



Grade 3 Science Unit # 3 Life Science

Grade 3

Unit # 3 Life Science

Topic 5 (26 days) – Life Cycles and Traits

Topic 6 (26 days) – Adaptations and Survival

Topic 7 (26 Days) Fossil Evidence

Unit Overview Students will investigate a variety of plant and animal traits and discover how genetic variation and environments lead to differences between individuals. Students will conduct investigations and use models to explain the similarities and differences of life forms. Students will gain an understanding of the importance of inherited traits and use evidence to explain how variations contribute to unique differences. Students will learn that Earth is home to a great diversity of living things and that living things interact with and depend on each other and their environment to satisfy their basic needs. Differences in characteristics can give individuals an advantage in surviving and reproducing when environments change. Students will then investigate fossil evidence and learn about environmental change and geological time scale.

Unit 3 NYSSLS Performance Expectations (PE)

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.]

3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.]

3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment. [Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.]

3-LS2-1. Construct an argument that some animals form groups that help members survive. [Clarification Statement: Examples of groups could include a herd of cattle, a swarm of bees, a flock of geese, a pod of whales, etc.]

3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. [Clarification Statement: Examples of cause and effect relationships could include plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to produce offspring.]

3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.]

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.* [Clarification Statement: Examples of environmental changes could include both natural and human-influenced changes in land characteristics, water distribution,

temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]

3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.]

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

Unit 3 NYSSLS Science and Engineering Practices (SEP)

- Analyzing and Interpreting Data
- Engaging in Argument from Evidence
- Developing and Using Models
- Constructing Explanations and Designing Solutions
- Planning and Carrying Out Investigations
- Obtaining, Evaluating, and Communicating Information

Unit 3 NYSSLS Disciplinary Core Ideas (DCI)

LS3.B: Variation of Traits

- Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)
- The environment also affects the traits that an organism develops. (3-LS3-2)

LS1.B: Growth and Development of Organisms

- Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3-LS1-1)

LS3.A: Inheritance of Traits

- Many characteristics of organisms are inherited from their parents. (3-LS3-1)
- Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. (3-LS3-2)
- (NYSED) Some characteristics result from the interactions of both inheritance and the effect of the environment. (3-LS3-2)

LS4.A: Evidence of Common Ancestry and Diversity

- Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (Note: Moved from K-2) (3-LS4-1)
- Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1)

LS4.B: Natural Selection

- Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)

LS4.C: Adaptation

- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)

LS2.C: Ecosystem Dynamics, Functioning, and Resilience

- When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the

transformed environment, and some die.. (secondary to 3-LS4-4)

LS2.D: Social Interactions and Group Behavior

- (NYSED) Being part of a group helps some animals obtain food, defend themselves, and survive. Groups may serve different functions and vary dramatically in size. (Note: Moved from K–2) (3-LS2-1)

LS4.D: Biodiversity and Humans

- Populations live in a variety of habitats and change in those habitats affects the organisms living there. (3-LS4-4)

ETS1.A: Defining and Delimiting Engineering Problems

- Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success

ETS1.B: Developing Possible Solutions

- Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2)
- At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2)

ETS1.C: Optimizing the Design Solution

- Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)

Unit 3 NYSSLS Cross Cutting Concepts (CCC)

- Cause and Effect
- Scale, Proportion, Quantity
- Systems and System Models
- Patterns

Resources

- Savvas Elevate Science Book NY Edition Grade 3 Topics 1-2
- Savvas Easybridge (access via BPS Staff Resources or Clever)
- Savvas Lab materials
- <http://ngss.nsta.org/Classroom-Resources.aspx>

Measurement of Student Learning

- Lesson Quiz
- Topic Assessment and Remediation
- Evidence-Based Assessment
- Quest Rubrics
- Exam view Assessment

Savvas Elevate Science Supports

- Topic Differentiated Instruction in TE
- Topic Remediation Summary in TE
- ELL Support in TE
- ELL Vocabulary Support in TE

<p>English Language Learners (ELL) Enhancements</p> <p>To access hyperlinked material, you must be logged into your BPS Google Drive</p>	<p><u>Listening</u></p> <ul style="list-style-type: none"> ● <u>Cross- Linguistic Practices</u>: Gives students opportunities to make connections between what they hear and their home language (For example, allow students to listen to a passage and identify cognates). ● <u>Activating Prior Knowledge</u> Activating prior knowledge means both eliciting from students what they already know and building initial knowledge that they need in order to access upcoming content. ● <u>Activating Prior Knowledge</u> ● <u>Visuals</u> - GIFs, pictures- will assist students in understanding what they are listening to. Use <u>visual thinking strategies</u> to set the lens for learning. ● Video to review or introduce a topic – use <u>closed captioning</u> to help students see the words and pronunciations while they listen to the content. ● <u>Word stretching / Vowel stretching</u> when instructing allows student to listen closely to the pronunciation of the word. ● <u>Performance Level Descriptors</u> this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of listening. Scroll for grade 3.
	<p><u>Speaking</u></p> <ul style="list-style-type: none"> ● <u>Sentence Stems/Frames</u> - to begin a sentence - such as <i>Evolution is...</i> or <i>I think that evolution is...</i> ● <u>Academic Conversation Starters</u>: Have a visual of a list of academic sentence starters that students can refer to in a discussion. ● <u>Choral Reading</u> - To build fluency, self-confidence and motivation with <u>reading/speaking</u>. ● Create <u>movement</u> to go with the word. Movement can be a motivating factor, as well as a kinesthetic tool for conceptualizing the rhythm and flow of fluent reading while triggering brain function for optimal learning. ● <u>Performance Level Descriptors</u> This document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of speaking. Scroll for grade 3.
	<p><u>Reading</u></p> <ul style="list-style-type: none"> ●—Supplementary Text to help reinforce concepts. ●—<u>Visual Aids</u> - Pictures or models to support vocabulary words and concepts ● Video to review or introduce a topic - use <u>closed captioning</u> to help students read along while they listen to the content. ● <u>4 Square / Frayer models</u> to help students gain a deeper understanding of vocabulary. ● <u>Highlighting</u> important text to assist students in answering questions after the reading. ● <u>Chunking</u>-Break reading of text into chunks or paragraphs ● <u>Performance Level Descriptors</u> this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of reading. Scroll for grades 3. ● <u>Vocabulary Morphology</u>- Morphology relates to the segmenting of words into affixes (prefixes and suffixes) and roots or base words, and the origins of words. Understanding that words connected by meaning can be connected by spelling can be critical to expanding a student’s vocabulary.
	<p><u>Instructional Accommodations (depending on the student’s needs)</u></p> <ul style="list-style-type: none"> ● Extended time for tests in class, projects and assignments ● Directions read. Broken down as necessary ● Model how to complete the activity in the lesson ● Oral simplification of directions or questions ● Translated version of test when available. Student may have both version English and native language version ● Use of <u>approved bilingual glossaries</u> from NYS in each subject

<p>Special Education Modifications Special Education students must have accommodations as per Individual Educational Plan (IEP)</p>	<p><u>Instructional</u></p> <ul style="list-style-type: none"> ● Pre-teach vocabulary ● Use picture vocabulary ● Scaffold Depth of Knowledge questions ● Provide copy of notes/notes in “cloze” form ● Use of Think, Pair, and Share strategy to help process information ● Scaffold written assignments with the use of graphic organizers ● Allow for multiple ways to respond (verbal, written, response board) ● Provide model of performance task ● Modify informational text to fit the needs of the students ● Provide a digital or paper interactive notebook ● Present complex tasks in multiple ways ● Provide mnemonic strategies for scientific concepts <hr/> <p><u>Technology:</u></p> <ul style="list-style-type: none"> ● Audio reading of text ● Text to type functions ● Videos to clarify/visualize science concepts ● Record class lecture/discussions and make accessible to student ● Nearpod- interactive presentations of notes <hr/> <p><u>In Class Assessments</u></p> <ul style="list-style-type: none"> ● Provide multiple options for projects ● Use of timer in class ● Break all complex tasks into chunks
<p>Step Up to Writing Materials can be found in BPS Science K-12 Schoology Folder Grade 3 Resources Grade 3 SUTW materials</p>	<ul style="list-style-type: none"> ● Easy Two-Column Notes ● Breaking Down Definitions ● Paragraph Frame- What I Learned ● Performance Level Descriptors this document provides teachers with a description of what output they can expect from students based on earned NYSESLAT levels in the modality of writing. Scroll for grade 3.
<p>Culturally and Linguistically Responsive Teaching (CLRT) in the Science Classroom</p>	<ul style="list-style-type: none"> ● Materials, resources, and/or discussions address diverse cultural backgrounds and real-world applications ● Artifacts (posters, charts, etc.) in the science classroom are representative of the cultures of the student population ● All students are given an opportunity to engage in science discourse ● Teacher demonstrates high expectations for all students