



NGSS Connections to Migration Activities – Disciplinary Core Ideas

47 - Who Flew Where?

2.LS4.D Biodiversity and Humans

There are many different kinds of living things in any area, and they exist in different places on land and in water.

PE: 2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.

3. 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.

PE: 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.C Adaptation

For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. Particular organisms can survive only in particular environments.

PE: 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.

4.LS1.A: Structure and Function

Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.

PE: 4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

MS.LS1.B Growth and Development of Organisms

Animals engage in characteristic behaviors that increase the odds of reproduction

- *How do organisms grow and develop?*

PE: MS-LS1-4 Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors affect the probability of successful reproduction.

MS.LS2.A Interdependent Relationships in Ecosystems

-Organisms and populations of organisms, are dependent on their environmental interactions both with other living things and with nonliving factors.

-Growth of organisms and population increases are limited by access to resources.

- *How do organisms interact with the living and nonliving environments to obtain matter and energy?*

PE: MS-LS2-1 Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

MS.LS2.C Ecosystem Dynamics, Functioning and Resilience

Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations.

- *What happens to ecosystems when the environment changes?*

PE: MS-LS2-4 Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

Crosscutting Concepts

Patterns

Cause and Effect: Mechanism and Explanation

Systems and System Models

Science and Engineering Practices

Analyzing and Interpreting Data

Students look at bird banding data, analyze it and make sense of the data.

Developing and Using Models

Students model the migration routes of birds.

Engaging in Argument from Evidence Construct an argument with evidence, data, and/or a model.

New Mexico Social Studies Standards

STRAND : Geography

Content Standard II: Students understand how physical, natural, and cultural processes influence

where people live, the ways in which people live, and how societies interact with one another and their environments.

K-4 Benchmark II-A: Understand the concept of location by using and constructing maps,

globes, and other geographic tools to identify and derive information about people, places, and environments.

**Grade 4**

1. apply geographic tools of title, grid system, legends, symbols, scale and compass rose to construct and interpret maps;
2. translate geographic information into a variety of formats such as graphs, maps, diagrams and charts;
3. draw conclusions and make generalizations from geographic information and inquiry;

5-8 Benchmark 2-A: analyze and evaluate the characteristics and purposes of geographic tools, knowledge, skills and perspectives and apply them to explain the past, present and future in terms of patterns, events and issues;

Grade 5:

1. make and use different kinds of maps, globes, charts and databases;
5. employ fundamental geographic vocabulary (e.g., latitude, longitude, interdependence, accessibility, connections);
7. use spatial organization to communicate information; and
8. identify and locate natural and man-made features of local, regional, state, national and international locales.

Grade 6:

1. identify the location of places using latitude and longitude
- 5-8 Benchmark 2-C: understand how human behavior impacts man-made and natural environments, recognize past and present results and predict potential changes:

Grade 5

2. identify and define geographic issues and problems from accounts of current events.

Grade 7

2. interpret and analyze geographic information obtained from a variety of sources (e.g., maps, directly witnessed and surveillanced photographic and digital data, personal documents and interviews, symbolic representations - graphs, charts, diagrams, tables, etc.);
4. explain a contemporary issue using geographic knowledge, tools and perspectives.

48 - Changes in Bird Populations Science and Engineering Practices

Analyzing and Interpreting Data

Engaging in Argument from Evidence Students write claim, evidence and reasoning statements

Common Core State Standards Connections

WHST.6-8.1 Write arguments to support claims with clear reasons and relevant evidence.

Mathematics

6.SP.B.4 Summarize numerical data sets in relation to their context.

References:

Next Generation Science Standards: For States, By States. NGSS Lead States. The National Academies Press. 2013

The NSTA Quick Reference Guide to the NGS: K-12. Ted Willard, editor. NSTA Press. 2015