

Photo Description



This image shows hundreds of white snow geese resting together in a large, flat field during their journey to find food and raise babies in warmer or colder places depending on the season. Three geese are flying above the group, showing how these birds move together from place to place. Power lines and distant trees help us see how vast the landscape is where these birds gather.

Scientific Phenomena

Anchoring Phenomenon: Bird Migration and Seasonal Movement

Snow geese migrate—they travel long distances twice each year—because Earth's seasons change the availability of food and water. As winter approaches, ponds and wetlands freeze, making it impossible to find food in northern regions. Geese instinctively respond to changing day length and temperature by flying south to areas where water remains unfrozen and food is available. In spring, they return north to breed. This behavior is driven by both internal biological clues (hormonal changes triggered by photoperiod) and external environmental cues (temperature, food scarcity). For first graders, the simple explanation is: "Geese move to different places when it gets too cold or too hot, just like you might wear different clothes in different seasons."

Core Science Concepts

1. Animal Behavior and Survival

- Animals move to find food, water, and shelter to stay alive
- Geese gather in large groups for protection and to share information about safe places

2. Seasonal Changes and Life Cycles

- Seasons change what animals can find to eat and where they can live safely
- Animals adapt their behavior to match seasonal changes (migration is an adaptation)

3. Patterns in Nature

- Geese return to the same areas year after year following the same routes
- Large groups of animals moving together show predictable patterns

4. Habitats and Ecosystems

- Different habitats provide different resources; geese need wetlands with open water and vegetation
- The flat agricultural field shown is used as a temporary rest stop during migration

Pedagogical Tip:

Use the concept of "home" to make migration relatable. Ask students: "Where do you go when it's cold outside? What do you need to stay healthy?" Then connect: "Geese do the same thing! They move to places where it's easier to find food and stay warm (or cool)." This scaffold builds understanding from familiar experiences to animal behavior.

UDL Suggestions:

Representation: Show the photo on a large screen, and point out the three flying geese versus the resting group. Some students may benefit from a simplified map showing "Cold Place (North)" and "Warm Place (South)" with arrows showing movement.

Action & Expression: Allow students to demonstrate migration through movement—have them "fly" across the classroom in a V-formation. This kinesthetic approach helps visual and kinesthetic learners internalize the concept.

Engagement: Connect migration to students' own experiences: "Do your grandparents live far away? Do you visit them at different times of year? Geese do something similar!"

Zoom In / Zoom Out

Zoom In: Inside a Goose's Body

When days get shorter in fall, a goose's brain detects the change in daylight. This triggers tiny chemical messengers called hormones that build up inside the bird's body, telling it: "It's time to fly south!" These hormones make the goose feel restless and hungry, giving it the energy to fly long distances. The goose's body also stores extra fat (like packing a lunch box before a trip) to fuel the journey. Students can't see these changes happening inside the bird, but they're happening right now in every migrating goose!

Zoom Out: Continental Migration Patterns and Global Systems

Snow geese don't migrate randomly—they follow ancient flyways (migration superhighways) that connect Arctic breeding grounds in Canada and Alaska to wintering grounds as far south as Mexico and the Gulf Coast. These routes are shaped by continental geography (rivers, wetlands, and mountain passes provide food and rest stops) and global wind patterns (geese use jet streams to travel faster and use less energy). When you zoom out even further, you see that snow geese migration is part of Earth's larger water cycle and carbon cycle—their movement connects northern ecosystems to southern ecosystems, spreading nutrients and energy across the continent. Climate change is even affecting these patterns, causing geese to arrive earlier or later than usual, which can affect the plants and animals in every ecosystem they pass through.

Discussion Questions

1. Why do you think all these geese are resting together on the ground instead of flying right now?

(Bloom's: Understand | DOK: 1)

2. What do you think the geese need to find when they fly to a new place?

(Bloom's: Understand | DOK: 1)

3. How might the geese know when it's time to fly to a different place?

(Bloom's: Analyze | DOK: 2)

4. If all the water in this field froze over like ice, how would the geese survive? What could they do?

(Bloom's: Analyze | DOK: 2)

Potential Student Misconceptions

Misconception 1: "Geese fly south because they know winter will be cold."

Clarification: Geese don't "think ahead" or plan like humans do. Instead, their bodies respond to signals they can sense right now—like shorter days and dropping temperatures. It's an automatic instinct, like how you automatically blink when something comes near your eye. Geese have been making this journey for thousands of years, and it's built into their nature.

Misconception 2: "All the geese in the world gather in one big group and fly together."

Clarification: Snow geese migrate in many separate flocks that may number in the hundreds or thousands, but not all geese migrate together in one massive group. Different flocks follow different routes and timing, though they may overlap at key rest stops (like the field in this photo). Flocks are like different school buses—they all go to the same destination, but they travel on different routes and schedules.

Misconception 3: "Geese get tired and need to rest, so they stop in fields like this one."

Clarification: While geese do rest during migration, the main reason they land in fields like this is to eat and drink. They must refuel with food and water before continuing their journey. Think of it like a car stopping at a gas station—it's not just about resting; it's about getting energy for the next part of the trip. The field provides grass, seeds, and water that the geese need to survive the long flight.

Extension Activities

1. "Geese Migration Map Walk"

Create a simple classroom pathway with stations labeled "Winter Home," "Rest Stop," and "Summer Home." Students walk the path while you describe why geese stop at each location and what they find there. At each station, students can draw or act out what geese do (rest, eat, drink water).

2. "Design a Safe Resting Place"

Provide art supplies (paper, markers, cotton balls for "grass," blue paper for "water") and ask students to create a safe place where geese can rest during migration. Discuss why their design includes the features they chose (food, water, open space to watch for danger, etc.).

3. "Migration Movement Game"

Play music and have students fly around the classroom like geese. When you pause the music and call out "Rest!" they crouch down like resting geese. When you say "Danger!" they fly to a "safe zone" you've marked. This makes the concept of migration and survival instinct physically memorable.

Cross-Curricular Ideas

Math Connection: "Counting and Comparing Flocks"

Use the photo to practice counting and estimation. Ask: "Can you count all the geese resting in the field? About how many do you see?" Then pose comparison questions: "Are there more geese in the air or on the ground? How many more?" Create a simple bar graph showing "Geese in Field" vs. "Geese Flying" to introduce data representation.

ELA Connection: "Storytelling and Sequencing a Goose's Journey"

Have students create a story or comic strip showing the journey of one goose from north to south across the seasons. Sequence words like "first," "next," "then," and "finally" help organize the narrative. Students can dictate or write simple sentences: "First, it is cold. The goose flies south. Next, the goose rests in a field. Finally, the goose finds a warm home." This combines narrative writing with science understanding.

Social Studies Connection: "Migration Routes and Maps"

Create a simple classroom map showing where snow geese travel. Mark the "Cold North" (Canada/Alaska), "Rest Stops" (where fields like the one in the photo are located), and "Warm South" (Gulf Coast/Mexico). Discuss how geese follow the same routes year after year, just like people might follow the same route to school or to a relative's house. Introduce the idea that animals have "home ranges" and migration routes, similar to how families have homes and travel routes.

Art Connection: "Creating a Migration Landscape Collage"

Students create a mixed-media collage of a migration landscape using torn paper, cotton balls (for geese), blue paper (for water), and markers. As they create, discuss the different features geese need: open fields for resting, water for drinking, and clear skies for flying. Display the collages to show how students understand goose habitats and migration needs.

STEM Career Connection

Wildlife Biologist

A wildlife biologist is a scientist who studies animals in nature, including how and why they migrate. They go outside to observe birds like snow geese, take measurements, and keep track of where the birds go using special tools. Some wildlife biologists attach tiny tracking devices to geese to follow their migration paths! They help us understand animals better and protect them. Average Annual Salary: \$65,000–\$75,000 USD

Meteorologist (Weather Scientist)

Meteorologists study weather and wind patterns. Since geese use wind currents and respond to temperature changes to decide when to migrate, meteorologists help us predict when and where geese will travel. They use tools like weather stations and computers to understand how seasons change and how that affects animals. Average Annual Salary: \$60,000–\$80,000 USD

Conservation Officer or Park Ranger

A conservation officer protects wildlife and their habitats. They visit places like the field in this photo to make sure there's enough water and food for migrating geese. They also teach people about why migration is important and how we can help protect birds. Some rangers manage wetlands and fields specifically to support migrating birds. Average Annual Salary: \$45,000–\$65,000 USD

NGSS Connections

Performance Expectation:

- 1-LS1-1: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

Disciplinary Core Ideas:

- 1-LS1.A - All organisms have external parts that they use to perform daily functions necessary for survival.
- 1-LS1.B - Animals use their body parts in various ways to see, hear, and smell to help them respond to different inputs.

Crosscutting Concepts:

- Patterns - Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.
- Cause and Effect - Simple cause-and-effect relationships exist in systems as parts relate to the whole and how they interact.

Science Vocabulary

- * Migrate: When animals travel long distances to find food, water, or a safe place to live.
- * Flock: A large group of birds flying or resting together.
- * Habitat: A place where an animal lives and finds food, water, and shelter.
- * Season: A time of year with certain weather patterns (spring, summer, fall, winter).
- * Adaptation: Something about an animal's body or behavior that helps it survive.

External Resources

Children's Books:

- Stranger in the Woods by Carl R. Sams II and Jean Stoick (features migratory birds and seasons)
- Are You My Mother? by P.D. Eastman (themes of animals searching and traveling)
- Swirl by Swirl: Spirals in Nature by Joyce Sidman (patterns in nature, including bird formations)