3rd Grade Unit 3 - Survive and Thrive: How Plants and Animals Fit into Their Worlds

Content Area: **Science**
Course(s): **Science Grade 3**
Time Period: **MP3**
Length: **26 days**
Status: **Published**

NJSLS - Science

3-LS2-1	Construct an argument that some animals form groups that help members survive.
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.
3-LS3-2	Use evidence to support the explanation that traits can be influenced by the environment.
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.
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.

Science and Engineering Practices

Engaging in Argument from Evidence

Construct an argument with evidence, data, and/or a model. (3-LS2-1)

Construct an argument with evidence. (3-LS4-3)

Analyzing and Interpreting Data

Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS3-1)

Constructing Explanations and Designing Solutions

Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2, 3-LS4-2)

Disciplinary Core Ideas

LS2.D: Social Interactions and Group Behavior

Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve

different functions and vary dramatically in size. (3-LS2-1)

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. Many characteristics involve both inheritance and environment. (3-LS3-2)

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)

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)

Crosscutting Concepts

Cause and Effect

Cause and effect relationships are routinely identified and used to explain change. (3-LS2-1), (3-LS3-2), (3-LS4-2), (3-LS4-3)

Patterns

Similarities and differences in patterns can be used to sort and classify natural phenomena. (3-LS3-1)

Rationale and Transfer Goals

In this unit, students will investigate the diverse strategies, traits, and behaviors that allow plants and animals to survive and thrive in their environments. Students will explore the power of community by analyzing how living in groups helps certain animals obtain food, defend themselves, and cope with environmental changes. Moving from ecosystems to organisms, students will examine the concept of heredity. They will look for patterns in the traits organisms inherit from their parents, while also identifying how environmental factors, such as diet or climate, can influence those physical characteristics. Through data analysis and observation, students will discover that variations in traits are not random; rather, subtle differences can provide certain individuals with a distinct advantage in surviving, finding mates, and reproducing. Finally, students will synthesize these concepts by evaluating how well organisms fit into their respective habitats. They will construct evidence-based arguments explaining why some organisms survive well in a particular environment, some survive less well, and others cannot survive at all when ecosystems undergo shifts. By the conclusion of the unit, students will view nature through the lens of adaptation, understanding that survival is a dynamic puzzle shaped by traits, teamwork, and the environment.

Enduring Understandings

Being part of a group provides animals with a collective strength that individuals do not have alone.

Organisms resemble their parents because of inherited traits, but they are also shaped by the world around them.

Differences among individuals of the same species are not just random variations; they can be the difference between life and death.

An organism’s survival depends entirely on how well its unique traits match the demands of its environment.

Essential Questions

How does working as a team help some animals survive?

Why do organisms resemble their parents, and how can the environment change how they look or grow?

How do differences in traits give some plants and animals an advantage over others?

What happens to a living thing when its environment changes?

Content - What will students know?

- Animals form groups (like packs, herds, schools, or swarms) for specific survival advantages, such as finding food more easily, defending against predators, and protecting their young.
- Not all animals survive the same way; some are solitary, while others rely entirely on social structures to cope with changes in their environment.
- Plants and animals inherit specific characteristics (such as eye color, leaf shape, or body structure) from their parents.
- Even within the same species, individuals have natural variations (differences) in their traits; no two organisms (except identical twins) are exactly alike.
- An organism's traits are not determined solely by inheritance; the environment (such as availability of food, amount of sunlight, water quality, or temperature) can alter how a trait develops (e.g., a plant growing poorly due to lack of light).
- Certain variations in traits give individual organisms an advantage over others of the same species in a specific environment (e.g., a tiger with better camouflage is more successful at hunting).
- Organisms with advantageous traits are more likely to survive long enough to find mates and successfully reproduce, passing those helpful traits on to the next generation.
- Different habitats provide the specific food, water, shelter, and climate that certain organisms need to survive well.
- In any given environment, some organisms will survive well, some will survive less well (struggling to meet their needs), and some cannot survive at all.
- When an environment changes (due to natural events like droughts or human impact like deforestation), the balance shifts, some organisms will move to new locations, some will adapt and thrive, and others will die.

Skills - What will students be able to do?

- Construct a written or oral argument, supported by evidence, explaining how living in a group helps a specific animal species survive (e.g., how a wolf pack hunts or how a school of fish confuses predators).
- Compare the survival rates of solitary animals versus group-living animals under different environmental pressures.
- Examine data tables, charts, or images of organisms and their parents to identify patterns of inherited traits and variations within a species (e.g., measuring and graphing the variation in shell colors among a population of snails).
- Write scientific explanations using evidence to show how an environmental factor has altered an organism's traits (e.g., explaining why two genetically identical plants grew to different heights based on sunlight exposure).
- Use evidence to explain how a specific variation in a trait gives an individual organism a better chance of surviving, finding a mate, and reproducing compared to others of its species (e.g., why a moth with darker coloration survives better on soot-covered trees).
- Predict which organisms in a population are most likely to survive based on their physical characteristics when a new predator or environmental pressure is introduced.
- Formulate an argument justifying why a particular organism thrives in one habitat but struggles or dies in another (e.g., why a cactus thrives in the desert but would rot in a rainforest).
- Analyze a scenario where a habitat changes (e.g., a wetland drying up or a forest fire occurring) and predict whether specific resident organisms will survive well, survive less well, move to a new home, or die.

Activities - How will we teach the content and skills?

- Mystery Science Fates of Traits Anchor Phenomenon
- Mystery Science Fates of Traits Lesson 1
- Mystery Science Fates of Traits Lesson 2
- Mystery Science Fates of Traits Lesson 3
- Mystery Science Fates of Traits Lesson 4
- Mystery Science Fates of Traits Lesson 5
- Whole group instruction and discussion.
- Read Alouds

- Group and Individual Projects
- Hands-on discovery when possible; creating models
- Webquests/Internet “field trips”

Formative Assessments

- Mystery Science Fates of Traits Lesson 1 Assessment
- Mystery Science Fates of Traits Lesson 2 Assessment
- Mystery Science Fates of Traits Lesson 3 Assessment
- Mystery Science Fates of Traits Lesson 4 Assessment
- Mystery Science Fates of Traits Lesson 5 Assessment
- Teacher Observation
- Student projects/models
- Exit Tickets

Summative Assessments

- Tests/Quizzes
- Mystery Science Fates of Traits Performance Task
- Mystery Science Fates of Traits Unit Assessment
- Grade 3 Science Benchmark #3

Spiraling for Mastery

Content or Skill for this Unit	Spiral Focus from Previous Unit	Instructional Activity
Many characteristics of organisms and that they are inherited from their parents.	Grade 1: Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents.	1-LS1-2 Activities

	Grade 1: Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	

Key Resources

Mystery Science

Student Interactives

Career Readiness, Life Literacies, & Key Skills

9.4.5.CI.1	Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions (e.g., W.4.6, 3.MD.B.3,7.1.NM.IPERS.6).
9.2.5.CAP.1	Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
9.1.5.CR.1	Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
9.4.5.CI.2	Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue (e.g., 6.3.5.CivicsPD.3, W.5.7).
9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
9.2.5.CAP.4	Explain the reasons why some jobs and careers require specific training, skills, and certification (e.g., life guards, child care, medicine, education) and examples of these requirements.
9.4.5.DC.4	Model safe, legal, and ethical behavior when using online or offline technology (e.g., 8.1.5.NI.2).
9.4.5.DC.8	Propose ways local and global communities can engage digitally to participate in and promote climate action (e.g., 6.3.5.GeoHE.1).
9.4.5.IML.2	Create a visual representation to organize information about a problem or issue (e.g., 4.MD.B.4, 8.1.5.DA.3).
9.4.5.IML.3	Represent the same data in multiple visual formats in order to tell a story about the data.
9.4.5.TL.2	Sort and filter data in a spreadsheet to analyze findings.
9.4.5.TL.3	Format a document using a word processing application to enhance text, change page

formatting, and include appropriate images graphics, or symbols.

Interdisciplinary Connections

RI.CR.3.1	Ask and answer questions and make relevant connections to demonstrate understanding of an informational text, referring explicitly to textual evidence as the basis for the answers.
RI.CI.3.2	Recount in oral and written form the key details from a multi-paragraph informational text and explain how they support the main idea.
RI.IT.3.3	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
3.DL.B.3	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs.
3.DL.B.4	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.
W.AW.3.1	Write opinion texts to present an idea with reasons and information.
W.IW.3.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
SL.PI.3.4	Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.