Marking Period	Unit Title	Recommended Instructional Days
2	**Homeostasis**	**20 Days**

NJSLS - Science: ***TItle***	**NJSLS - Science:** ***Performance Expectations***	**Recommended Activities, Investigations, Interdisciplinary Connections, and/or Student Experiences to Explore NJSLS-S within Unit**
HS-LS1 From Molecules to Organisms: Structure and Processes	**HS-LS1-2** Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. **HS-LS1-3** Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. **HS-LS1-4** Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.	
FOUNDATION Disciplinary: ***Core Idea***	**FOUNDATION Disciplinary:** ***Statement***	
LS1.A: Structure and Function	-Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. (HS-LS1-2)	**<u>Essential Question/s:</u>** ● How do the body systems of animals allow them to collect information about their environment and respond appropriately? ● How does a cell produce a new cell? How are cell structures adapted to their functions?

LS1.B: Growth and Development of Organisms	-Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system. (HS-LS1-3) -In multicellular organisms individual cells grow and then divide via a process called mitosis, thereby allowing the organism to grow. The organism begins as a single cell (fertilized egg) that divides successively to produce many cells, with each parent cell passing identical genetic material (two variants of each chromosome pair) to both daughter cells. Cellular division and differentiation produce and maintain a complex organism, composed of systems of tissues and organs that work together to meet the needs of the whole organism. (HS-LS1-4)	**Activity Description**: ● **Savvas Realize Interactivity- Osmosis** This digital activity provides an opportunity for students to investigate osmosis and the concentration gradient by looking at a cell before and after equilibrium, as well as three cell environments: isotonic, hypotonic, and hypertonic. ● **Savvas Realize Interactive Video- Maintaining Homeostasis** This interactive video features the disease cystic fibrosis as it relates to different levels of organization in the body and maintaining homeostasis. ● **Savvas Realize Quick Lab- Make a Model of Mitosis** Students will design and build models of mitosis. They will evaluate the accuracy of their models and present their models to their classmates. ● **Savvas Realize Science Skills Activity- Investigating Cell Regulation** This digital activity provides an opportunity for students to investigate internal regulation mechanisms for cell growth and what factors regulate it. ● **Savvas Realize- Biology Foundations: Animal Systems I and II** The worksheets from the Reading Workbook reviews the main ideas of the chapters and helps to practice vocabulary. Use these lesson summaries and reading tools to increase your understanding of chapter vocabulary and concepts. ● **Spotlight on scientists and their accomplishments- Percy Levon Julian** Students will research the life and contributions of African American chemist and entrepreneur, Percy Levon Julian. Students will summarize what they have learned and prepare a short discussion or presentation on how Julian's work changed the science community and the world.
FOUNDATION **Science and Engineering Practices:** ***Core Idea***	**FOUNDATION** **Science and Engineering Practices:** ***Statement***	**Interdisciplinary Connections: Content: ;NJSLS#:** *Connections to NJSLS – English Language Arts* ● **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,

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 worlds.	-Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-2) -Use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS- LS1-4)	demonstrating understanding of the subject under investigation. (HS-LS1-3) ● **SL.11-12.5** Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest. (HS-LS1-2), (HS-LS1-4) *Connections to NJSLS – Mathematics* ● **MP.4** Model with mathematics. (HS-LS1-4) ● **HSF-IF.C.7** Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. (HS-LS1-4) ● **HSF-BF.A.1** Write a function that describes a relationship between two quantities. (HS-LS1-4)
Planning and Carrying Out Investigations Planning and carrying out in 9-12 builds on K-8 experiences and progresses to include investigations that provide evidence for and test conceptual, mathematical, physical, and empirical models.	-Plan and conduct an investigation individually and collaboratively to produce data to serve as the basis for evidence, and in the design: decide on types, how much, and accuracy of data needed to produce reliable measurements and consider limitations on the precision of the data (e.g., number of trials, cost, risk, time), and refine the design accordingly. (HS-LS1-3)	
Connections to Natures of Science: Scientific investigations Use a Variety of Methods	-Scientific inquiry is characterized by a common set of values that include: logical thinking, precision, open-mindedness, objectivity, skepticism, replicability of results, and honest and ethical reporting of findings.	
FOUNDATION **Crosscutting Concepts:**	**FOUNDATION** **Crosscutting Concepts:** ***Statement***	

Core Idea	
Systems and System Models	-Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions— including energy, matter, and information flows—within and between systems at different scales. (HS-LS1-2), (HS-LS1-4)
Stability and Change	-Feedback (negative or positive) can stabilize or destabilize a system. (HS-LS1-3)
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 one's personal traits, strengths, and limitations -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 the skills needed to establish and achieve personal and educational goal -Identify and apply ways to persevere or overcome barriers through alternative methods to achieve one's goals -Recognize and identify the thoughts, feelings, and perspectives of others -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	
Responsible Decision-making	-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 -Evaluate personal, ethical, safety, and civic impact of decisions	
Relationship Skills	-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	

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: ● Savvas Realize Interactivity Assignments ● Reading and Study Guide Workbook ● Class Discussions and Questioning ● eText Notebook Responses	**Benchmarks:** ● District Assessments ● Unit Portfolios if applicable **Summative Assessments:** ● Chapter Tests ● Claim Evidence Reasoning Tasks ● Case Study Wrap Ups ● Lab Reports/Skills Worksheets

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**
● Authentic Reading Materials ● Classroom Supplies ● Teacher Computer ● Internet Connectivity ● Smart Board ● Online Learning Platform ● Data Analysis Software	● Alternate reading materials ● Home copy of text ● Copy of Teacher notes ● USe of models ● Authentic Reading Materials ● Classroom Supplies ● Teacher Computer ● Internet Connectivity	● Translator ● English translator dictionary ● Alternate reading materials ● Copy of Teacher notes ● Use of models ● Authentic Reading Materials ● Classroom Supplies ● Teacher Computer	● Increased inquiry based labs ● Independent Research ● Authentic Reading Materials ● Classroom Supplies ● Teacher Computer ● Internet Connectivity ● Smart Board ● Online Learning Platform

such as Google sheets • Lab Equipment	• Smart Board • Online Learning Platform • Data Analysis Software such as Google sheets • Lab Equipment	• Internet Connectivity • Smart Board • Online Learning Platform • Data Analysis Software such as Google sheets • Lab Equipment	• Data Analysis Software such as Google sheets • Lab Equipment

Supplemental Resources

Technology:
- Supplemental Videos
- Student Chromebooks
- Digital Platforms including Schoology and Savvas Realize

Other:
- Safety equipment
- Classroom models

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

Core Resources	**Alternate Core Resources** ***IEP/504/At-Risk/ESL***	**ELL Core Resources**	**Gifted & Talented Core**
• Guided experiments • Inquiry experiments • Class discussions • CER activities • Phenomenon • Positive reinforcement • Rubrics	• 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	• 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	• 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

	• Study guides • Break assignments into shorter tasks • Guided experiments • Inquiry experiments • Class discussions • CER activities • Phenomenon • Positive reinforcement • Rubrics	• Guided experiments • Inquiry experiments • Class discussions • CER activities • Phenomenon • Positive reinforcement • Rubrics	• Positive reinforcement • Rubrics

NJSLS CAREER READINESS, LIFE LITERACIES & KEY SKILLS	**Disciplinary Concept:** • Critical Thinking and Problem Solving • Information and Media Literacy	
	Core Ideas:	• Collaboration with individuals with diverse experiences can aid in the problem-solving process, particularly for global issues where diverse solutions are needed. • Digital tools such as artificial intelligence, image enhancement and analysis, and sophisticated computer modeling and simulation create new types of information that may have profound effects on society. These new types of information must be evaluated carefully.
	Performance Expectation/s:	• **9.4.12.CT.4:** Participate in online strategy and planning sessions for course-based, school-based, or other project and determine the strategies that contribute to effective outcomes. • **9.4.12.IML.3**: Analyze data using tools and models to make valid and reliable claims, or to determine optimal design solutions (e.g., S-ID.B.6a., 8.1.12.DA.5, 7.1.IH.IPRET.8)
	Career Readiness, Life Literacies, & Key Skills Practices	
	Utilize critical thinking to make sense of problems and persevere in solving them. Students readily recognize problems in the workplace, understand the nature of the problem, and devise effective plans to solve the problem. They are aware of problems when they occur and take action quickly to address the problem; they	

	thoughtfully investigate the root cause of the problem prior to introducing solutions. They carefully consider the options to solve the problem. Once a solution is agreed upon, they follow through to ensure the problem is solved, whether through their own actions or the actions of others. **Information and Media Literacy** Information and Media Literacy empowers learners to access, retrieve and produce well managed resources. This access promotes and fosters inquiry learning as well as a deep understanding of target knowledge, skills or concepts. Information and Media Literacy is the vehicle for learners to pursue and create relevant information using the opportunities of high-quality materials. Information and media literacy also includes a basic understanding of ethical use of information.

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