



PROJECT OCEANOLOGY



Ancient Animals

Overview

Life on Earth likely began in the ancient oceans. Millions of years ago, there were marine organisms who died and, in certain circumstances, left a record of their lives as fossils. Scientists are able to study prehistoric ocean life by finding fossils... sometimes very far inland! Some of these prehistoric sea creatures went extinct when they couldn't adapt to changes in their environment, and some were successful and have modern day relatives. These extant species have sometimes changed a lot, and sometimes very little. Depending on the fossils, we can see evidence of the environment the animal experienced all those years ago. In this activity, students will gather evidence to support an explanation of whether an organism went extinct, or has evolved into a modern organism. They will also address and model the fossilization process and excavation techniques used by paleontologists.

Alignment with NGSS

Performance Expectations (Grade 3)

3-LS4-1 Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. *Students will examine fossil records of marine organisms and identify the type of fossil (true form, mold, cast, or trace), and match them with their extant relatives. Students will make the connection between the fossil record and the animals' environment.*

Science and Engineering Practices

Analyzing and Interpreting Data

Analyze and interpret data to make sense of phenomena using logical reasoning.

Students will examine different sources of data (photos, fossils, models) to make sense of the marine environment millions of years ago.

Construction Explanations/Designing Solutions

Use evidence (e.g., observations, patterns) to construct an explanation

Students will use specific adaptations in fossilized organisms, as well as the type of fossil provided, as evidence to support their ideas about what the ocean looked like millions of years ago.

Crosscutting Concepts

Scale, proportion, and quantity

Observable phenomena exist from very short to very long time periods.

Students will identify organisms that have gone extinct, and organisms that have modern, extant relatives. They will also increase their understanding of how scientists study organisms and environments from long ago.

Connections to Nature of Science

Scientific Knowledge Assumes an Order and Consistency in Natural Systems

Science assumes consistent patterns in natural systems.

Disciplinary Core Ideas

LS4.A: Evidence of Common Ancestry and Diversity

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.

Students will actively use the fossil record to draw conclusions about the ancient world, and how adaptation is important to continued survival in a changing environment.