Grade 7 NJSLS

Science Grade 7 Marking Period 1

Unit Summary
Science and Engineering Practices (SEPs) Scientific Notebooking
The Cell System
Living Things in the Biosphere

ummary:	**Evidence Statements:** • Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells • Develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function. • Use arguments supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. • Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. • Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. • Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories. • Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
andards:	**Structure and Function** All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1) **MS-LS1-A-1** Within cells, special structures are responsible for particular functions, and the cell membrane forms th boundary that controls what enters and leaves the cell. (MS-LS1-2) **MS-LS1-A-** In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body (MS-LS1-3) **MS-LS1-A-3** **Information Processing** Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories. (MS-LS1- 8) **MS-LS1-D-1** **Developing Possible Solutions** Models of all kinds are important for testing solutions. (MS-ETS1- 4) **MS-ETS1-B-4** **Defining and Delimiting Engineering Problems**

The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions. (MS-ETS1- 1)
MS-ETS1-A-1
Organization for Matter and Energy Flow in Organisms
Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use. (MS-LS1-6)
MS-LS1-C-1
Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. (MS-LS1-7)
MS-LS1-C-2
Cycle of Matter and Energy Transfer in Ecosystems
Food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. (MS-LS2-3)
MS-LS2-B-1
Engaging in Argument from Evidence Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.
Constructing Explanations and Designing Solutions Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.
Developing and Using Models Develop and use a model to describe phenomena.
Scale, Proportion, and Quantity
Phenomena that can be observed at one scale may not be observable at another scale.
Structure and Function
Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function.
Systems and System Models
Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems.

DA:

WIDA English Language Development Standards (ELDS)

WIDA English Language Development Standards Framework, 2020 Edition
ELDS 1 English Language learners communicate for **Social** and **Instructional** purposes within the scho setting.
Prominent Key Uses:
ELD-SI.6-8.Narrate; ELD-SI.6-8.Inform;
ELD-SI.6-8.Explain; ELD-SI.6-8.Argue

	ELDS 4 English language learners communicate information, ideas and concepts necessary for academi success in the content areas of **Science.** **Prominent Key Uses:** ELD-SC.6-8.Argue.Interpretive/ELD-SC.6-8.Argue.Expressive; ELD-SC.6-8.Explain.Interpretive/ELD-SC.6-8.Explain.Expressive
l Computer Science/ 8.2 esign Thinking:	**Computer Science and Design Thinking** **8.1 Computer Science** **8.2 Design Thinking**
areer Readiness, Life teracies, and Key Skills	**Career Readiness, Life Literacies, and Key Skills** **9.1 Financial Literacy by the end of grade 8** ***9.1 Personal Financial Literacy by the End of Grade 8*** **9.2 Career Awareness, Exploration, Preparation, and Training by the end of grade 8** ***9.2 Career Awareness, Exploration, Preparation*** **9.4 Life Literacies and Key Skills by the end of grade 8** ***9.4 Life Literacies, and Key Skills***

terdiscipline Connections:	***ELA***	***Mathematics***	***Social Studies***
	RI.7.1 Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text. **RI.7.2** Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an objective summary of the text. **RST.6-8.1** Cite specific textual evidence to support analysis **of** science and technical texts. (MS-LS1-4),(MS-LS1-5) **RST.6-8.2** Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. (MS-LS1-5) **RST.6-8.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical	**7.EE.B.3** Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. **7.EE.B.4** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. **RP.A.1** Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. **7.RP.A.2** Recognize and represent proportional relationships between quantities. **7.RP.A.3** Use proportional relationships to solve multistep ratio and percent problems. **6.SP.A.2** Understand that a set of data collected to answer a statistical question has a distribution which can	**RH 6-8.1** Cite specific textu evidence to support analysis of primary and secondary sources. **NJSLS.RI.7.1** Cite several pieces of textual evidence a make relevant connections t support analysis of what the text says explicitly as well a inferences drawn from the text. **WIDA English Language Development Standard 5** **ELDS 5** English language learners communicate information, ideas and concepts necessary for academic success in the content areas of **Social Studies** • ELD-SS.6-8.Argue. terpretive/ELD-SS. 8.Argue.Expressive

	context relevant to grades 6-8 texts and topics. (MS-LS3-1),(MS-LS3-2) **RST.6-8.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-LS3-1),(MS-LS3-2) **RI.6.8** Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not. (MS-LS1-4) **SL.8.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. (MS-LS2-2 **SL.8.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-LS3-1),(MS-LS3-2) **WHST.6-8.1** Write arguments focused on discipline content. (MS-LS1-4) **WHST.6-8.2** Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. (MS-LS1-5) **WHST.6-8.9** Draw evidence from informational texts to support analysis, reflection, and research. (MS-LS1-5) **<u>WIDA English Language Development Standard 2</u>** **ELDS 2** English language learners communicate	be described by its center, spread, and overall shape. (MS-LS1-4),(MS-LS1-5) **6.SP.B.4** Summarize numerical data sets in relation to their context. (MS-LS1-4),(MS-LS1-5) **6.EE.C.9** Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (MS-LS2-3) **6.SP.B.5** Summarize numerical data sets in relation to their context. (MS-LS2-2) **<u>WIDA English Language Development Standard 3</u>** **ELDS 3** English language learners communicate information, ideas and concepts necessary for academic success in the content areas of **Mathematics.** ● ELD-MA.6-8.Explain.Interpretive/ELD-MA.6-8.Explain.Expressive; ● ELD-MA.6-8.Argue.Interpretive/ELD-MA.6-8.Argue.Expressive;	● ELD-SS.6-8.Explai nterpretive/ELD-SS -8.Explain.Expressi

	information, ideas, and concepts necessary for academic success in the content areas of **Language Arts.** • ELD-LA.6-8.Inform.Interpretive;ELD-LA.6-8.Inform.Expressive; • ELD-LA.6-8.Narrate.Interpretive;ELD-LA.6-8.Narrate.Expressive; • ELD-LA.6-8.Argue.Interpretive;ELD-LA.6-8.Argue.Expressive		

pics:

Pacing Guide Scope and Sequence	
Unit 1	**Science and Engineering Practices (SEPs) Scientific Notebooking**
Essential Question	**How is the scientific notebook essential to the scientific process?**
Performance Expectation	**MS-ETS1-1** **MS-ETS1-2** **MS-ETS1-3** **MS-ETS1-4**
Lessons	Interactive Scientific Notebooking The Scientific Processes (Scientific Method)

Disciplinary Core Ideas (DCIs)	**Defining and Delimiting an Engineering Problem** The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions. (MS-ETS1-1) DCIs: ETS1.A Developing Possible Solutions A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. (MS-ETS1-4) There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem. (MS-ETS1-2) Sometimes parts of different solutions can be combined to create a solution that is better than any of its predecessors. (MS-ETS1-3) Models of all kinds are important for testing solutions. (MS-ETS1-4)DCIs: ETS1.B Optimizing the Design Solution Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of those characteristics may be incorporated into the new design. (MS-ETS1-3) The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution. (MS-ETS1-4) **DCIs: ETS1.C**
Scientific & Engineering Practices (SEPs)	**Asking questions and defining problems** Students at any grade level should be able to ask questions of each other about the texts they read, the features of the phenomena they observe, and the conclusions they draw from their models or scientific investigations. **Developing and Using Models** Modeling can begin in the earliest grades, with students' models progressing from concrete "pictures" and/or physical scale models. **Planning and Carrying Out Investigations** Students should have opportunities to plan and carry out several different kinds of investigations during their K-12 years. **Analyzing and Interpreting Data** Once collected, data must be presented in a form that can reveal any patterns and relationships and that allows results to be communicated to others **Using Mathematics and Computational Thinking** Although there are differences in how mathematics and computational thinking are applied in science and in engineering, mathematics often brings these two fields together by enabling engineers to apply the mathematical form of scientific theories and by enabling scientists to use powerful information technologies designed by engineers **Constructing Explanations (for science) and Designing Solutions (for engineering)** The goal of science is the construction of theories that provide explanatory accounts of the world. A theory becomes accepted when it has multiple lines of empirical evidence and greater explanatory power of phenomena than previous theories

	Engaging in Argument from Evidence The study of science and engineering should produce a sense of the process of argument necessary for advancing and defending a new idea or an explanation of a phenomenon and the norms for conducting such arguments. **Obtaining, Evaluating, and Communicating Information** Any education in science and engineering needs to develop students' ability to read and produce domain-specific text.
Crosscutting Concepts (CCC)	**Patterns** Patterns can be used to identify cause and effect relationships. **Connections to Nature of Science** Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. **Systems and System Models Models** can be used to represent systems and their interactions.

Unit 2	**The Cell System**
Essential Question	How does the structure of cells determine their function?
Performance Expectation	**MS-LS1-1 MS-LS1-2 MS-LS1-3** **MS-LS1-5** **MS-LS1-6 MS-LS1-7 MS-LS2-3** **MS-ETS1-1** **MS-ETS1-2**
Lessons Topic 2	*Lesson 1: Structure and Function of Cells* *Lesson 2: Cell Structures* *Lesson 3: Obtaining and Removing Materials* *Lesson 4: Cell Division* *Lesson 5: Photosynthesis* *Lesson 6: Cellular Respiration*
Disciplinary Core Ideas (DCIs)	**Structure and Function** All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1) **MS-LS1-A-1** Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2) **MS-LS1-A-2** In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body (MS-LS1-3)

	MS-LS1-A-3 **Information Processing** Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories. (MS-LS1- 8) **MS-LS1-D-1** **Developing Possible Solutions** Models of all kinds are important for testing solutions. (MS-ETS1- 4) **MS-ETS1-B-4** **Defining and Delimiting Engineering Problems** The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions. (MS-ETS1- 1) **MS-ETS1-A-1** **Organization for Matter and Energy Flow in Organisms** Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use. (MS-LS1-6) **MS-LS1-C-1** Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. (MS-LS1-7) **MS-LS1-C-2** **Cycle of Matter and Energy Transfer in Ecosystems** Food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem. (MS-LS2-3) **MS-LS2-B-1**
Scientific & Engineering Practices (SEPs)	**Engaging in Argument from Evidence** Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem. **Constructing Explanations and Designing Solutions** Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future. **Developing and Using Models** Develop and use a model to describe phenomena.
Crosscutting	**Scale, Proportion, and Quantity**

Concepts (CCC)	Phenomena that can be observed at one scale may not be observable at another scale. **Structure and Function** Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. **Systems and System Models** Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems.

Unit 3	**Living Things in the Biosphere**
Essential Question	How do scientists define and organize living things?
Performance Expectation	**MS-LS-1-1** **MS-LS1-2** **MS-LS1-3** **MS-LS4-2**
Lessons Topic 1	*Lesson 1:Living Things* *Lesson 2:Classification Systems* *Lesson 3: Viruses, Bacteria, Protists and Fungi* *Lesson 4:Plants and Animals*
Disciplinary Core Ideas (DCIs)	**Structure and Function** All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). (MS-LS1-1) **MS-LS1.A-1** Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (MS-LS1-2) **MS-LS1.A-2** In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions. (MS-LS1-3) **MS-LS1.A-3** **Evidence of Common Ancestry and Diversity** Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. (MS-LS4-2) **MS-LS4.A-3**

	Anatomical similarities and differences between various organisms living today and between them and organisms in the fossil record, enable the reconstruction of evolutionary history and the inference of lines of evolutionary descent. (MS-LS4-2) **MS-LS4.A-3** The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found or through radioactive dating) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth. (MS-LS4-1) **MS-LS4.A-2** **Adaptation** Adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common. Thus, the distribution of traits in a population changes. (MS-LS4-6) **MS-LS4.C-1** **Growth and Development of Organisms** Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction. (MS-LS1-4) **MS-LS1.B-3** Animals engage in characteristic behaviors that increase the odds of reproduction (MS-LS1-4) **MS-LS1.B-2** **Interdependent Relationships in Ecosystems** Organisms, and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors. (MS-LS2-1) **MS-LS2.A-1** Growth of organisms and population increases are limited by access to resources. (MS-LS2-1) **MS-LS2.A-3**
Scientific & Engineering Practices (SEPs)	**Planning and Carrying Out Investigations** in 6-8 builds on K-5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or solutions. Conduct an investigation to produce data to serve as the basis for evidence that meet the goals of an investigation. **Developing and Using Models** **Modeling** Develop and use a model to describe phenomena. **Engaging in Argument from Evidence** in 6–8 builds on K–5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s). Use an oral and written argument supported by evidence to support or refute an explanation or a model for a phenomenon.

		Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories. Apply scientific ideas to construct an explanation for real-world phenomena, examples, or events.
	Crosscutting Concepts (CCC)	**Scale, Proportion, and Quantity** Phenomena that can be observed at one scale may not be observable at another scale. **Structure and Function** Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. **Systems and System Models** Systems may interact with other systems; they may have sub-systems and be a part of larger complex systems. **Patterns** Patterns can be used to identify cause and effect relationships.

Integrated Modifications and Accommodations:

504 Plans	*Specific modifications and accommodations for students with 504 plans will also be provided according the students' 504 plans.*
	General Modifications / Accommodations ● Use of a calculator for math computation ● Provide checklist of the scientific method ● Model expectations, possible outcomes and provide examples ● Maintain an organized reference notebook ● Prompt and support as needed ● Use of graphic organizer ● Opportunities for cooperative partner work in small group ● Differentiated center-based small group instruction ● Highlight or underline key words in word problems ● Reteach if necessary ● Provide various ways to respond to a task ● Flexible seating ● Provide sensory tools ● Provide visual aids and anchor charts ● Tiered lessons and assignments with visual instructions ● Provide frequent breaks ● Provide positive behavior supports

	● Provide prompting (timer) for transitions and anticipated transitions
At-Risk	The possible list of modifications/accommodations identified for Special Education students can be utilized for At- Risk students. Teachers should utilize ongoing methods to provide instruction, assess student needs, and utilize modifications specific to the needs of individual students.
Gifted and Talented	● Pose open-ended questions that require higher-level thinking ● Model thinking strategies, such as decision-making and evaluation ● Accept ideas and suggestions from the student and expand on them ● Facilitating original and independent problems and solutions ● Help students identify rules, principles, and relationships ● Take time to explain the nature of errors ● Content with greater depth and higher levels of complexity ● A discovery approach that encourages students to explore concepts ● Focus on solving complex, open-ended problems ● Offer opportunities for interdisciplinary connections ● An inquiry approach as active investigation ● Investigate real problems and situations ● Give pre-assessments; if students demonstrate mastery, those students may be provided with instruction and activities that are meaningful. ● Create assessments that allow for differences in understanding, creativity, & accomplishments ● Use multiple resources. No single text will adequately meet the needs of these learners ● Use inquiry-based, discovery learning approaches that emphasize open-ended problems with multiple solutions or multiple paths to solutions. Allow students to design their own ways to find th answers to complex questions ● Provide units, activities, or problems that extend beyond the general curriculum ● Provide useful concrete experiences ● Provide activities that can be done independently or in groups based on student choice.
Special Education	*Specific modifications and accommodations for special education students will also be provided accordi to the students' IEP.*

General Modifications / Accommodations	
● Adjustable tables and lab equipment within reach ● Separate room for testing and labs ● Audio recorded class sessions ● Provide copy of class notes ● Assign peer buddies ● Tactile drawings and graphs, and three-dimensional models ● Provide scripted graphic organizers/ notes (color coded, fill in the banks, word banks) ● Model expectations, possible outcomes and provide examples ● Allow students to make test corrections for credit ● Substitute for lower level reading materials	● Provide checklist of the scientific method ● Provide visual aids on desk (Print Concepts and Foundational skills) ● Provide visual cues, graphic representations gestures, and pictures ● Extra time on lab and assessments ● Prompt and support as needed ● Use of graphic organizer ● Assign fewer tasks at one time ● Differentiated center-based small group instruction ● Highlight or underline key words in word problems ● If a graphic organizer is used during instruction, allow its use on a test ● Reteach if necessary

	• Use of a calculator for math computation • Chart of basic facts • Maintain an organized reference notebook • Pre-teach vocabulary • Provide checklist for tracking • Provide positive behavior supports • Provide prompting (timer) for transitions and anticipated transitions	• Provide various ways to respond to a task • Modify grading • Use different format materials to teach content (e.g. puzzles, games, etc) • Larger printed text • Flexible seating • Provide visual aids and anchor charts • Tiered lessons and assignments with visual instructions • Provide frequent breaks
Multilingual Learners	• Utilize Newcomer Parallel Curriculum for Science MP1 • Provide diagrams, labeled models, charts, and real-life images to support scientific concepts • Incorporate hands-on labs, demonstrations, and interactive experiments • Break down multi-step procedures into clear, sequential directions • Model lab techniques and sample responses before independent work • Provide science-specific sentence frames • Pre-teach and review key academic and content vocabulary using visuals and real-world examples • Use word banks with visuals for lab reports and written explanations • Repeat, rephrase, and check for understanding of directions • Offer small group or 1:1 support • Use gestures, physical models, and movement to reinforce abstract concepts • Connect science content to real-world phenomena and students' prior knowledge	• Allow students to demonstrate understanding through labeled diagrams models, or drawings • Permit oral responses • Clarify complex concepts in the home language when possible • Pair students strategically • Provide preferential seating • Minimize distractions • Allow extended time for labs, projects, and assessments • Assess understanding in small group or individual settings when appropriate • Focus on mastery of essential vocabula and core concepts • Simplify lab procedures or shorten writ components • Utilize Alternate Assessments for MLs Grades 6-8
structional Materials:		

Core Instructional Materials	Supplemental Materials
• Savvas	• Newsela • Discovery Education • Readworks • Open Sci • NGSS Sample Assessment • BrainPop through Clever

ssessments:	**** Assessments are multifaceted tools utilized throughout the school year. Based on when they are administered and the teacher's intended use of information, assessments can serve several purposes: baseline data at the beginning of the year, progress monitoring throughout the year or cumulative data at the end of the year.*** ***Overview:*** Student achievement is measured and dependent upon the use of high quality assessments. The purpose assessment is multi-faceted. Interval assessments are systematic and intentional while being authentic in nature. It is the district's stance that high quality, intentional assessments are essential in: ● measuring students' growth ● informing instruction at various points in the school year (formative) ● assessing effectiveness of instruction using a diagnostic assessment (EdConnect) reporting systematically in a formal manner that analyzes changes in achievement data
strict Assessment chedule:	**LINK (no need to link this)**

Notebooking

Atlantic City School District
Science Curriculum

Grade 7 - Topic 0 Overview
Scientific Notebooking

Unit Overview

The New Jersey Student Learning Standards for Science (NJSLS-S) are built on the notion of learning as a developmental progression. They are designed to help children continually build on and revise their knowledge and abilities, starting from their curiosity about what they see around them and their initial conceptions about how the world works. The goal of science education is to guide their knowledge toward a more evidence - based and coherent view of the natural sciences and engineering (NGSS Lead States, 2013).

Pacing

Day 1: Th 9/4 Notebooking	Day 2: F 9/5 Notebooking	Day 1: M 9/8 Topic 2 Lesson 1	Day 2: T 9/ Topic 2 Lesso
Day 4: Th 9/11 Topic 2 Lesson 1	Day 5: F 9/12 Topic 2 Lesson 1	Day 6: M 9/15 Topic 2 Lesson 2	Day 7: T 9/ Topic 2 Lesson
Day 9:Th 9/18 Topic 2 Lesson 2	Day 10: F 9/19 Topic 2 Lesson 2	Day 11: M 9/22 Topic 2 Lesson 3	Day 12: W 9/ Topic 2 Lesson
Day 14: F 9/26 Topic 2 Lesson 3	Day 15: M 9/29 Topic 2 Lesson 3	Day 16: T 9/30 Topic 2 Lesson 4	Day 17: W 10 Topic 2 Lesson
Day 19 M 10/6 Topic 2 Lesson 4	Day 20 T 10/7 Topic 2 Lesson 4	Day 21 W 10/8 Topic 2 Lesson 5	Day 22 Th 10 Topic 2 Lesson
Day 24 T 10/14 Topic 2 Lesson 5	Day 25 W 10/15 Topic 2 Lesson 5	Day 26 Th 10/ 16 Topic 2 Lesson 6	Day 27 F 10/ Topic 2 Lesson
Day 29 T 10/21 Topic 2 Lesson 6	Day 30 W 10/22 Topic 2 Lesson 6	Day 1 Th 10/23 Topic 1 Lesson 1	Day 2 F 10/1 Topic 1 Lesson
Day 4 T 10/28 Topic 1 Lesson 1	Day 5 W 10/29 Topic 1 Lesson 1	Day 6 Th 10/30 Topic 1 Lesson 2	Day 7 F 10/ Topic 1 Lesson

Day 9 T 11/4 Topic 1 Lesson 2	Day 10 W 11/5 Topic 1 Lesson 2	Day 11 M 11/10 Topic 1 Lesson 3	Day 12 W 11/ Topic 1 Lesson
Day 14 F 11/14 Topic 1 Lesson 3	Day 15 M 11/17 Topic 1 Lesson 3	Day 16 T 11/18 Topic 1 Lesson 4	Day 17 W 11/ Topic 1 Lesson
Day 19 F 11/21 Topic 1 Lesson 4	End of Marking Period		

Grade 7 | Topic **0** | Scientific & Engineering Practices

Scientific Notebooking

Overview	**Guiding Questions**	What is scientific notebooking? How is scientific notebooking used to investigate, and apply the 8 tenets of the science and engineering practices? How is scientific notebooking used to communicate authentic knowledge developed using the science and engineering practices?
	SEPs	🟦 **Asking Questions & Defining Problems** 🟩 **Planning & Carrying Out Investigations** 🟨 **Analyzing & Interpreting Data** 🟪 **Developing & Using Models** 🟧 **Using Mathematics & Computational Thinking** 🟥 **Constructing Explanations** 🟫 **Engaging in Argument from Evidence**

		⚪ **Obtaining, Evaluating, & Communicating Information**
Objectives	**Lesson Description** **Science Content**	Students will interact with the science and engineering practices via scientific notebooking to explore early scientists and their work. Students will apply the **8 Science and Engineering Practices** through research, modeling, and reflection. Students will maintain a scientific notebook documenting questions, evidence, models, and reflections
	"I Can" Statement **Lesson Objectives**	*I can engage with and execute the steps of the scientific and engineering practices.* *I can identify and interpret the steps of the scientific and engineering practices.* *I can communicate my use of the scientific and engineering practices via my scientific notebook.*
Lesson	**Day 1** **Asking Questions & Defining Problems**	***Whole Group Instruction:*** ***Choose a Scientist:*** Select a scientist whose work is well-known and documented. For example, Isaac Newton, Albert Einstein, or Marie Curie.
	Objective	Understand the purpose of a science notebook and its application in the scientific and engineering practices.
	Activity	**Instruction**: • Show real scientist notebook examples; discuss purpose; decorate/label notebooks; create table of contents; model date/title/guiding question • Notebook Set-up **Investigation:** • **Internet Activity:** • Students will select a scientist whose work is well-known and documented. For

		example, Isaac Newton, Albert Einstein, or Marie Curie. • Students brainstorm: what problems these scientists were trying to solve?(Newton, Curie, Einstein etc.)
	Notebook Focus	Create notebook with clear titles, dates. Write 3 inquiry questions about their scientist and record why they chose them.
	Day 2 **Planning & Caring Out Investigations**	***Guided Practice*** ***Research Their Work:*** How did "my" scientist plan and carry out their investigation?
	Objective	*Understand that scientific learning is driven by inquiry and investigation*
	Activity	***Investigation:*** Mini-class investigation connected to scientist's work. Examples: prism experiment (Newton), motion/force test (Newton), half-life with pennies (Curie). ***Internet Activity:*** ***S****tudents will explore the work of their scientist*
	Notebook Focus	Record procedure, observations, and results of findings
	Day 3 **Analyzing & Interpreting Data**	***Guided Practice Small Group*** How has the scientist's work impacted science, society, and technology?
	Objective	Students learn that scientific knowledge is based on evidence and is used to drive further inquiry and advancement.
	Activity	**Internet Activity:**

		Students will research the impact of their scientists' findings on society and technology. Students will create cause and effect relationships using these findings. E.g. “Because Watson and Crick” were able to identify the molecular structure of DNA, scientists have gained a deeper understanding of genetics, enabling advancements in disease diagnosis and treatment, forensics, agriculture and more.
	Notebook Focus	Students record these statements in their scientific notebook. Correlate entries with the notebook table of contents.
	Day 4 **Developing & Using Models**	**Independent Practice Small Group** **What models are used to communicate or represent these scientific findings.**
	Objective	Students learn that scientific models serve as simplified representations of complex systems, phenomena, or ideas enabling scientists to better understand, analyze, and predict the world around them.
	Activity	**Internet Activity:** Students research famous scientific model(s) and how these models are used to represent information.
	Notebook Focus	Draw/ diagram scientific model in notebook with model descriptions. If chosen scientific work lacks a model, have students create a model that represents this knowledge.
	Day 5 **Using Mathematics & Conceptual Thinking**	***Apply math to the discovery (Newton’s F=ma, Curie’s half-life calculations, Einstein’s $E=mc^2$).***
	Objective	Students identify how math and mathematical equations are used to communicate scientific observations.

	Activity	**Internet Activity:** Students research mathematical equations related to their scientists' work and findings. Students will also investigate other scientific equations used to represent scientific knowledge.
	Notebook Focus	Create an equations page in the notebook. Label and diagram scientific equations. Highlight equation(s) related to your scientist. Create an equation if "your" scientist does not have one.
	Day 6 **Constructing Explanations**	***Students write an explanation of how their scientist's discovery solved a scientific problem.***
	Objective	*Students learn that "constructing explanations" is used to develop theories that provide logically coherent accounts of how the natural world works, based on evidence and scientific principles.*
	Activity	*Students write an explanation of how their scientist's discovery solved a scientific problem.*
	Notebook Focus	*Write a **CER (Claim-Evidence-Reasoning)** entry: "My scientist discovered… which solved the problem of…"*
	Day 7 **Engaging in Arguments From Evidence**	***Identify Results and Conclusions*** *What were the results of the experiments, and what conclusions did the scientist draw?*
	objective	*Students learn that scientific knowledge is solely based on empirical evidence that is never based on biases, opinions, or belief systems.*
	Activity	***Activity:** Class discussion: What is science? What can science do? What is science not? What can science not do?*
	Notebook Focus	*Record definition of science and create table in notebook recording Scientific knowledge vs beliefs , opinions, and biases*

	Day 8 **Obtaining, Evaluating, and Communicating Information**	***Identify communication***: *How did the scientist communicate their findings?*
	Objective	*Students learn that scientific communication is essential to the purpose of disseminating knowledge, promoting public engagement, informing decision making, building trust and transparency, inspiring, and driving innovation..*
	Activity	***Presentations***: *Students present their findings and respond to peer questions, comparing scientists' work.*
	Notebook Focus	*Notebook submission for grading*

Topic 2 Overview

Atlantic City School District
Science Curriculum

Grade 7 - Topic 1 Overview

The Cell System

Unit Overview

How does the structure of cells determine their function?

The organization and development of living things, in particular their cells, are the main ideas that frame this topic. While studying cells, students use models to recognize cell structures and conduct investigations to understand cell structures and functions.

Planning Calendar Guide

Cell Systems

September 8th -October 22nd, 2025

Day 1: M 9/8 Topic 2 Lesson 1	Day 2: W 9/9 Topic 2 Lesson 1	Day 3:Th 9/10 Topic 2 Lesson 1	Day 4: F 9/11 Topic 2 Lesson 1	Day 5: M 9/12 Topic 2 Lesson 1
Day 6: W 9/15 Topic 2 Lesson 2	Day 7: Th 9/16 Topic 2 Lesson 2	Day 8: F 9/17 Topic 2 Lesson 2	Day 9: M 9/18 Topic 2 Lesson 2	Day 10: T 9/19 Topic 2 Lesson 2
Day 11: W 9/22 Topic 2 Lesson 3	Day 12: F 9/24 Topic 2 Lesson 3	Day 13 M 9/25 Topic 2 Lesson 3	Day 14: F 9/26 Topic 2 Lesson 3	Day 15 W 9/29 Topic 2 Lesson 3
Day 16 Th 9/30 Topic 2 Lesson 4	Day 17 F 10/1 Topic 2 Lesson 4	Day 18 T 10/3 Topic 2 Lesson 4	Day 19 W 10/6 Topic 2 Lesson 4	Day 20 Th 10/7 Topic 1 Lesson 4
Day 21 F 10/8	Day 22 M 10/9	Day 23 M 10/10	Day 24 M 10/14	Day 25 M 10/15 Topic 2

Topic 2 Lesson 5	Topic 2 Lesson 5	Topic 2 Lesson 5	Topic 2 Lesson 5	Lesson 5
Day 26 T 10/16 Topic 2 Lesson 6	Day 27 W 10/17 Topic 2 Lesson 6	Day 28 W 10/20 Topic 2 Lesson 6	Day 25 W 10/21 Topic 2 Lesson 6	Day 25 W 10/22 Topic 2 Lesson 6

Topic Launch

Quest Kickoff	Cells on Display

uConnect Lab

uConnect Lab: What Can You See?

Disciplinary Core Ideas

2.1 Structure and Function of Cells	All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.
2.2 Cell Structures	Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.
2.3 Obtaining and Removing Materials	Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.
2.4 Cell Division	Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.

2.5 Photosynthesis	Plants, algae (including phytoplankton), and many microorganisms use the energy from light to make sugars (food) from carbon dioxide from the atmosphere and water through the process of photosynthesis, which also releases oxygen. These sugars can be used immediately or stored for growth or later use. The chemical reaction by which plants produce complex food molecules (sugars) requires an energy input (i.e., from sunlight) to occur. In this reaction, carbon dioxide and water combine to form carbon-based organic molecules and release oxygen. *(secondary)* *Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy.* *Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials. (secondary)* *Food webs are models that demonstrate how matter and energy is transferred between producers, consumers, and decomposers as the three groups interact within an ecosystem. Transfers of matter into and out of the physical environment occur at every level. Decomposers recycle nutrients from dead plant or animal matter back to the soil in terrestrial environments or to the water in aquatic environments. The atoms that make up the organisms in an ecosystem are cycled repeatedly between the living and nonliving parts of the ecosystem.*
2.6 Cellular Respiration	Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy. Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials.
Assessments	

Demonstrate	Lesson 1 Quiz, Lesson 2 Quiz, Lesson 3 Quiz, Lesson 4 Quiz, Lesson 5 Quiz, Lesson 6 Quiz
Topic Close	Topic Close: The Cell System
Materials	
uConnect	News Paper (magazine), scissors, hand lens, microscope, flash light
Additional Resources	
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Topic 2 Lesson 1

Grade 7 | Topic **2** | Lesson **1**

Structure and Function of Cells

Overview	**Guiding Questions**	What evidence is there that cells make up all living things? How do cells determine the function of living things?
	Standards	**MS-LS1-1** Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. **MS-LS1-2** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the future.
Objectives	**Lesson Description** **Science Content**	Students investigate and explain how cells determine the structure of living things?
	"I Can" Statement **Lesson Objectives**	*I can recognize and explore the components of cell theory.* *I can recognize and explore that cells are the basic unit of life.* *I can recognize and explore that cells of all living things extract energy from food, get rid of waste, and reproduce.* *I can conduct an investigation and provide evidence that all living things are made up of cells.* *I can conduct an investigation to distinguish between living and nonliving things based on the presence or absence of cells.*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Write: In common*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText* *Student Edition: eText*

	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Cell Theory*
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-Through a Microscope* • *Interactivity- Functions of all Cells*
	Investigate **Day 3**	***Guided Practice Small Group***
	10 minutes	*Guided Practice: Class Discussion* • *uinvestigate Lab: Observing Cells*
	30 minutes	*Activity: Students work in small group* • *Virtual Lab-Living or Not?*
	Optional Resources	• *eText: Structure and Function of Cells*
	Synthesize **Day 4**	**Independent Practice Small Group**
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity: A Strange Specimen*
	20 minutes	*Students* can be assigned to answer or review as a whole class • *eText: Structure and Function of Cells*
	Optional Resources	• *Enrichment-Discovering Cells*
	Demonstrate **Day 5**	**Assessment:** Here are 3 options for the end of lesson assessment.
	40 minutes	*eText: Lesson 1 Check* *Quiz: Structure and Function of Cells* *Editable Quiz*

Topic 2 Lesson 2

Grade 7 | Topic **2** | Lesson **2**
Cell Structures

Overview	**Guiding Questions**	What are some special structures within a cell? How do the different parts of the cell help it function? How are animal cells different from plant cells?
	Standards	**MS-LS1-2** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
Objectives	**Lesson Description** **Science Content**	Using models, students compare and contrast cell structures and their functions. They also compare and contrast plant and animal cells.
	"I Can" Statement **Lesson Objectives**	*I can develop and use a model to identify the parts of a cell, specifically the nucleus, chloroplast, mitochondria, cell membrane, and cell wall.* *I can develop and use a model to describe how each part of a cell contributes to the function of the cells as a whole.* *I can compare and contrast the structure and function of major parts of plant and animal cells.*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Inquiry Warm-Up Lab: How Large Are Cells?*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText* *Student Edition: eText*
	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Cell Structures*

	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-Structure Function Junction*
	Investigate **Day 3**	***Guided Practice Small Group***
	10 minutes	*Guided Practice: Class Discussion* • *Interactivity: Build a Cell*
	30 minutes	*Activity: Students work in small group* • *Worksheet-Build a Cell*
	Optional Resources	• *eText: Cell Structures* • *uinvestigate Lab Video-Comparing Cells*
	Synthesize **Day 4**	**Independent Practice Small Group**
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity: Specialized Cells*
	20 minutes	*Students* can be assigned to answer or review as a whole class • *Quest Check-In eText: Make a Cell Model* • *Quest Check-Lab:-Make a Cell Model*
	Optional Resources	• *Enrichment-Looking Inside Cells*
	Demonstrate **Day 5**	**Assessment:** Here are 3 options for the end of lesson assessment.
	40 minutes	*eText: Lesson 2 Check* *Quiz: Cell Structures* *Editable Quiz* Cell Structures

Topic 2 Lesson 3

Grade 7 | Topic **2** | Lesson **3**
Obtaining and Removing Materials

Overview	**Guiding Questions**	What is the primary role of the cell membrane in cell function?
	Standards	**MS-LS1-2** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function.
Objectives	**Lesson Description** **Science Content**	Students explore the primary role of the cell membrane and how it helps the cell to maintain homeostasis.
	"I Can" Statement **Lesson Objectives**	*I can develop and use a model to describe how cells obtain energy and remove waste materials through the cell membrane. .*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Class Discussion-Going in and Out*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText* *Student Edition: eText*
	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Obtaining and Removing Materials*
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-Cell Transport*
	Investigate **Day 3**	***Guided Practice Small Group***

	10 minutes	*Guided Practice: Class Discussion* • *uinvestigate Lab Video-Egg-Speriment with a Cell*
	30 minutes	*Activity: Students work in small group* • *uInvestigate Lab-Egg-Speriment with a Cell*
	Optional Resources	• *eText - Obtaining and Removing Materials*
	Synthesize **Day 4**	**Independent Practice Small Group**
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity: Entering and Leaving the Cell*
	20 minutes	*Students* can be assigned to answer or review as a whole class • *Quest Check-In eText-Put Your Cells in Motion* • *Quest Check-In Interactivity-Put Your Cells in Motion*
	Optional Resources	• *Enrichment-Osmosis*
	Demonstrate **Day 5**	**Assessment:** Here are 3 options for the end of lesson assessment.
	40 minutes	*eText: Lesson 3 Check* *Quiz: Obtaining and Removing Materials* *Editable Quiz*

Topic 2 Lesson 4

Grade 7 | Topic **2** | Lesson **4**
Cell Division

Overview	**Guiding Questions**	What are the four functions of cell division? What structures in a cell help it to reproduce?
	Standards	**MS-LS1-2** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the future.
Objectives	**Lesson Description** **Science Content**	Students explore how cells undergo reproduction. Using models, they recognize how structures in the cell support this process.
	"I Can" Statement **Lesson Objectives**	*I can use test evidence and visuals to restate the four functions of cell division.* *I can use test evidence and visuals to describe and explain each phase of the cell cycle.* *I can use test evidence and visuals to explain cause and effect relationships of cell division.* *I can analyze and interpret data to identify patterns in the process of cell division.* *I can analyze and interpret data to calculate the number of cells when provided the number of divisions.* *I can use reasoning and evidence to ask questions related to cell division when provided an image of a cell.*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Write-Active Cell Division*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText* *Student Edition: eText*
	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*

	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Cell Division*
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-A Cell Divides*
	Investigate **Day 3**	***Guided Practice Small Group***
	10 minutes	*Guided Practice: Class Discussion* • *Interactivity-How Does a Broken Bone Heal?*
	30 minutes	*Activity: Students work in small group* • *uInvestigate Lab-Modeling Mitosis*
	Optional Resources	• *Worksheet-How Does a Broken Bone Heal?* • *eText -Cell Division*
	Synthesize **Day 4**	**Independent Practice Small Group**
	40 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity: The Cell Cycle*
	Optional Resources	• *Enrichment-Cells and More Cells*
	Demonstrate **Day 5**	**Assessment:** Here are 3 options for the end of lesson assessment.
	40 minutes	*eText: Lesson 4 Check* *Quiz: Cell Division* *Editable Quiz* Cell Division

Topic 2 Lesson 5

Grade 7 | Topic **2** | Lesson **5** Photosynthesis		
Overview	**Guiding Questions**	How do plants and other organisms use photosynthesis to produce food? What are the roles of light, carbon dioxide, water, and chlorophyll in photosynthesis? What role does photosynthesis play in cycling materials and energy through ecosystems?
	Standards	**MS-LS1-6** Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and the flow of energy into and out of organisms. **MS-LS1-7** Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. **MS-LS2-3** Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
Objectives	**Lesson Description** **Science Content**	Students investigate how plants and other organisms use photosynthesis to make food.
	"I Can" Statement **Lesson Objectives**	*I can construct an explanation for how plants and other organisms use photosynthesis to make food.* *I can explain the roles of light, carbon dioxide, water, and chlorophyll in photosynthesis.* *I can cite evidence to support the role of photosynthesis in the cycling of materials and energy through ecosystems.*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Poll-Food or Fiction?*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText* *Student Edition: eText*

	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Photosynthesis*
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-Making Food for Cells*
	Investigate **Day 3**	***Guided Practice Small Group***
	10 minutes	*Guided Practice: Class Discussion* • *uinvestigate Lab Video-Energy From the Sun*
	30 minutes	*Activity: Students work in small group* • *uInvestigate Lab-Energy From the Sun*
	Optional Resources	• *eText uEngineer It!-Sustainable Design: An Artificial Leaf* • *uEngineer It Video-An Artificial Leaf*
	Synthesize **Day 4**	**Independent Practice Small Group**
	40 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity:* Flower Food
	Optional Resources	• *Enrichment-Limits to Photosynthesis*
	Demonstrate **Day 5**	**Assessment:** Here are 3 options for the end of lesson assessment.
	40 minutes	*eText: Lesson 5 Check* *Quiz: Photosynthesis* *Editable Quiz*

Topic 2 Lesson 6

Grade 7 | Topic **2** | Lesson **6**
Cellular Respiration

Overview	**Guiding Questions**	How does cellular respiration break down food to produce energy and carbon dioxide? How can cells release energy without using oxygen? How are matter and Energy conserved during cellular respiration?
	Standards	**MS-LS1-7** Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.
Objectives	**Lesson Description** **Science Content**	Students explore how organisms use cellular respiration to break down food and produce energy and carbon dioxide.
	"I Can" Statement **Lesson Objectives**	*I can construct an explanation using models for how organisms use cellular respiration to break down food to provide energy.* *I can cite evidence to support that living systems follow the Laws of Conservation of Mass and Energy.*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Inquiry War-Up Lab-Cellular Respiration*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText* *Student Edition: eText*
	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Cellular Respiration*

	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-Making Energy for Cells*
	Investigate **Day 3**	***Guided Practice Small Group***
	30 minutes	*Activity: Students work in small group* • *uInvestigate Lab-Exhailing Carbon Dioxide*
	Optional Resources	• *eText Case Study-The Mighty Mole Rat* • *Career Video-Biology Professor*
	Synthesize **Day 4**	**Independent Practice Small Group**
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity: Energy to Food and Food to Energy*
	20 minutes	*Students* can be assigned to answer or review as a whole class • *Quest Check-In eText-Accounting Atoms* • *Quest Check Lab-Accounting for Atoms*
	Optional Resources	• *Enrichment-Oxygen Consumption*
	Demonstrate **Day 5**	**Assessment:** Here are 3 options for the end of lesson assessment.
	40 minutes	*eText: Lesson 6 Check* *Quiz: Cellular Respiration* *Editable Quiz*

Topic 1 Overview

Atlantic City School District
Science Curriculum

Grade 7 - Topic 1 Overview
Living Things in The Biosphere

Unit Overview

How do scientists define and organize living things?
In this topic, students will explore living things, including how and why organisms are classified. Students will also learn about viruses, bacteria, protists, fungi, plants, and animals and how organisms from these various groups impact humans.

Planning Calendar Guide
Cell Systems
October 23rd - November 21st, 2025

Day 1 Th 10/23 Topic 1 Lesson 1	Day 2 F 10/24 Topic 1 Lesson 1	Day 3 M 10/27 Topic 1 Lesson 1	Day 4 T 10/28 Topic 1 Lesson 1	Day 5 W 10/29 Topic 1 Lesson 1
Day 6 Th 10/30 Topic 1 Lesson 2	Day 7 F 10/31 Topic 1 Lesson 2	Day 8 M 11/3 Topic 1 Lesson 2	Day 9 T 11/4 Topic 1 Lesson 2	Day 10 W 11/5 Topic 1 Lesson 2
Day 11 M 11/10 Topic 1 Lesson 3	Day 12 M 11/11 Topic 1 Lesson 3	Day13 Th 11/12 Topic 1 Lesson 2	Day 14 F 11/13 Topic 1 Lesson 2	Day 15 M 11/14 Topic 1 Lesson 2
Day 16 T 11/17 Topic 1 Lesson 4	Day 17 W 11/18 Topic 1 Lesson 4	Day 18 M 11/19 Topic 1 Lesson 4	Day 19 W 11/20 Topic 1 Lesson 4	Day 20 Th 11/21 Topic 1 Lesson 4
End of Marking Period				

Topic Launch	
Quest Kickoff	Sort Out These Organisms
uConnect Lab	
uConnect Lab: Is it an Animal?	
Disciplinary Core Ideas	
1.1 Living Things	All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).
1.2 Classifications Systems	Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.
1.3 Viruses, Bacteria, Protist, and Fungi	All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).
1.4 Plants and Animals	All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular). Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions.
Assessments	

Demonstrate	Lesson 1 Quiz, Lesson 2 Quiz, Lesson 3 Quiz, Lesson 4 Quiz
Topic Close	Topic Close: The Cell System
Materials	
uConnect	For the Topic 1 labs, students will need plastic or glass containers such as small cups or jars, soil samples, and seeds or small plants. Magnifying glasses and water droppers will support close observation, while observation notebooks or lab sheets, along with pencils or pens, will be used to record findings. Gloves may be used optionally for handling soil or plants.
Additional Resources	

Topic 1 Lesson 1.

Grade 7 | Topic **1** | Lesson **1**
Living Things

Overview	**Guiding Questions**	What evidence is there that all living things are made from cells? Where do living things come from? What do living things need to stay alive, grow and reproduce?
	Standards	**MS-LS1-1** Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. **MS-LS1-2** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the function. **MS-LS1-3** Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. **MS-LS4-2** Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
Objectives	**Lesson Description** **Science Content**	Students will investigate evidence that living things are made of cells and where they come from. Students will also study what living things need to stay alive, grow, and reproduce.
	"I Can" Statement **Lesson Objectives**	*I can conduct an investigation to provide evidence that supports living things are made of cells.* *I can identify evidence that explains where living things come from.* *I can conduct an investigation to provide evidence that explains what living things need to stay alive, grow, and reproduce.*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Inquiry Warm Up Lab-All Wound Up*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing*

		on vocabulary. *Teacher Edition: eText* *Student Edition: eText*
	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Living Things*
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-What All Living Things Have in Common*
	Investigate **Day 3**	***Guided Practice Small Group***
	10 minutes	*Guided Practice: Class Discussion* • *uinvestigate Lab Video-Cheek Cells*
	30 minutes	*Activity: Students work in small group* • *uInvestigate Lab-Cheek Cells*
	Optional Resources	• *Case Study-The Tough and Tiny Tardigrade* • *Career Video-*
	Synthesize **Day 4**	**Independent Practice Small Group**
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity*-Mom's Car Must be Alive
	20 minutes	*Students* can be assigned to answer or review as a whole class • *Quest Check Interactivity-Under the Microscope*
	Optional Resources	• *Enrichment-What is Life?*
	Demonstrate	**Assessment:** Here are 3 options for the end of

	Day 5	lesson assessment.
	40 minutes	*eText: Lesson Check* *Quiz*: *Editable Quiz*

Topic 1 Lesson 2.

Grade 7 | Topic **1** | Lesson **2**
Classification Systems

Overview	**Guiding Questions**	How are living things classified into groups? How does the theory of evolution support the classification of organisms?
	Standards	**MS-LS4-2** Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.
Objectives	**Lesson Description** **Science Content**	Students will explore how living things are classified, and how the theory of evolution supports the classification of organisms.
	"I Can" Statement **Lesson Objectives**	*I can identify and describe evidence that explains how living things are classified into groups and examines the organization of levels of classification.* *I can describe evidence that explains how the theory of evolution supports the classification of organisms.*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Inquiry Warm Up Lab-Clean Up That Junk Drawer!*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText* *Student Edition: eText*
	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Classification Systems*
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class)

		• *Interactivity-Classify It!*
	Investigate **Day 3**	***Guided Practice Small Group***
	10 minutes	*Guided Practice: Class Discussion* • *Virtual Lab-Madagascar Mystery*
	30 minutes	*Activity: Students work in small group* • *uInvestigate Lab-Living Mysteries*
	Synthesize **Day 4**	**Independent Practice Small Group**
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Lab: A Mystery Organism No More!*
	20 minutes	*Students* can be assigned to answer or review as a whole class • *Quest Check-Classifying Seeds* • *Quest Check Interactivity- Classifying Seeds*
	Optional Resources	• *Enrichment-Classifying Life*
	Demonstrate **Day 5**	**Assessment:** Here are 3 options for the end of lesson assessment.
	40 minutes	*eText: Lesson Check* *Quiz:* *Editable Quiz*

Topic 1 Lesson 3.

Grade 7 | Topic **1** | Lesson **3**
Viruses, Bacteria, Protists, and Fungi

Overview	**Guiding Questions**	What are all living things made of? What are the characteristics of viruses, bacteria, protists and fungi? How do viruses, bacteria, protists and fungi interact with nature and people?
	Standards	**MS-LS1-1** Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
Objectives	**Lesson Description** **Science Content**	Students will investigate the characteristics of viruses, bacteria, protists, and fungi, and how these organisms interact with nature and humans.
	"I Can" Statement **Lesson Objectives**	*I can identify and describe evidence that explains what all living things are made of.* *I can conduct an investigation to provide evidence that describes the characteristics of viruses, bacteria, protists, and fungi.* *I can construct explanations that explain how viruses, bacteria, protists, and fungi interact with nature and people.*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Class Discussion-The Smallest Living Things*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText* *Student Edition: eText*
	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Viruses, Bacteria, Protists, and Fungi*

	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-Life in a Drop of Pond Water*
	Investigate **Day 3**	***Guided Practice Small Group***
	10 minutes	*Guided Practice: Class Discussion* • *uinvestigate Lab Video-Life in a Drop of Pond Water*
	30 minutes	*Activity: Students work in small group* • *uInvestigate Lab-Viruses, Bacteria, Protists, and Fungi*
	Optional Resources	• *eText Career Feature-* • *Career Video-Public Health Advisor*
	Synthesize **Day 4**	**Independent Practice Small Group**
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity:There's Something Going Around*
	20 minutes	*Students* can be assigned to answer or review as a whole class • *Quest Check-Discovering Rainforest Organisms* • *Quest Check Interactivity-Discovering Rainforest Organisms*
	Optional Resources	• *Enrichment-Identifying Bacteria*
	Demonstrate **Day 5**	**Assessment:** Here are 3 options for the end of lesson assessment.
	40 minutes	*eText: Lesson Check* *Quiz:* *Editable Quiz*

Topic 1 Lesson 4.

Grade 7 | Topic **1** | Lesson **4** Plants and Animals		
Overview	**Guiding Questions**	What makes animals and plants different in form and function? Which special structures inside plant and animal cells determine an organism's characteristics? How do similar cells work together to help plants and animal cells function? Which traits are unique to animals?
	Standards	**MS-LS1-1** Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. **MS-LS1-2** Develop and use a model to describe the function of a cell as a whole and ways parts of cells contribute to the future. **MS-LS1-3** Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells.
Objectives	**Lesson Description** **Science Content**	Students will investigate the characteristics of plants and animals and how these organisms interact with nature and humans.
	"I Can" Statement **Lesson Objectives**	*I can determine differences to identify the forms and functions of different plants and animals.* *I can interpret data to determine an organism's characteristics.* *I can cite text evidence to illustrate differences and similarities in plant and animal cells.* *I can identify and describe animal traits*
Lesson	**Connect** **Day 1**	***Whole Group Instruction*** *Lesson Opener*
	5 minutes	*Lesson Opener: Class Discussion* *Write-So Many Cells*
	30 Minutes	*Direct Instruction: Introduce key concepts via text engagement* *Read through the Lesson with the students focusing on vocabulary.* *Teacher Edition: eText*

		Student Edition: eText
	Investigate **Day 2**	***Whole Group Instruction*** *Teacher Directed*
	10 minutes	*Video Intro: Class Discussion before and after the video is shown to the class* • *Video-Plants and Animals*
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity-Different Cells Different Jobs*
	Investigate **Day 3**	***Guided Practice Small Group***
	10 minutes	*Guided Practice: Class Discussion* • *uinvestigate Lab Video - Identifying an Organism* • *Worksheet: Identifying an Organism*
	30 minutes	*Activity: Students work in small group* • *uInvestigate Lab-Algae and Plants*
	Optional Resources	
	Synthesize **Day 4**	**Independent Practice Small Group**
	20 minutes	*Teacher and Class Discussion* (Can be assigned to the students to answer or review as a whole class) • *Interactivity: Organization of Organisms*
	20 minutes	*Students* can be assigned to answer or review as a whole class • *Quest Check-Multicellular Rainforest Organisms* • *Quest Check Interactivity-Multicellular Rainforest Organisms*
	Optional Resources	• *Enrichment-Plant and Animal Needs*
	Demonstrate	**Assessment:** Here are 3 options for the end of

	Day 5	lesson assessment.
	40 minutes	*eText: Lesson Check* *Quiz:* *Editable Quiz*