

# 3rd Grade Unit 6 - Using Evidence to Show Change in Environments

Content Area: **Science**  
Course(s): **Science Grade 3**  
Time Period: **MP3**  
Length: **18 days**  
Status: **Published**

## **NJSLS - Science**

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SCI.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.
SCI.3-LS4-1	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
SCI.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.

## **Science and Engineering Practices**

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### **Analyzing and Interpreting Data**

Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1)

### **Engaging in Argument from Evidence**

Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-LS4-4)

### **Constructing Explanations and Designing Solutions**

Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem. (3-5-ETS1-2)

## **Disciplinary Core Ideas**

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### **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)

### **LS4.A: Evidence of Common Ancestry and Diversity**

Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (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.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.B: Developing Possible Solutions**

Research on a problem, such as climate change, 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)

## **Crosscutting Concepts**

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### **Scale, Proportion, and Quantity**

Observable phenomena exist from very short to very long time periods. (3-LS4-1)

### **Systems and System Models**

A system can be described in terms of its components and their interactions. (3-LS4-4)

## **Interdependence of Science, Engineering, and Technology**

Knowledge of relevant scientific concepts and research findings is important in engineering. (3-LS4- 4)

## **Scientific Knowledge Assumes an Order and Consistency in Natural Systems**

Science assumes consistent patterns in natural systems. (3- LS4-1)

## **Influence of Science, Engineering, and Technology on Society and the Natural World**

Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands. (3-5-ETS1-2)

## **Rationale and Transfer Goals**

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### **What do fossils tell us about the organisms and the environments in which they lived?**

In this unit of study, students develop an understanding of the types of organisms that lived long ago and also about the nature of their environments. Students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of systems and system models; scale, proportion, and quantity; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.

## **Enduring Understandings**

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Physical characteristics, temperature, and resource availability are affected by the environment.

Fossils help us learn about the environment and organisms.

## **Essential Questions**

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What do fossils tell us about the organisms and the environments in which they lived?

What happens to the plants and animals when the environment changes?

## **Content - What will students know?**

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- Observable phenomena exist from very short to very long periods of time.
- Science assumes consistent patterns in natural systems.
- Some kinds of plants and animals that once lived on Earth are no longer found anywhere.
- Fossils provide evidence about the types of organisms that lived long ago, and also about the nature of their environments.
- A system can be described in terms of its components and their interactions.
- People's needs and wants change over time, as do their demands for new and improved technologies.
- Populations live in a variety of habitats, and change in those habitats affects the organisms living there.
- 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, others move into the transformed environment, and some die.
- 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.

## **Skills - What will students be able to do?**

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- Describe a system in terms of its components and interactions.
- Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of a problem.
- 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. (Assessment is limited to a single environmental change and does not include the greenhouse effect or climate change.) Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, or other organisms.
- Define a simple design problem that can be solved through the development of an object, tool, process, or system and that includes several criteria for success and constraints on materials, time, or cost.
- Define a simple design problem reflecting a need or want that includes specified criteria for success and constraints on materials, time, or cost.
- Use evidence to discover and explain how fossils can tell us about organisms and their former environments.
- Describe what happens to plants and animals when environmental changes occur.
- Create solutions to environmental problems affecting organisms.

## **Activities - How will we teach the content and skills?**

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- Mystery Science Heredity, Survival, & Selection Anchor Phenomenon
- Mystery Science Heredity, Survival, & Selection Lesson 1
- Mystery Science Heredity, Survival, & Selection Lesson 2
- Mystery Science Heredity, Survival, & Selection Lesson 3
  
- Whole group instruction and discussion.
  
- Read Alouds
  
- Group and Individual Projects
  
- Hands-on discovery when possible; creating models
  
- Webquests/Internet “field trips”

## **Formative Assessments**

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- Mystery Science Heredity, Survival, & Selection Lesson 1 Assessment
- Mystery Science Heredity, Survival, & Selection Lesson 2 Assessment
- Mystery Science Heredity, Survival, & Selection Lesson 3 Assessment
- Mystery Science Animals Through Time Performance Task
- Teacher Observation
- Student projects/models
- Exit Tickets

### **Summative Assessments**

- Mystery Science Fossils & Changing Environments Performance Task
- [Mystery Science Fossils & Changing Environments Unit Assessment](#)
- Tests/Quizzes
- [Grade 3 Science Benchmark #3](#) (taken after Unit 7)

### **Spiraling for Mastery**

Content or Skill for this Unit	Spiral Focus from Previous Unit	Instructional Activity
<ul style="list-style-type: none"> <li>• Populations live in a variety of habitats, and change in those habitats affects the organisms living there.</li> <li>• 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, others move into the transformed environment, and some die.</li> </ul>	<p>Kindergarten: Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do.</p> <p>Kindergarten: Asking questions, making observations, and gathering information are helpful in thinking about problems.</p> <p>Grade 2: Plants depend on water and light to grow.</p> <p>Grade 2: Plants depend on animals</p>	<p><a href="#">K-ESS2-2 Activities</a></p> <p><a href="#">K-ESS3-1 Activities</a></p> <p><a href="#">2-LS2-1 Activities</a></p> <p><a href="#">2-LS2-2 Activities</a></p>

	for pollination or to move their seeds around.	
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## Key Resources

[Mystery Science](#)

## Career Readiness, Life Literacies, & Key Skills

PFL.9.1.5.CR.1	Compare various ways to give back and relate them to your strengths, interests, and other personal factors.
WRK.9.2.5.CAP.1	Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
WRK.9.2.5.CAP.3	Identify qualifications needed to pursue traditional and non-traditional careers and occupations.
WRK.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.
TECH.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).
TECH.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).
TECH.9.4.5.DC.4	Model safe, legal, and ethical behavior when using online or offline technology (e.g., 8.1.5.NI.2).
TECH.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).
TECH.9.4.5.TL.2	Sort and filter data in a spreadsheet to analyze findings.
TECH.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.
TECH.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).
TECH.9.4.5.IML.3	Represent the same data in multiple visual formats in order to tell a story about the data.

## Interdisciplinary Connections

### NJSLS ELA

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. (3-LS4-1, 3-LS4-4)

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. (3-LS4-1, 3-LS4-4)

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-LS4-1, 3-LS4-4)

RI.CR.5.1. Quote accurately from an informational text when explaining what the text says explicitly and make relevant connections when drawing inferences from the text. (3-5-ETS1-2)

RI.MF.5.6. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, timelines, animations, or interactive elements on web pages) and explain how the information contributes to an understanding of the text in which it appears. (3-5-ETS1-2)

RI.CT.5.8. Compare and contrast the authors' approaches across two or more informational texts within the same genre or about texts on the same or similar topics. (3-5-ETS1-2)

W.AW.3.1. Write opinion texts to present an idea with reasons and information. (3-LS4-1, 3-LS4-4)

A. Introduce an opinion clearly.

B. Support the opinion with facts, definitions, reasons, text evidence, or other information and examples related to the topic.

C. Link ideas within sections of information using transition words and phrases (e.g., then, because, also, therefore, since, for example) to connect opinion and reasons.

D. Provide a conclusion related to the opinion presented.

W.IW.3.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (3-LS4-1, 3-LS4-4)

A. Introduce a topic clearly.

B. Develop the topic with facts, definitions, and concrete details, text evidence, or other information and examples related to the topic.

C. Include text features (e.g.: illustrations, diagrams, captions) when useful to support comprehension.

D. Link ideas within sections of information using transition words and phrases (e.g., then, because, also,

another, therefore).

E. Provide a conclusion related to the information or explanation presented.

W.SE.3.6. Use discussion, books, or media resources to gather ideas, outline them, and prioritize the information to include while planning to write about a topic. (3-LS4-1)

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. (3-LS4-4)

### **NJSLS Mathematics**

MP.2 Reason abstractly and quantitatively. (3-LS4-1, 3-LS4-4, 3-5-ETS1-2)

MP.4 Model with mathematics. (3-LS4-1, 3-LS4-4, 3-5-ETS1-2)

MP.5 Use appropriate tools strategically. (3-LS4-1, 3-5-ETS1-2)

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.(3-LS4-1)

3-5.OA Operations and Algebraic Thinking (3-5-ETS1-2)