# Ecosystem

Life Science | Lesson Guide

Kindergarten

## Photo Description

This picture shows a big forest with lots of green trees from high up in the sky. There is a road going through the forest where cars are driving. You can see open fields and more trees far away.

## Scientific Phenomena

The Anchoring Phenomenon is a mixed landscape showing different habitats where plants and animals live. This represents how living things need different places to survive - some animals live in forests, others in open fields, and some can move between these areas. The forest provides shelter, food, and homes for many creatures, while the road creates a pathway that can help or sometimes make it harder for animals to move around.

## Core Science Concepts

1. Habitats - Different places where plants and animals live and find what they need to survive
2. Living vs. Non-living - Trees and plants are living things that grow, while roads and cars are non-living things made by people
3. Basic Needs - All living things need food, water, shelter, and space to live
4. Human Impact - People change the environment by building roads and houses

**Pedagogical Tip:**

Use concrete examples from your local area when discussing habitats. Ask students to identify places near their school or home where different animals might live, making the concept more relatable and observable.

**UDL Suggestions:**

Provide multiple ways for students to express their understanding by allowing them to draw pictures, act out animal movements, or use gestures to show how different animals use their habitats.

## Zoom In / Zoom Out

1. Zoom In: Inside the soil under the trees, tiny roots are growing and spreading to get water and nutrients. Small insects and worms live in the dirt and help make the soil healthy for plants.

2. Zoom Out: This forest is part of a much bigger ecosystem that connects to other forests, rivers, and habitats across many miles, creating pathways for animals to travel and find food throughout the seasons.

## Discussion Questions

1. What do you think animals in this forest need to survive? (Bloom's: Understand | DOK: 1)
2. How might different animals use the trees, ground, and open spaces differently? (Bloom's: Analyze | DOK: 2)
3. What would happen if all the trees were cut down? (Bloom's: Evaluate | DOK: 3)
4. How do you think the road affects the animals living in this forest? (Bloom's: Analyze | DOK: 2)

## Potential Student Misconceptions

1. Misconception: "All animals live in trees in the forest."
   Clarification: Different animals live in different parts of the forest - some in trees, some on the ground, some underground, and some in streams or ponds.

2. Misconception: "Roads don't affect animals."
   Clarification: Roads can make it hard for some animals to move safely from one place to another to find food and water.

## Cross-Curricular Ideas

1. ELA - Storytelling & Sequencing: Have students create a story about a forest animal's day using the photo as inspiration. They can draw pictures in order and dictate sentences about what the animal does (finds food, finds shelter, plays). This connects to sequencing events and narrative skills.

2. Math - Counting & Patterns: Ask students to count trees in different sections of the photo or count the vehicles on the road. They can also look for color patterns in the forest (light green, dark green, yellow-green) and create their own patterns with construction paper.

3. Art - Mixed Media Habitat Creation: Students can create a 3D forest habitat using paper, paint, clay, and natural materials (twigs, leaves, grass). This hands-on project helps them understand how different elements of a habitat work together while developing fine motor skills.

4. Social Studies - Community Helpers: Connect to community helpers by discussing how road workers, forest rangers, and park workers help keep roads safe and protect forests. Students can role-play these jobs or draw pictures of people who work outdoors.

## STEM Career Connection

1. Forest Ranger or Park Naturalist - A forest ranger takes care of the trees and animals in the forest. They walk through forests, watch for fires, help animals that are hurt, and teach people about nature. They make sure the forest stays healthy and safe for all the creatures living there. Average Annual Salary: $38,000 - $48,000 USD

2. Wildlife Biologist - A wildlife biologist is a scientist who studies animals and where they live. They watch animals in forests and fields to learn what they eat, how they move, and how they use different habitats. This helps protect animals and their homes. Average Annual Salary: $63,000 - $75,000 USD

3. Road Construction Worker/Civil Engineer - These workers plan and build roads like the one in the photo. They think carefully about where to put roads so they don't harm forests and animals too much. They work to keep roads safe for cars and people traveling to different places. Average Annual Salary: $52,000 - $78,000 USD

## NGSS Connections

- Performance Expectation: K-ESS3-1: Use a model to represent the relationship between the needs of different plants and animals and the places they live
- Disciplinary Core Ideas: K-ESS3.A
- Crosscutting Concepts: Systems and System Models

## Science Vocabulary

* Habitat: The place where an animal or plant lives and gets everything it needs
* Forest: A place with many trees growing together where animals live
* Environment: All the living and non-living things in a place
* Shelter: A safe place where animals can hide and rest

## External Resources

Children's Books:
- A Tree Is Nice by Janice May Udry
- The Great Kapok Tree by Lynne Cherry
- In the Forest by Marie Hall Ets