

## Photo Description



This picture shows a big forest with many green trees. There is a road going through the trees. You can see open fields far away.

## Scientific Phenomena

This image represents the Anchoring Phenomenon of habitat diversity within an ecosystem. The phenomenon occurs because different plants and animals need different types of homes to survive. Forests provide shade, shelter, and food for woodland creatures, while open fields support different plants and animals that need more sunlight. The road creates an "edge effect" where forest meets open space, creating even more variety in the types of living things that can survive in this area.

## Core Science Concepts

1. Habitats - Different animals and plants live in different places that meet their needs
2. Forest Ecosystems - Trees provide homes, food, and shelter for many living things
3. Human Impact - People build roads and change natural areas
4. Plant Needs - Trees need space, water, air, and sunlight to grow

### Pedagogical Tip:

Use the "I Notice, I Wonder, It Reminds Me Of" protocol when first showing this image. This helps students make observations before jumping to conclusions and connects to their prior experiences with forests or roads.

### UDL Suggestions:

Provide multiple ways for students to share observations: drawing, verbal sharing, or using movement to act out what animals might live in different parts of the image. This supports different learning styles and language development levels.

## Zoom In / Zoom Out

1. Zoom In: Inside the soil under these trees, tiny roots are growing and spreading out to find water and nutrients. Microscopic bacteria and fungi help the tree roots get what they need to grow big and strong.
2. Zoom Out: This forest is part of a much larger ecosystem that includes rivers, mountains, and other forests. Animals might travel between different forest areas to find food, and seeds from these trees can travel by wind or animals to start new forests far away.

### Discussion Questions

1. What do you think lives in this forest that we can't see in the picture? (Bloom's: Apply | DOK: 2)
2. How might the animals that live in the forest be different from animals that live in the open fields? (Bloom's: Analyze | DOK: 3)
3. What would happen to the forest animals if all the trees were cut down? (Bloom's: Evaluate | DOK: 3)
4. Why do you think some areas have lots of trees while others are open fields? (Bloom's: Analyze | DOK: 2)

### Potential Student Misconceptions

1. Misconception: "All animals live in trees"  
Clarification: Different animals need different types of homes - some live in trees, some on the ground, some underground, and some in water.
2. Misconception: "Trees don't need anything to survive"  
Clarification: Trees are living things that need water, air, sunlight, and nutrients from soil to grow and stay healthy.
3. Misconception: "The road doesn't affect the forest"  
Clarification: Roads can make it harder for some animals to move around and find food, and they change where plants can grow.

### Cross-Curricular Ideas

1. Math + Science: Count the trees in different sections of the photo. Create a simple bar graph showing "Many Trees" vs. "Few Trees" in forest areas compared to open fields. Students can practice counting and comparing quantities while learning about habitat distribution.
2. ELA + Science: Write or dictate sentences about what animals might say to each other in the forest. Example: "The squirrel says, 'I live in this big tree!' The deer says, 'I like to eat plants in the open field!'" This builds vocabulary and narrative skills while reinforcing habitat concepts.
3. Art + Science: Create a mixed-media forest habitat scene using green paper, paint, natural materials (leaves, twigs), and drawings of forest animals. Students can arrange their materials to show the road cutting through the forest, developing fine motor skills and creative expression.
4. Social Studies + Science: Discuss how people use forests and roads. Talk about why humans need roads (to visit places, deliver food) and how we can protect forests and animals at the same time. This introduces the idea of balancing human needs with environmental care.

### STEM Career Connection

1. Forest Ranger/Park Ranger: Forest rangers take care of forests and the animals that live there. They walk through forests, watch for fires, help injured animals, and teach people about nature. They make sure forests stay healthy and beautiful. Average Annual Salary: \$38,000 - \$42,000 USD
2. Wildlife Biologist: Wildlife biologists study animals and plants in forests and other habitats to understand how they live and what they need to survive. They help protect endangered animals and their homes. Average Annual Salary: \$65,000 - \$72,000 USD

3. Road/Civil Engineer: Civil engineers design and build roads like the one in the picture. They think carefully about where roads should go so they don't harm forests and animals too much, and they work to make transportation safe for people.

Average Annual Salary: \$88,000 - \$95,000 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 Idea: 1-LS1.A - All organisms have external parts that they use to perform daily functions
- Crosscutting Concept: Structure and Function - The shape and stability of structures are related to their function

### Science Vocabulary

- \* Habitat: The place where a plant or animal lives and gets what it needs.
- \* Forest: A place with many trees growing together.
- \* Ecosystem: All the living and non-living things in an area that work together.
- \* Shelter: A safe place where animals can hide and rest.
- \* Environment: Everything around a living thing, including air, water, and land.

### External Resources

Children's Books:

- The Great Kapok Tree by Lynne Cherry
- A Tree Is Nice by Janice May Udry
- The Busy Tree by Jennifer Ward