Fall Seasons

Earth & Space Science | Lesson Guide

Kindergarten

Photo Description

This image shows a yard covered with many colorful fallen leaves in shades of red, yellow, pink, orange, and brown. Green grass peeks through the leaves, and a basketball hoop and house are visible in the background. The leaves have changed colors and fallen from trees—a sign that fall (autumn) has arrived.

Scientific Phenomena

Anchoring Phenomenon: Leaves changing color and falling from trees in autumn.

Why This Happens: As days get shorter and temperatures drop in fall, trees prepare for winter by stopping the flow of water and nutrients to their leaves. This causes the green chlorophyll (the pigment that helps trees make food) to break down, revealing hidden yellow, orange, and red pigments that were always in the leaves. Once the leaves stop receiving nutrients, they dry out, weaken, and eventually fall to the ground. This is a natural seasonal cycle that helps trees survive the cold winter months.

Core Science Concepts

* Seasonal Change: Seasons are patterns in weather and nature that repeat every year. Fall is the season when temperatures cool, days get shorter, and leaves change color and fall.

* Plant Life Cycles: Trees go through changes throughout the year. In fall and winter, trees rest and prepare for spring growth by losing their leaves.

* Observable Patterns in Nature: Colors in leaves change in predictable patterns each year, helping us recognize when a season is changing.

* Weathering and Decomposition: Fallen leaves break down on the ground and return nutrients to the soil, helping new plants grow.

Pedagogical Tip:

Kindergarteners learn best through sensory experiences. Before or after this lesson, collect real fall leaves with students. Let them touch the textures, observe colors closely with magnifying glasses, and sort leaves by color or size. This concrete experience deepens their understanding far more than images alone.

UDL Suggestions:

Multiple Means of Representation: Provide images, real leaf samples, and video footage of falling leaves to engage visual and tactile learners. Use simple, repetitive language with visual supports (color charts, leaf cutouts). Multiple Means of Action & Expression: Allow students to show understanding through drawing, sorting activities, or acting out falling leaves rather than only verbal responses. Multiple Means of Engagement: Connect to student interests—ask what they notice during walks outside, invite them to predict what will happen next, and celebrate curiosity about seasonal changes.

Discussion Questions

1. Why do you think the leaves are different colors now than in summer? (Bloom's: Analyze | DOK: 2)

2. What do you think happens to the leaves after they fall on the ground? (Bloom's: Predict | DOK: 2)

3. If it's fall now and leaves are falling, what season comes next, and what will happen then? (Bloom's: Infer | DOK: 3)

4. How is a tree in fall different from a tree in spring? What do you observe? (Bloom's: Compare | DOK: 2)

Extension Activities

1. Leaf Collection Walk: Take students on a nature walk to collect fallen leaves. Sort them by color, size, or texture back in the classroom. Create a colorful leaf collage or arrange them in a pattern on poster board.

2. Falling Leaves Experiment: Drop leaves and other objects from a safe height (indoors or out) to observe how they fall. Discuss why leaves twirl and spin—connect this to their light, thin shape. Try to predict which objects will fall fastest or slowest.

3. Tree Mural Over Time: Create a large tree on butcher paper or a wall. In week one, color leaves green and attach to the tree. Each week, change some leaves to yellow, orange, red, and brown, then remove them to show the changing seasons. Return in spring to add new leaves.

NGSS Connections

Performance Expectation: K-ESS2-1: Use and share observations of local weather conditions to describe patterns over time.

Disciplinary Core Ideas:
- K-ESS2.D Weather and climate (patterns of weather and seasonal changes)
- K-LS1.D Information processing (observing and describing patterns in the natural world)

Crosscutting Concepts:
- Patterns (Seasonal patterns; color changes follow predictable patterns)
- Change and Stability (Trees change with seasons but the pattern repeats yearly)

Science Vocabulary

* Fall (Autumn): The season between summer and winter when leaves change color and fall from trees.

* Leaves: Flat green parts of plants and trees that use sunlight to make food for the plant.

* Season: A time of year with its own weather patterns and changes in nature.

* Chlorophyll: The green color in leaves that helps plants catch sunlight and make food.

* Decompose: When dead leaves and plants slowly break down into soil.

External Resources

Children's Books:
- Fall Leaves by Loretta Holland (simple, rhyming text about falling leaves)
- Why Do Leaves Change Color? by Betsy Maestro (age-appropriate seasonal explanation)
- Fall by Manya Stojic (sensory-rich picture book celebrating autumn)

YouTube Videos:
- "Why Do Leaves Change Color?" by Crash Course Kids (2:44) — Clear, animated explanation appropriate for older Kindergarteners and first graders. https://www.youtube.com/watch?v=wTjNqrLaKF4
- "Falling Leaves Song" by Super Simple Songs (2:10) — Engaging, repetitive song about fall with colorful visuals. https://www.youtube.com/watch?v=8d_mq8dQWaI