



Grade 3 Science Unit 3 Life Science

Topic 6 Adaptations and Survival - 26 days

Unit Overview: Students will investigate a variety of plant and animal traits and discover how genetic variation and environments leads 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.

Topic Essential Question: What happens to living things when their environments change?

Lessons

- Topic Launch/Quest Kickoff
- Lesson 1 Survival of Individuals
- Lesson 2 Survival of Groups
- Lesson 3 Survival When Environments Change
- Topic Close –Assessment, Quest Findings

NYSSLS Performance Expectations (PE)

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.]

3-5-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.

Higher Order Thinking Skills (HOTS)

Higher Order Thinking Skills (HOTS) will be identified within each topic plan. Grade 3 HOTS include:

sequencing	reasoning
categorizing	recognizing attributes
identifying pattern	determining relevant/irrelevant information
cause and effect	distinguishing fact vs. opinion
researching	using complete sentences
brainstorming	inferencing
using logic	academic vocabulary

Topic Opener**PE:** 3-LS2-1, 3-LS4-2, 3-LS4-3, 3-LS4-4, 3-5 ETS1-2**SEP:** Constructing Explanations and Designing Solutions*
Engaging in Argument from Evidence***DCI:****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.

CCC: Cause and Effect*

Scale, Proportion, and Quantity*

Denotes Higher Order Thinking Skill*Savvas****Highlighted labs are important to the understanding of the instructional concepts in this lesson and must be completed during Science instructional time.**

- *u*Connect Lab – What clues do beak shapes give about birds?*
- Quest Kickoff – Help the Pond Organism Survive*
- Leveled Readers
- STEM Engineering Reader

Lesson 1- Survival of Individuals**PE:** 3-LS4-2, 3-LS4-3**SEP:** Constructing Explanations and Designing Solutions*
Engaging in Argument from Evidence***DCI:****LS4.B** - Natural Selection

- Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing

LS4.C - Adaptation

- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all

CCC: Cause and Effect****Denotes Higher Order Thinking Skill****Savvas****Guiding Objective**

- Students will link the characteristics of a plant to how well it can survive.

Literacy skill

- Cause and Effect

Vocabulary

- adaptation

Academic Vocabulary

- survive

Connect - TE/SB p. 216

- ENGINEERING Connection
- Write About It*

Investigate - TE/SB pp. 217-219

- *u*Investigate Lab – How do sea lions stay warm in cold waters?*

- Video – Survival of Individuals

- Visual Literacy Connection – How do living things adapt to survive?*

- Virtual Lab – Adapting to Life Under the Sea

Synthesize - TE/SB p. 220

- Interactivity – Camouflage Helps Animals*
- Quest Connection*

Demonstrate - TE/SB pp. 221-223

- Lesson 1 Check
- Reading Check – Cause and Effect*
- Lesson 1 Quiz

- Quest Check-In Lab – How are living things suited to their habitats?*

Lesson 2 Survival of Groups**PE:** 3-LS2-1**SEP:** Engaging in Argument from Evidence***DCI:****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

CCC: Cause and Effect*

Systems and System Models*

Denotes Higher Order Thinking Skill*CLRI Literacy Connections:****Embed:**

“Bird Count” by Susan Edwards Richmond

Synopsis:

“There are rules Ava must follow as a citizen scientist in the annual Christmas Bird Count. What birds will she see? And where will she see them? Count along with Ava to find out!”

Questions:

1. What is a “Citizen Scientist”?
2. Why do you think it would be important for Ava’s group to follow the same path every year when counting birds?
3. What is the scientist’s most important tool?
4. List the rules for counting the birds correctly.
5. How was Ava able to know birds that were different?
6. Look at the data collected by Ava. Which bird was the most common?
7. Can you think of a way you could be a Citizen Scientist, like Ava?

Savvas**Guiding Objective**

- Students will list some animals that form groups to help them survive.

Literacy Skill

- Cause and Effect

Vocabulary

- migrate

Academic Vocabulary

- advantage

Connect - TE/SB p.224

- SPORTS Connection
- Evaluate*

Investigate - TE/SB pp. 225-227

- Video – Survival of Groups
- **Investigate Lab – How do some birds fly so far?***
- Visual Literacy Connection – Why do animals form groups?*

Synthesize - TE/SB pp.228-230

- Interactivity – Animal Groups: Adaptations and Survival
- Quest Connection*
- Quest Check-In – Let’s Get Together*

Demonstrate - TE/SB p. 229

- Lesson 2 Check *
- Reading Check – Cause and Effect*
- Lesson 2 Quiz

Lesson 3 Survival When Environments Change

PE: 3-LS4-4

SEP: Developing and Using Models*

DCI:

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..

LS4.D - Biodiversity and Humans

- Populations live in a variety of habitats and change in those habitats affect the organisms living there.

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.

CCC: Cause and Effect*

***Denotes Higher Order Thinking Skill**

Savvas

Guiding Objective

- Students will explain how plants and animals respond to changes in the environment.

Literacy Skill

- Cause and Effect

Vocabulary

- migrate
- hibernate
- dormant

Academic Vocabulary

- impact

Connect - TE/SB p.232

- STEM Connection
- Construct*

Investigate - TE/SB pp. 233-238

- Video – Survival When Environments Change
- ***uInvestigate Lab – How will sea levels affect tigers?****
- Science Practice Toolbox – Argue Using Evidence*
- Visual Literacy Connection – How do animals respond to seasonal change?*
- Reading Check – Cause and Effect*
- Quest Connection*

Synthesize - TE/SB pp. 239-241

- Interactivity – Environmental Changes
- Quest Check-In – A Changing Pond Environment*

Demonstrate - TE/SB p.240

- Lesson 3 Check*
- Lesson 3 Quiz

Topic Close

- Assessment and Remediation TE/SE pp. 246-251
- Quest Finding p.244

CLRI Literacy Connections:

Enrichment: Independent Reading

“Coral Reefs” by Jason Chin

Synopsis:

Follow a little girl as she learns about how delicate species in coral reefs grow and work together to support the fragile ecosystem that is home to thousands of undersea animals and plants. Join her as she imagines what it would be like to visit the reefs and find ways to protect them

Topic 6 Enrichment

Topic 6- Lesson 1 Enrichment - TE p. 220 - This activity extends student understanding of the lesson by having students design a model about animal adaptations

Enrichment Skill- Attributes

Topic 6- Lesson 2 Enrichment - TE p. 228 - This activity extends student understanding of the lesson by summarizing a passage about why some animals form groups.

Enrichment Skill- Inferencing

Topic 6- Lesson 3 Enrichment - TE p. 237 - This activity extends student understanding of the lesson by learning about migration of Canada geese and practicing multiplication and division.

Enrichment Skill- Relevant/Irrelevant information

English Language Learners (ELL) Enhancements

To access [hyperlinked](#) material, you must be logged into your BPS Google Drive

Listening

- **Cross- Linguistic Practices**: 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).
- **Activating Prior Knowledge** 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.
- **Activating Prior Knowledge**
- **Visuals** - GIFs, pictures- will assist students in understanding what they are listening to. Use **visual thinking strategies** to set the lens for learning.
- Video to review or introduce a topic – use **closed captioning** to help students see the words and pronunciations while they listen to the content.
- **Word stretching / Vowel stretching** when instructing allows student to listen closely to the pronunciation of the word.
- **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 listening. Scroll for grade 3.

Speaking

- **Sentence Stems/Frames** - to begin a sentence - such as *Evolution is...* or *I think that evolution is...*
- **Academic Conversation Starters**: Have a visual of a list of academic sentence starters that students can refer to in a discussion.
- **Choral Reading** - To build fluency, self-confidence and motivation with **reading/speaking**.
- Create **movement** 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.
- **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 speaking. Scroll for grade 3.

Reading

- Supplementary Text to help reinforce concepts.
- **Visual Aids** - Pictures or models to support vocabulary words and concepts
- Video to review or introduce a topic - use **closed captioning** to help students read along while they listen to the content.
- **4 Square / Frayer models** to help students gain a deeper understanding of vocabulary.
- **Highlighting** important text to assist students in answering questions after the reading.
- **Chunking**-Break reading of text into chunks or paragraphs
- **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 reading. Scroll for grade 3.
- **Vocabulary Morphology**- 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.

Instructional Accommodations (depending on the student's needs)

- **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 **approved bilingual glossaries** 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 Step Up to Writing materials can be found in BPS Science K-12 Schoology Folder Grade 3 Resources Grade 3 Curriculum Materials SUTW materials</p>	<ul style="list-style-type: none"> ● Breaking Down Definitions ● Four-Step summary Paragraph ● Sketch Then Write Responses ● Traffic Light Colors for Informative/Explanatory Paragraphs ● 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