Fungi01

Life Science | Lesson Guide

1st Grade

Photo Description

This picture shows a mushroom growing in green grass. The mushroom has a flat, round top that looks like an umbrella. You can see lines under the mushroom cap that look like tiny ridges.

Scientific Phenomena

The anchoring phenomenon is fungal reproduction and growth. This mushroom represents the visible fruiting body of a fungus that lives mostly underground. The mushroom appears when the hidden fungus is ready to make spores (like seeds) to create new fungi. The lines visible under the cap are called gills, which hold millions of tiny spores that will be released into the air to spread and grow new mushrooms in other places.

Core Science Concepts

1. Living vs. Non-living: Mushrooms are living things that grow, but they are different from plants and animals
2. Basic Needs of Living Things: Fungi need water, nutrients, and the right temperature to survive and grow
3. Life Cycles: Mushrooms go through stages of growth, just like other living things
4. Habitats: Fungi live in specific places where they can find what they need to survive

Pedagogical Tip:

Use real mushrooms from the grocery store for observation activities. Students can safely examine button mushrooms, portobello caps, or shiitake mushrooms with magnifying glasses to see gills and textures up close.

UDL Suggestions:

Provide multiple ways for students to explore fungi: tactile experiences with safe grocery store mushrooms, visual comparisons using photos, and kinesthetic activities like acting out spore dispersal by pretending to be seeds floating in the wind.

Zoom In / Zoom Out

1. Zoom In: Microscopic spores are released from the gills under the mushroom cap. These spores are so tiny you need a special microscope to see them, but there can be millions on just one mushroom.

2. Zoom Out: Fungi play an important role in forest and garden ecosystems by breaking down dead leaves and plants, which helps make the soil rich and healthy for other living things to grow.

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Discussion Questions

1. What do you notice about the shape of this mushroom? How might this shape help it? (Bloom's: Analyze | DOK: 2)
2. Where do you think mushrooms get their food since they don't have leaves like plants? (Bloom's: Apply | DOK: 2)
3. Why do you think we find mushrooms growing in damp, shady places? (Bloom's: Analyze | DOK: 3)
4. How are mushrooms the same as plants? How are they different? (Bloom's: Compare | DOK: 2)

Potential Student Misconceptions

1. Misconception: "Mushrooms are plants because they grow from the ground"
   Clarification: Mushrooms are fungi, which are different from plants. Unlike plants, fungi cannot make their own food from sunlight.

2. Misconception: "All mushrooms are safe to eat"
   Clarification: Many mushrooms in nature can make people very sick. Only eat mushrooms from the grocery store.

3. Misconception: "The mushroom is the whole organism"
   Clarification: The mushroom we see is just one part. Most of the fungus lives underground like hidden roots.

Cross-Curricular Ideas

1. Math - Measurement & Counting: Have students measure the height of real mushrooms using non-standard units (paperclips, blocks, their fingers). Count how many gills they can see under a mushroom cap. Create a simple bar graph showing "Mushrooms Found" in different locations around the school or playground.

2. ELA - Descriptive Writing & Read-Alouds: Students can draw a mushroom and write simple sentences describing what they see using sensory words (bumpy, smooth, brown, white). Create a class chart of "Words That Describe Mushrooms" and incorporate these into shared writing activities.

3. Art - Nature Observation & Rubbing Techniques: Students can make gill rubbings by placing paper over a real mushroom cap and rubbing with crayons to capture the gill pattern. Create mushroom art using natural materials (leaves, twigs) or paint mushroom shapes with various colors and textures to explore structure and function through art.

4. Social Studies - Community Helpers & Plant Care: Connect fungi to gardening and caring for outdoor spaces. Invite a local gardener or botanist to visit and talk about how mushrooms help gardens. Discuss how different communities around the world use mushrooms in their food and culture.

STEM Career Connection

1. Mycologist - A scientist who studies fungi, including mushrooms. Mycologists learn where mushrooms grow, what they need to survive, and how they help nature. They might work in museums, universities, or parks. They use microscopes to see tiny spores and conduct experiments to understand how fungi work. Average annual salary: $45,000 - $65,000

2. Botanist or Plant Scientist - Scientists who study all kinds of living things that grow, including fungi, plants, and how they live together in nature. They might help create healthy gardens, discover new species, or teach others about ecosystems. Average annual salary: $50,000 - $70,000

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3. Environmental Scientist - Professionals who study how living things like fungi help keep our forests, gardens, and soil healthy. They work outdoors and in labs to understand ecosystems and help protect nature. They might teach others why fungi are important. Average annual salary: $55,000 - $75,000

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 Ideas: 1-LS1.A - All organisms have external parts that they use to perform daily functions
- Crosscutting Concepts: Structure and Function - The shape and stability of structures are related to their function

Science Vocabulary

* Mushroom: The part of a fungus that we can see growing above ground
* Spores: Tiny parts that fungi use to make new mushrooms, like seeds for plants
* Gills: The lines under a mushroom cap that hold the spores
* Fungus: A living thing that is not a plant or animal but grows and needs food

External Resources

Children's Books:
- The Magic School Bus Meets the Rot Squad by Joanna Cole
- Mushrooms in the Rain by Mirra Ginsburg
- National Geographic Readers: Mushrooms by Martha Brockenbrough

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