

## Photo Description



In this picture, a white bird called a cattle egret is standing on a fence rail, and a brown cow is grazing nearby in a grassy field. The bird and cow are in the same space, and the trees are green in the background. This shows how two different animals can live and work together in nature.

## Scientific Phenomena

**Anchoring Phenomenon:** This image illustrates mutualistic symbiosis—a relationship where two different organisms live together and both benefit.

**Why This Happens:** Cattle egrets follow large grazing animals like cows because the cow's movement stirs up insects in the grass. The egret gets an easy meal by catching these insects, while the cow benefits because the egret removes parasites and insects from its body and skin. Neither animal is harmed; both gain something valuable. This relationship has developed over time because it helps both animals survive and stay healthy.

## Core Science Concepts

1. Different animals have different needs. The cow needs grass to eat, while the egret needs insects. By living near each other, both animals' needs are met.
2. Animals can live and work together. Some animals form special partnerships where they help each other find food, stay safe, or stay clean and healthy.
3. Habitats support many living things. The field is a habitat that provides food and shelter for both the cow and the egret, as well as the insects they eat.
4. Observing animals in their environment helps us learn. By watching how animals behave near each other, we discover connections and relationships we might not see otherwise.

### Pedagogical Tip:

When teaching symbiosis to First Graders, avoid the term "symbiosis" initially and instead use student-friendly language like "helper animals" or "animal friends who help each other." Use vivid picture books and real-world examples from your local area. Always emphasize the observable behaviors (the bird following the cow, the bird eating bugs) before introducing the concept that both animals benefit. This concrete-to-abstract progression matches First Grade cognitive development.

### UDL Suggestions:

**Universal Design for Learning Strategy:** Provide multiple means of engagement by allowing students to act out the cattle egret and cow relationship through dramatic play. Some students might draw the scene, others might use manipulatives to show the animals' positions, and still others might listen to a recorded story about their friendship. Visual supports (pictures of egrets and cows) should be displayed throughout the lesson, and provide audio descriptions of the photo for students with visual processing needs.

## Zoom In / Zoom Out

### ### Zoom In (Microscopic/Unseen)

At a tiny level we can't see without a microscope, parasites and insects live on the cow's skin and in the grass. The egret's eyes are specially designed to spot these tiny creatures. Inside the egret's body, digestive juices break down the insects to give the bird energy and nutrients to grow and survive.

### ### Zoom Out (Larger System)

This field is part of a larger grassland ecosystem that includes soil, water, sunlight, plants, insects, birds, cattle, and many other living and nonliving things. The relationship between the egret and cow is just one connection in a big web of life. Farmers rely on this ecosystem to raise healthy cattle, and the birds help keep the cattle healthy naturally. When we remove or harm one part of this system (like spraying pesticides that kill all the insects), it affects all the other parts.

## Discussion Questions

1. What do you think the bird and the cow are doing together? (Bloom's: Understand | DOK: 1)
2. How does the bird help the cow? How does the cow help the bird? (Bloom's: Analyze | DOK: 2)
3. What would happen to the bird if there were no cows in this field? What would happen to the cow if there were no birds? (Bloom's: Evaluate | DOK: 3)
4. Can you think of other animals that might help each other like the bird and cow do? (Bloom's: Create | DOK: 3)

## Potential Student Misconceptions

1. Misconception: "The bird is bothering the cow or the cow is bothering the bird."  
- Clarification: Both animals are actually helping each other! The egret gets food (bugs), and the cow gets help staying clean and healthy. This is called a "helping friendship" in nature.
2. Misconception: "The bird is riding on the cow because it's tired and wants to rest."  
- Clarification: In this photo, the egret is standing on the fence, not the cow. But egrets DO sometimes land on cattle and other large animals to eat parasites and bugs directly from their skin. They do this because it's a great place to find food, not because they need a ride.
3. Misconception: "All birds eat the same things."  
- Clarification: Different birds eat different foods. Some birds eat seeds, some eat fruit, some eat fish, and some (like egrets) eat insects. The egret is specially designed to catch and eat bugs with its sharp beak and quick movements.

## Extension Activities

1. Animal Helper Hunt: Take students outside to observe different animals in your schoolyard or neighborhood. Have them look for animals that might help each other (ants working together, birds eating insects from plants, etc.). Students can draw pictures or create a simple chart showing which animals they saw and how they might help each other.
2. Role-Play Symbiosis: Divide the class into "cows" and "egrets." Have the cows move slowly around the classroom while the egrets follow and pretend to catch bugs. Afterward, discuss how each animal felt and what each one was doing. Switch roles so students experience both perspectives.

3. Create a Helper Animal Book: Students create a simple one-page or two-page book about the cattle egret and cow. They can draw the animals, dictate or write simple sentences about what each animal does, and illustrate how they help each other. Bind the pages together to create a class book.

### Cross-Curricular Ideas

1. Math Connection: Create a simple bar graph showing "Animals That Help Each Other." Students vote on which animal pair they think is the best "helpers" (cattle egret & cow, bees & flowers, remoras & sharks, etc.). Graph the results and discuss which pair got the most votes.
2. ELA Connection: Read aloud a picture book about animal friendships or partnerships (see resource list). Have students draw their favorite part and dictate a sentence about why that animal pair is a good team. Create a bulletin board titled "Animal Helpers" with student drawings and sentences.
3. Social Studies Connection: Discuss how farmers work with nature. Farmers depend on egrets to help keep their cows healthy without using chemicals. Students can draw or paint a farm scene that includes helpful animals, then discuss why farms need both cows and birds.
4. Art Connection: Provide white paper, brown paper, and craft materials for students to create a 3D scene with a cow and egret. They can use paper plates for the cow's body, yarn for grass, and cotton balls for the egret. Display all creations as a collaborative farm mural.

### STEM Career Connection

1. Zookeeper – A zookeeper cares for animals and watches how they live together, eat, and play. They make sure each animal has what it needs and learns about how different animals help or interact with each other. Average Annual Salary: \$35,000–\$45,000 USD
2. Veterinarian – A veterinarian is an animal doctor who helps keep animals healthy. They learn about which animals live together and how they can stay healthy and strong. A vet might work on farms helping cows and might study how birds help keep cattle healthy. Average Annual Salary: \$95,000–\$120,000 USD
3. Wildlife Biologist – A wildlife biologist studies wild animals and how they live together in nature. They watch animals like egrets and cows in their habitats and learn about the special relationships between different animals. This helps us understand and protect nature. Average Annual Salary: \$65,000–\$85,000 USD

### NGSS Connections

Performance Expectation:

1-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.

Disciplinary Core Ideas:

- 1-LS1.A: All organisms have basic needs, such as a need for food, water, and a suitable environment in which to live.
- 1-LS1.B: Plants need water and light to grow. Animals need food, water, and a suitable shelter; all need a suitable temperature.

Crosscutting Concepts:

- Patterns: Behaviors of animals help them find food and water.
- Systems and System Models: Different kinds of living things live in different places and have different needs.

## Science Vocabulary

- \* Egret: A tall white bird with long legs that eats insects and small animals.
- \* Parasite: A tiny creature that lives on or inside another animal and can make it uncomfortable or sick.
- \* Habitat: A place where an animal lives that has all the food, water, and shelter it needs.
- \* Benefit: To get something good or helpful; when something makes life better for an animal or person.
- \* Partnership: When two living things work together and help each other.

## External Resources

### Children's Books:

- The Busy Beaver by Nicholas Oldland (shows one animal helping itself and its habitat)
- Commotion in the Ocean by Giles Andreae (illustrations of different ocean animals living together)
- Dear Zoo by Rod Campbell (explores different animals and their homes, with lift-the-flap engagement)