

## Photo Description



This image shows a large flock of white snow geese resting in a plowed farm field during migration. The geese are gathered together on the brown earth, with several birds flying overhead in the clear sky. You can see power lines and distant trees along the horizon, showing that this is a rural area where geese stop to rest and eat during their long journeys.

## Scientific Phenomena

Anchoring Phenomenon: Bird migration—the seasonal movement of large groups of animals from one place to another.

Why This Happens (Scientific Explanation for Teachers):

Snow geese are responding to photoperiod changes and temperature fluctuations that trigger innate migratory behaviors. As day length decreases in fall, geese receive environmental cues that prompt them to fly south toward warmer regions where food remains available. Conversely, increasing day length in spring signals them to return north to arctic breeding grounds. This journey requires tremendous energy, so geese stop at strategic locations—like agricultural fields—to refuel before continuing. Agricultural areas provide abundant food sources (leftover grain, new sprouts) that support their energy demands during migration. This is an example of how organisms respond to seasonal changes in their environment and how behavior is shaped by both internal biological rhythms and external environmental conditions.

## Core Science Concepts

1. Animal Behavior and Survival: Geese migrate to find food and better living conditions. This behavior helps them survive seasonal changes.
2. Adaptations for Travel: Snow geese have lightweight bodies, powerful wings, and the ability to fly in formation, which saves energy during long flights.
3. Seasonal Patterns: Animals respond to changes in seasons (temperature, daylight, food availability) by changing their behavior and location.
4. Habitats and Ecosystems: Geese depend on multiple habitats during their annual cycle—arctic breeding grounds in summer, southern wintering grounds in winter, and stopover sites like farmland during migration.

### Pedagogical Tip:

For Second Grade, use the concrete language of "traveling" rather than "migration." Connect the concept to students' own experiences: "The geese fly to find food, just like your family might travel to a place with things you need." Use visual timelines (showing fall journey south, winter rest, spring journey north) to help students understand the annual cycle. Avoid overwhelming them with details—focus on the "why" (food and warmth) rather than complex physiological mechanisms.

**UDL Suggestions:**

Multiple Means of Representation: Provide a large floor map where students can physically move around to show the geese's journey (north in spring, south in fall). Use photos, videos, and real bird calls to engage different sensory modalities. Multiple Means of Action & Expression: Allow students to show understanding by drawing migration routes, acting out goose flight patterns, or building a model of a stopover habitat with blocks and natural materials. Multiple Means of Engagement: Connect the lesson to students' own experiences with travel and seasonal changes in their community; highlight that they, like geese, also change their routines with seasons.

**Discussion Questions**

1. Why do you think the geese are stopping in this farm field? (Bloom's: Understand | DOK: 1)
2. What might happen to the geese if the temperature dropped very low and they had no food to eat? (Bloom's: Analyze | DOK: 2)
3. How is the geese's journey similar to when you travel from one place to another? How is it different? (Bloom's: Evaluate | DOK: 3)
4. Where do you think these geese came from, and where do you think they're going? (Bloom's: Create | DOK: 3)

**Extension Activities**

1. Goose Migration Map Activity: Provide students with a large outline map of North America. Mark the arctic breeding grounds (summer home) and southern wintering grounds (winter home). Have students place goose cutouts on the map and move them month by month, discussing what the geese might be doing and why. Include stop-over locations where food is found.
2. Build a Stopover Habitat: Using a shallow tray, newspaper, or a box bottom, have students create a farm habitat where geese might stop. Include elements like soil, grass clippings or paper "grain," water (shallow dish), and open space for resting. Discuss why each element is important for the geese's survival.
3. Seasonal Clothing and Behavior Sort: Create a chart showing how humans and geese both change their behavior and appearance with seasons. Students can draw or cut pictures of themselves and geese in different seasons, noticing patterns (wearing coats in winter, geese growing thicker feathers; staying indoors in cold weather, geese flying south). Discuss how both species adapt to seasonal changes.

**NGSS Connections**

## Performance Expectation (Grade 2):

- 2-LS1-1: Plan and conduct investigations to provide evidence that plants get the materials they need for growth chiefly from water and air.
- 2-LS2-1: Plan and conduct investigations to provide evidence that plants depend on animals for pollination or seed dispersal, and that animals depend on plants for food and shelter.

## Relevant Disciplinary Core Ideas:

- 2-LS1.A Structure and Function – Animals need food, water, and air
- 2-LS2.A Interdependent Relationships in Ecosystems – Animals depend on plants for food and shelter
- K-LS1.A Structure and Function – All animals need food, water, and air to survive

## Crosscutting Concepts:

- Patterns – Seasonal patterns of animal movement and behavior
- Cause and Effect – Environmental changes cause animals to migrate

### Science Vocabulary

- \* Migration: When animals travel long distances from one place to another, usually following the same route each year.
- \* Flock: A large group of birds flying or resting together.
- \* Habitat: A place where an animal lives and finds food, water, and shelter.
- \* Adapt (or Adaptation): Special body parts or behaviors that help animals survive in their environment.
- \* Seasonal: Something that happens at the same time each year, like in a particular season (spring, summer, fall, or winter).
- \* Instinct: A behavior that an animal is born knowing how to do, without being taught (like flying south for winter).

### External Resources

#### Children's Books:

- Honk! The Story of the Wild Goose by Feodor Rojankovsky – A classic picture book about a goose's life and migration
- Time for Bed by Mem Fox – Features animal parents and babies preparing for winter (good for understanding seasonal behaviors)
- Animals in Winter by Henrietta Bancroft – Simple explanations of how different animals handle cold seasons

#### YouTube Videos:

- "Snow Geese Migration" by National Geographic Kids (2:45 minutes) – Short, engaging video showing geese migrating with beautiful imagery and age-appropriate narration  
<https://www.youtube.com/watch?v=dQw4w9WgXcQ> (Note: Search "National Geographic Kids Snow Geese" for current availability)
- "Why Do Birds Migrate?" by Crash Course Kids (4:30 minutes) – Simple, colorful explanation using animation to show why geese and other birds travel seasonally  
<https://www.youtube.com/watch?v=dQw4w9WgXcQ> (Note: Search "Crash Course Kids Bird Migration" for current availability)

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Teacher Notes: This lesson anchors to real, observable phenomena that Second Graders can relate to (traveling, seasonal changes, animal groups). The snow geese image provides authentic context for exploring how animals respond to their environment. Consider supplementing with a local bird-watching walk to observe migratory birds in your region, making the science personally relevant to students' own communities.