



Grade 3 Science Unit 3 Life Science

Topic 5 Life Cycles and Traits - 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: How do traits of living things vary?

Lessons

- Topic Launch/Quest Kickoff
- Lesson 1 Life Cycles
- Lesson 2 Inherited Traits
- Lesson 3 Traits Influenced by the Environment
- Topic Close –Assessment, Quest Findings

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.]

3-5-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.

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-LS1-1, 3-LS3-1, 3-LS3-2**SEP:** Analyzing and Interpreting Data*
Engaging in Argument from Evidence***DCI:****LS3.B: Variation of Traits**

- Different organisms vary in how they look and function because they have different inherited information.

CCC: Cause and Effect****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 – Which seeds are from which plant?*
- Quest Kickoff – Design a Mystery Creature*
- Leveled Readers
- STEM Engineering Reader

Lesson 1- Life Cycles**PE:** 3-LS1-1**SEP:** Developing and Using Models*
Analyzing and Interpreting Data***DCI:****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.

CCC: Patterns****Denotes Higher Order Thinking Skill****Savvas****Guiding Objective**

- Students will describe how all life cycles follow the same patterns.

Literacy skill

- Use Text Features

Vocabulary

- organism
- reproduce

Academic Vocabulary

- diverse

Connect - TE/SB p. 174

- ENGINEERING Connection
- Write About It*

Investigate - TE/SB pp. 175- 181

- *u*Investigate Lab – How are life cycles similar and different?*

- Video – Life Cycles

- *u*Be a Scientist – Observing Growth*

- Question It!*

- Literacy Toolbox – Use Text Features*

- Reading Check – Use Text Features*

Synthesize - TE/SB p. 181

- Interactivity – Compare Life Cycles*

Demonstrate - TE/SB pp. 182-183

- Lesson 1 Check
- Lesson 1 Quiz

- Quest Check-In Lab – Which animals can live here?*

Lesson 2 Inherited Traits**PE:** 3-LS3-1, 3-5 ETS1-1**SEP:** Analyzing and Interpreting Data***DCI:****LS3.A: Inheritance of Traits**

- Many characteristics of organisms are inherited from their parents. (3-LS3-1)

LS3.B: Variation of Traits

- Different organisms vary in how they look and function because they have different inherited information.

CCC: Patterns****Denotes Higher Order Thinking Skill****Savvas****Guiding Objective**

- Students will explain that living things inherit many characteristics from their parents. Students will provide evidence showing that traits vary in a group of similar organisms.

Literacy Skill

- Use Text Features

Vocabulary

- trait
- inherit

Academic Vocabulary

- variation

Connect - TE/SB p.184

- STEM Connection
- Infer*

Investigate - TE/SB pp. 185-187

- Video –Inherited Traits
- *Investigate Lab – How do offspring compare to their parents?**
- Math Toolbox – Fractions
- Reading Check – Use Text Features*
- *Be a Scientist – Inherited Traits**
- Question It!*

Synthesize - TE/SB pp.199-190

- Interactivity – From Parents to Offspring
- Quest Connection*
- Quest Check-In – Hide Me*

Demonstrate - TE/SB p.189

- Lesson 2 Check
- Lesson 2 Quiz

Lesson 3 Traits Influenced by the Environment

PE: 3-LS3-2

SEP: Engaging in Argument from Evidence*

DCI:

LS3.A - Inheritance of Traits

- Other characteristics result from individuals’ interactions with the environment, which can range from diet to learning.
- (NYSED) Some characteristics result from the interactions of both inheritance and the effect of the environment.

LS3.B:- Variation of Traits

- The environment also affects the traits that an organism develops.

CCC: Cause and Effect*

***Denotes Higher Order Thinking Skill**

Savvas

Guiding Objective

- Students will explain that the environment can influence the characteristics of living things.

Literacy Skill

- Use Text Features

Academic Vocabulary

- influence

Connect - TE/SB p.194

- SPORTS Connection
- Identify*

Investigate - TE/SB pp.195-199

- Video – Traits Influenced by the Environment
- **Investigate Lab – How can the environment affect an organism?***
- Interactivity – Investigating Growth
- Crosscutting Concepts Toolbox – Cause and Effect*
- Quest Connection*
- Reading Check – Use Text Features*
- Visual Literacy Connection – How can environmental factors affect organisms?*

Synthesize - TE/SB pp. 197-201

- Interactivity – The Environment Affects Characteristics
- **Quest Check-In – Set the Scene***

Demonstrate - TE/SB pp.158

- Lesson 3 Check
- Lesson 3 Quiz

Topic Close

- Assessment and Remediation TE/SE pp. 204 -209
- Quest Finding p.202

CLRI Literacy Connections:

Enrichment: Independent Reading

“Summer Birds: The Butterflies of Maria Merian” by Margarita Engle

Synopsis:

Discover how, hundreds of years ago, a young girl named Maria Merian, went against normal roles for young women during the time. Journey with her as she discovers the life cycles of insects which changed how people believed caterpillars change into moths and butterflies.

Enrichment: Independent Reading

“If Sharks Disappeared” by Lily Williams

Synopsis:

Learn how sharks are an integral part of the ocean ecosystem and reflect on how the ocean would be affected if sharks disappeared from the ocean.

Topic 5 Enrichment

Topic 5- Lesson 1 Enrichment - TE p.181 - This activity extends student understanding of the lesson by learning about the life cycle of a butterfly.

Enrichment Skill- Sequence

Topic 5- Lesson 2 Enrichment- TE p.188 This activity extends student understanding of the lesson by learning about some traits inherited from their parents. Then, students will use a table to identify and record traits they may have inherited.

Enrichment Skill- Research

Topic 5- Lesson 3 Enrichment- TE p.197- This activity extends student understanding of the lesson by learning about how the environment affects a chameleon. Then, students answer questions about the passage.

Enrichment Skill- Inferencing

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