should be quantified to the extent possible and stated in such a way that one can tell if a given design meets them. (HS-ETS1-1)</p> <p>-Humanity faces major global challenges today , such as the need for supplies of clean water and food or for energy sources that minimize pollution, which can be addressed</p>	
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<p>ESS2.D: Weather and Climate</p>	<p>through engineering. These global challenges also may have manifestations in local communities. (HS-ETS1-1)</p> <p>-Gradual atmospheric changes were due to plants and other organisms that captured carbon dioxide and released oxygen. (HS-ESS2-6)</p> <p>-Changes in the atmosphere due to human activity have increased carbon dioxide concentrations and thus affect climate. (HS-ESS2-6)</p>	
<p>FOUNDATION Science and Engineering Practices: <i>Core Idea</i></p>	<p>FOUNDATION Science and Engineering Practices: <i>Statement</i></p>	
<p>Using Mathematics and Computational Thinking Mathematical and computational thinking in 9-12 builds on K-8 experiences and progresses to using algebraic thinking and analysis, a range of linear and nonlinear functions including trigonometric functions, exponentials and logarithms, and computational tools for statistical analysis to analyze, represent, and model data. Simple</p>	<p>-Use mathematical representations of phenomena or design solutions to support and revise explanations. (HS-LS2-2)</p> <p>-Create or revise a simulation of a phenomenon, designed device, process, or system. (HS-LS4-6)</p>	

<p>computational simulations are created and used based on mathematical models of basic assumptions.</p> <p>Connections to Nature of Science: Scientific Knowledge is Open to Revision in Light of New Evidence</p> <p>Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 9–12 builds on K–8 experiences and progresses to explanations and designs that are supported by multiple and independent student-generated sources of evidence consistent with scientific ideas, principles, and theories.</p> <p>Asking Questions and Defining Problems Asking questions and defining problems in 9–12 builds on K–8 experiences and progresses to formulating, refining, and evaluating empirically testable questions and design problems using models and simulations.</p>	<p>-Most scientific knowledge is quite durable, but is, in principle, subject to change based on new evidence and/or reinterpretation of existing evidence. (HS-LS2-2)</p> <p>-Design, evaluate, and refine a solution to a complex real-world problem, based on scientific knowledge, student-generated sources of evidence, prioritized criteria, and tradeoff considerations. (HS-LS2-7)</p> <p>-Analyze complex real-world problems by specifying criteria and constraints for successful solutions. (HS-ETS1-1)</p>	
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<p>Developing and Using Models Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed world(s).</p>	<p>-Develop a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-ESS2-6)</p>	
<p>FOUNDATION Crosscutting Concepts: <i>Core Idea</i></p>	<p>FOUNDATION Crosscutting Concepts: <i>Statement</i></p>	
<p>Scale, Proportion, and Quantity</p> <p>Stability and Change</p> <p>Cause and Effect</p> <p>Connections to Engineering, Technology, and Applications of Science</p>	<p>-Using the concept of orders of magnitude allows one to understand how a model at one scale relates to a model at another scale. (HS-LS2-2)</p> <p>-Much of science deals with constructing explanations of how things change and how they remain stable. ,(HS- LS2-7)</p> <p>-Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects. (HS-LS4-6)</p> <p>-New technologies can have deep impacts on society and the environment, including some that were not anticipated. Analysis of</p>	

<p>Formative Assessments:</p> <ul style="list-style-type: none"> ● Savvas Realize Interactivity Assignments ● Reading and Study Guide Workbook ● Class Discussions and Questioning ● eText Notebook Responses 		<p>Benchmarks:</p> <ul style="list-style-type: none"> ● District assessments ● Unit Portfolio assignment if applicable <p>Summative Assessments:</p> <ul style="list-style-type: none"> ● Chapter Tests ● Claim Evidence Reasoning Tasks ● Case Study Wrap Ups ● Lab Reports/Skills Worksheets 	
<p>Differentiated Student Access to Content: Teaching and Learning Resources/Materials</p>			
<p>Core Resources</p>	<p>Alternate Core Resources <i>IEP/504/At-Risk/ESL</i></p>	<p>ELL Core Resources</p>	<p>Gifted & Talented Core Resources</p>
<ul style="list-style-type: none"> ● Authentic Reading Materials ● Classroom Supplies ● Teacher Computer ● Internet Connectivity ● Smart Board ● Online Learning Platform ● Data Analysis Software such as Google sheets ● Lab Equipment 	<ul style="list-style-type: none"> ● Alternate reading materials ● Home copy of text ● Copy of Teacher notes ● Use of models ● Authentic Reading Materials ● Classroom Supplies ● Teacher Computer ● Internet Connectivity ● Smart Board ● Online Learning Platform ● Data Analysis Software such as Google sheets ● Lab Equipment 	<ul style="list-style-type: none"> ● Translator ● English translator dictionary ● Alternate reading materials ● Copy of Teacher notes ● Use of models ● Authentic Reading Materials ● Classroom Supplies ● Teacher Computer ● Internet Connectivity ● Smart Board ● Online Learning Platform ● Data Analysis Software such as Google sheets ● Lab Equipment 	<ul style="list-style-type: none"> ● Increased inquiry based labs ● Independent Research ● Authentic Reading Materials ● Classroom Supplies ● Teacher Computer ● Internet Connectivity ● Smart Board ● Online Learning Platform ● Data Analysis Software such as Google sheets ● Lab Equipment
<p>Supplemental Resources</p>			
<p>Technology:</p> <ul style="list-style-type: none"> ● Supplemental Videos ● Student Chromebooks 			

<ul style="list-style-type: none"> Digital Platforms including Schoology and Savvas Realize <p>Other:</p> <ul style="list-style-type: none"> Safety equipment Classroom models 			
<p>Differentiated Student Access to Content: Recommended <i>Strategies & Techniques</i></p>			
Core Resources	Alternate Core Resources <i>IEP/504/At-Risk/ESL</i>	ELL Core Resources	Gifted & Talented Core
<ul style="list-style-type: none"> Guided experiments Inquiry experiments Class discussions CER activities Phenomenon Positive reinforcement Rubrics 	<ul style="list-style-type: none"> Extended time/retakes on assessments Modified Assessment Written, visual and oral directions multisensory during instruction Alternate instruction such as visual, kinetic, and auditory. Preferential seating if needed Review activities Study guides Break assignments into shorter tasks Guided experiments Inquiry experiments Class discussions CER activities Phenomenon Positive reinforcement Rubrics 	<ul style="list-style-type: none"> Read aloud test Modified Assessments Written, visual and oral directions multisensory during instruction Alternate instruction such as visual, kinetic, and auditory. Preferential seating if needed Review activities Study guides Break assignments into shorter tasks Guided experiments Inquiry experiments Class discussions CER activities Phenomenon Positive reinforcement Rubrics 	<ul style="list-style-type: none"> Further depth of content Example of realistic scenarios Research opportunities Design own experiments Enhanced set of introductory activities Extension activities Guided experiments Inquiry experiments Class discussions CER activities Phenomenon Positive reinforcement Rubrics

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	Disciplinary Concept:	
	<ul style="list-style-type: none"> ● Global and Cultural Awareness ● Digital Citizenship 	
	Core Ideas:	<ul style="list-style-type: none"> ● Solutions to the problems faced by a global society require the contribution of individuals with different points of view and experiences. ● Technologies such as Artificial Intelligence (AI) and blockchain can help minimize the effect of climate change.
	Performance Expectation/s:	<ul style="list-style-type: none"> ● 9.4.12.GCA.1: Collaborate with individuals to analyze a variety of potential solutions to climate change effects and determine why some solutions (e.g., political, economic, cultural) may work better than others (e.g., SL.11-12.1., HS-ETS1-1, HS-ETS1-2, HS-ETS1-4, 6.3.12.GeoGI.1, 7.1.IH.IPERS.6, 7.1.II.IPERS.7, 8.2.12.ETW.3). ● 9.4.12.DC.8: Explain how increased network connectivity and computing capabilities of everyday objects allow for innovative technological approaches to climate protection.
	Career Readiness, Life Literacies, & Key Skills Practices	
<p>Consider the environmental, social and economic impacts of decisions. Students understand the interrelated nature of their actions and regularly make decisions that positively impact and/or mitigate negative impact on other people, organization, and the environment. They are aware of and utilize new technologies, understandings, procedures, materials, and regulations affecting the nature of their work as it relates to the impact on the social condition, the environment and the profitability of the organization.</p>		

New Jersey Legislative Statutes and Administrative Code
(place an "X" before each law/statute if/when present within the curriculum map)

Amistad Law: <i>N.J.S.A. 18A 52:16A-88</i>		Holocaust Law: <i>N.J.S.A. 18A:35-28</i>	X	LGBT and Disabilities Law: <i>N.J.S.A. 18A:35-4.35</i>	X	Diversity & Inclusion: <i>N.J.S.A. 18A:35-4.36a</i>	X	Standards in Action: <i>Climate Change</i>
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