Swedesboro-Woolwich School District's Science Curriculum Guidance Document

GRADE 6– Unit/Module 3 Life Science

Mission Statement
The primary goal of the Swedesboro-Woolwich School District is to prepare each student with the real life skills needed to compete in a highly competitive global economy. This will be achieved by providing a comprehensive curriculum, the integration of technology, and the professional services of a competent and dedicated faculty, administration, and support staff. Guiding this mission will be Federal mandates, including No Child Left Behind, the New Jersey Core Curriculum Content Standards, and local initiatives addressing the individual needs of our students as determined by the Board of Education. The diverse resources of the school district, which includes a caring PTO and active adult community, contribute to a quality school system. They serve an integral role in supporting positive learning experiences that motivate, challenge and inspire children to learn.

Unit/Module Overview
In unit 3, students will learn to: ● By the end of the third trimester, students will study patterns of interactions among organisms within an ecosystem. They will consider biotic and abiotic factors in an ecosystem and the effects these factors have on populations. They will also be able to understand that the limits of resources influence the growth of organisms and populations, which may result in competition for those limited resources. Then, students will expand their knowledge using data and models to understand how the environment and genetic factors determine the growth of an individual organism. Students provide evidence to support their understanding of the structures and behaviors that increase the likelihood of successful reproduction by organisms. Students will take the Trimester 3 Assessment on LinkIt. Guiding Question: **Ecosystems: Interactions, Energy, and Dynamics:** ● How are organisms within an ecosystem dependent on each other for survival? ● How does competition for resources affect populations? ● How do predator-prey relationships influence population sizes? ● How do food chains and food webs represent feeding relationships and energy flow? **From Molecules to Organisms: Structures and Processes:** ● How do characteristics of animal behavior and specialized plant structures affect the probability of successful reproduction within a species? ● How do specialized plant structures affect successful reproduction?

Standards Covered in Current Unit/Module

Related Standards and Learning Goals

From Molecules to Organisms: Structure and Processes

- MS-LS1-4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. [Clarification Statement: Examples of behaviors that affect the probability of animal reproduction could include nest building to protect young from cold, herding of animals to protect young from predators, and vocalization of animals and colorful plumage to attract mates for breeding. Examples of animal behaviors that affect the probability of plant reproduction could include transferring pollen or seeds, and creating conditions for seed germination and growth. Examples of plant structures could include bright flowers attracting butterflies that transfer pollen, flower nectar and odors that attract insects that transfer pollen, and hard shells on nuts that squirrels bury.]
- MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. [Clarification Statement: Examples of local environmental conditions could include availability of food, light, space, and water. Examples of genetic factors could include large breed cattle and species of grass affecting growth of organisms. Examples of evidence could include drought decreasing plant growth, fertilizer increasing plant growth, different varieties of plant seeds growing at different rates in different conditions, and fish growing larger in large ponds than they do in small ponds.] [Assessment Boundary: Assessment does not include genetic mechanisms, gene regulation, or biochemical processes.]

Ecosystems: Interactions, Energy, and Dynamics

- MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. [Clarification Statement: Emphasis is on cause and effect relationships between resources and growth of individual organisms and the numbers of organisms in ecosystems during periods of abundant and scarce resources.]
- MS-LS2-2 Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. [Clarification Statement: Emphasis is on predicting consistent patterns of interactions in different ecosystems in terms of the relationships among and between organisms and abiotic components of ecosystems. Examples of types of interactions could include competitive, predatory, and mutually beneficial.]
- MS-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. [Clarification Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system.] [Assessment Boundary: Assessment does not include the use of chemical reactions to describe the processes.]
- MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. [Clarification Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.]
- MS-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services. [Clarification Statement: Examples of ecosystem services could include water purification, nutrient recycling, and prevention of soil erosion. Examples of design solution constraints could include scientific, economic, and social considerations.]

Unit/Module Weekly Learning Activities and Pacing Guide			
Topic & # Days	**NJ Standards**	**Critical Knowledge & Skills**	**Possible Resources & Activities**
From Molecules to Organisms: Structures and Processes and 25 days/weeks	• MS-LS1-4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. • MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	**Obj. We are learning to**: • Identify and explain how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants • Write an explanation based on evidence for how environmental and genetic factors influence the growth of organisms **Suggested Formative Assessment(s)**: • Sections of online workbook/worksheets • Exit tickets • Learning target tracker • Teacher feedback • Catch and Release • Think-Pair-Share • Thumb-o-meter	Texts • From Molecules to Organisms Google Slides • *The Complete Middle School Study Guide Everything You Need to Ace Science in One Big Fat Notebook* Materials • Online workbook • Worksheets • Lab materials • Google Form assessment • IXL
Ecosystems: Interactions, Energy, and Dynamics and 25 days/weeks	• MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. • MS-LS2-2 Construct an	**Obj. We are learning to**: • Analyze and interpret data to provide evidence that changes in the amount and availability of resources affect populations within an ecosystem • Make models to identify and describe how energy enters an ecosystem • Make models to identify and describe the roles of producers, consumers, and decomposers in cycling energy through an ecosystem • Construct how matter is transferred between the	Texts • *The Complete Middle School Study Guide Everything You Need to Ace Science in One Big Fat Notebook* Materials • Online workbook • Worksheets • Lab materials • Google Form assessment • IXL

	explanation that predicts patterns of interactions among organisms across multiple ecosystems. ● MS-LS2-3 Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. ● MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. ● MS-LS2-5 Evaluate competing design solutions for maintaining biodiversity and ecosystem services.	living and nonliving parts of an ecosystem **Suggested Formative Assessment(s)**: ● Sections of online workbook/worksheets ● Exit tickets ● Learning target tracker ● Teacher feedback ● Catch and Release ● Think-Pair-Share ● Thumb-o-meter	

Link to Additional Components including Cross Curricular Connections, Accommodations, Assessments, Etc

ELA Enduring Understanding Statements