

# Ecosystem Services

AP Environmental Science · Unit 2: The Living World: Biodiversity

## The Teaching Analogy

*"Think of a wetland like a free superstore. The provisioning services are the shelves — fish, clean water, timber. The regulating services are the building's systems — air conditioning, flood barriers, water filtration. The cultural services are the lounge — hiking trails, birdwatching, that sense of peace. And supporting services? That's the invisible stockroom crew — nutrient cycling, soil formation — the foundation everything else depends on. When we drain a wetland, we lose all of it at once. One swipe, and the whole store closes."*

## Key Concept

Ecosystem services are the benefits humans receive from natural ecosystems, organized into four categories: **provisioning** (tangible products like food and water), **regulating** (processes like flood control and climate regulation), **cultural** (non-material benefits like recreation and spiritual value), and **supporting** (foundational processes like nutrient cycling and soil formation that enable the other three). Disrupting or destroying an ecosystem eliminates all of its services simultaneously.

## Guided Practice

1. Using the superstore analogy, explain what would happen to the other "departments" if the stockroom crew (supporting services) stopped working. Give a real ecological example.
2. A city proposes draining a wetland to build a parking lot. List three specific ecosystem services that would be lost and estimate what it would cost to replace each one artificially.
3. Pick a local ecosystem (forest, river, grassland). Identify one service from each of the four categories it currently provides. Which would be hardest to replace if the ecosystem were destroyed?

## Extension Activity

Have students design their own "ecosystem services superstore" for a biome of their choice — Amazon rainforest, coral reef, or Arctic tundra. They create a store map with labeled departments (one per service category), list 3–5 "products" in each department, and write a one-paragraph "store closing notice" explaining what would be lost if that biome were destroyed. Share and compare across biomes.