

Photo Description



This backyard garden shows many different plants growing together. There are orange flowers, purple flowers, and green grass. The plants are growing in soil near a wooden fence and some rocks.

Scientific Phenomena

The Anchoring Phenomenon is a thriving garden ecosystem where different plants grow successfully in the same space. This happens because plants have different needs for sunlight, water, and nutrients. Some plants grow tall to reach more sunlight, while others spread wide along the ground. The variety of plants creates a mini-ecosystem where each plant finds its own way to survive and grow, similar to how plants grow in nature.

Core Science Concepts

1. Plant Diversity - Different types of plants can live in the same area because they have different needs and ways of growing
2. Basic Plant Needs - All plants need sunlight, water, air, and nutrients from soil to grow and stay healthy
3. Plant Parts and Functions - Plants have roots (underground), stems, leaves, and flowers that each do different jobs
4. Living vs. Non-living - Plants are living things that grow and change, while rocks, soil, and fences are non-living

Pedagogical Tip:

Use the "I Notice, I Wonder" thinking routine when showing students this image. Have them share what they observe first, then what questions they have. This builds observation skills and scientific curiosity.

UDL Suggestions:

Provide multiple ways for students to share observations - verbal discussion, drawing, or using gesture/movement to show how plants grow up or spread out. This supports different learning styles and language abilities.

Zoom In / Zoom Out

1. Zoom In: Inside the plant roots, tiny root hairs are absorbing water and nutrients from the soil. The roots are like tiny straws drinking up what the plant needs to grow.
2. Zoom Out: This garden is part of a larger neighborhood ecosystem that includes other yards, trees, and wildlife. Birds and insects visit this garden, and it connects to other green spaces in the community.

Discussion Questions

1. What do you notice about how the different plants are arranged in this garden? (Bloom's: Analyze | DOK: 2)
2. Why do you think some flowers are orange and others are purple? (Bloom's: Evaluate | DOK: 3)
3. What would happen if these plants didn't get water for many days? (Bloom's: Apply | DOK: 2)
4. How are the plants in this garden similar to and different from each other? (Bloom's: Compare | DOK: 2)

Potential Student Misconceptions

1. Misconception: Plants get their food from the soil
Reality: Plants make their own food using sunlight, air, and water. They get nutrients from soil, but not food.
2. Misconception: All plants need the same amount of water and sun
Reality: Different plants have different needs - some like lots of sun, others prefer shade.
3. Misconception: Plants don't need air
Reality: Plants need air (carbon dioxide) to make food and oxygen to breathe, just like animals.

Cross-Curricular Ideas

1. Math + Science: Count and graph the different types of flowers in the garden. Students can create a bar graph showing how many orange flowers, purple flowers, and yellow flowers they see. This connects plant observation to data collection and representation.
2. ELA + Science: Write or draw a "plant's life story" from seed to flower. Students can sequence the stages of plant growth and write simple sentences about what happens at each step (planting, sprouting, growing leaves, blooming flowers).
3. Art + Science: Create a painted or collaged garden using different colors and textures. Students observe the colors and patterns in the photo, then use paint, tissue paper, or natural materials to recreate their own garden artwork.
4. Social Studies + Science: Discuss how gardens help our community. Talk about where food comes from, how gardens make neighborhoods pretty, and how people work together to care for plants and shared green spaces.

STEM Career Connection

1. Botanist - A scientist who studies plants and how they grow. Botanists learn about different types of plants, what they need to be healthy, and how to help plants grow better in gardens and farms. They might work at plant nurseries, farms, or science museums. Average Annual Salary: \$63,000
2. Landscape Designer - A person who plans and creates beautiful gardens and outdoor spaces. They decide where to put different plants, choose what colors and types of flowers to use, and make sure everything has the right sunlight and water. They might design parks, school gardens, or home gardens like the one in this photo. Average Annual Salary: \$67,000
3. Gardener/Horticulturist - Someone who grows and takes care of plants every day. They water plants, pull weeds, plant seeds, and help gardens stay healthy and beautiful. Gardeners work in parks, farms, botanical gardens, and people's backyards. Average Annual Salary: \$36,000

NGSS Connections

- Performance Expectation: 2-LS2-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow
- Disciplinary Core Idea: 2-LS2.A - Plants depend on water and light to grow

- Crosscutting Concept: Patterns - Patterns in the natural world can be observed and used as evidence

Science Vocabulary

- * Ecosystem: A place where living and non-living things work together
- * Nutrients: Special materials from soil that help plants grow strong
- * Diversity: Having many different types of living things in one place
- * Habitat: The place where a plant or animal lives and gets what it needs
- * Sunlight: Light from the sun that plants use to make their food

External Resources

Children's Books:

- A Seed Is Sleepy by Dianna Hutts Aston
- The Great Kapok Tree by Lynne Cherry
- From Seed to Plant by Gail Gibbons