

Old Unit 7: Using Evidence to Understand Change (Science Template)

Content Area: **Science**
Course(s): **Science 3**
Time Period: **April**
Length: **3 weeks**
Status: **Published**

Unit Summary

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.

Standards

LA.W.3.1	Write opinion pieces on topics or texts, supporting a point of view with reasons.
LA.W.3.2	Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
LA.W.3.7	Conduct short research projects that build knowledge about a topic.
LA.W.3.8	Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
LA.RI.3.1	Ask and answer questions, and make relevant connections to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
LA.RI.3.2	Determine the main idea of a text; recount the key details and explain how they support the main idea.
LA.RI.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.
LA.SL.3.1	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
LA.SL.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.
MA.3.MD.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.
MA.3.MD.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.
MA.3.OA	Operations and Algebraic Thinking
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-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.
3-LS4-1	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.

Student Learning Objectives

- SLO 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-LS4-1)
- SLO 2 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 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-LS4-4)
- SLO 3 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-ETS1-1)

Driving Questions

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?

DCI's Disciplinary core ideas

Part A:

Students who understand the concepts are able to:

- Observe that phenomena exist from very short to very long periods of time.
- Analyze and interpret data to make sense of phenomena using logical reasoning.
- Analyze and interpret data from fossils (e.g., type, size, distributions of fossil organisms) to provide evidence of the organisms and the environments in which they lived long ago. (Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.) Examples of fossils and environments could include: Marine fossils

found on dry land; Tropical plant fossils found in Arctic areas; or Fossils of extinct organisms.

Part B:

Students who understand the concepts are able to:

- 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.

CCC's Cross-Cutting Concepts

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)

Connections to Engineering, Technology, and Applications of Science Interdependence of Engineering, Technology, and Science on Society and the Natural World

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