

## Photo Description



The picture shows many cows in a big green field. Some cows are white, some are black, and some have black and white spots. The cows are eating grass and standing behind a fence.

## Scientific Phenomena

The anchoring phenomenon is animal survival through feeding behaviors. The cows are grazing (eating grass) to meet their basic need for food energy. This behavior demonstrates how animals obtain nutrients from their environment to grow, stay healthy, and survive. The cows' digestive systems are specially designed to break down grass and convert it into energy their bodies can use.

## Core Science Concepts

1. Basic Needs of Animals: All animals, including cows, need food, water, shelter, and air to survive and grow.
2. Animal Behaviors: Grazing is a natural feeding behavior that helps cows get the nutrients they need from plants.
3. Plant-Animal Relationships: Cows depend on grass and other plants for food, showing how animals and plants are connected.
4. Observable Animal Features: Cows have different colors and patterns (black, white, spotted) that we can observe and describe.

### Pedagogical Tip:

Use the "See-Think-Wonder" thinking routine with this image. Have students observe what they see, share what they think about the cows' behaviors, and ask questions about what they wonder. This builds scientific inquiry skills naturally.

### UDL Suggestions:

Provide multiple ways for students to share observations - drawing, acting out cow behaviors, or using simple sentence frames like "I notice the cows are \_\_\_" to support language development and engagement.

## Zoom In / Zoom Out

1. Zoom In: Inside a cow's stomach are special bacteria that help break down the tough grass fibers. Cows actually have four stomach chambers that work together to digest plants that other animals cannot eat.
2. Zoom Out: This farm is part of a larger food system where cows provide milk and meat for people. The pasture also connects to the water cycle as rain helps grass grow, and the soil ecosystem supports many organisms.

## Discussion Questions

1. What do you notice about how the cows are using their mouths? (Bloom's: Observe | DOK: 1)
2. How are the cows in the picture different from each other? (Bloom's: Compare | DOK: 2)
3. Why do you think the cows spend so much time eating grass? (Bloom's: Analyze | DOK: 2)
4. What would happen if there was no grass in the field? (Bloom's: Predict | DOK: 3)

## Potential Student Misconceptions

1. Misconception: "All cows are the same color (black and white spotted)."Clarification: Cows come in many different colors including all white, all black, brown, and various spotted patterns.
2. Misconception: "Cows only need food to survive."Clarification: Like all animals, cows need food, water, air, and shelter to stay alive and healthy.
3. Misconception: "Cows eat the same food as people."Clarification: Cows are herbivores that eat mainly grass and plants, while people are omnivores who eat both plants and animals.

## 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.
- Crosscutting Concepts: Structure and Function - The shape and stability of structures of natural objects are related to their function.

## Science Vocabulary

- \* Graze: To eat grass and plants from the ground
- \* Herbivore: An animal that only eats plants
- \* Pasture: A field of grass where farm animals eat and live
- \* Behavior: The way an animal acts or what it does
- \* Nutrients: The good parts of food that help animals grow and stay healthy

## External Resources

### Children's Books:

- From Cow to Ice Cream by Bertram T. Knight
- The Year at Maple Hill Farm by Alice and Martin Provensen
- Our Animal Friends at Maple Hill Farm by Alice and Martin Provensen

### YouTube Videos:

- "How Do Cows Make Milk? | Animal Science for Kids" - Simple explanation of how cows produce milk with kid-friendly animations: <https://www.youtube.com/watch?v=R8cZUhiP3us>
- "Farm Animals for Kids - Cow Sounds and Facts" - Educational video about cow behaviors and sounds with real farm footage: <https://www.youtube.com/watch?v=QQNL83fhWJU>