Slime Mold

Life Science | Lesson Guide

Kindergarten

Photo Description

This bright yellow, spongy material is growing on dead leaves and wood. It looks bumpy and soft, like a yellow sponge or foam. This special living thing is called slime mold, and it can move very slowly to find food.

Scientific Phenomena

The anchoring phenomenon shown is slime mold growth and feeding behavior. This organism represents a unique form of life that challenges traditional plant/animal categories. Slime molds are neither plants nor animals - they are protists that can exist as single cells or merge together to form larger, visible structures like the one pictured. The bright yellow coloration and spongy texture indicate this is likely Physarum polycephalum or a similar species in its plasmodium stage, where it actively moves and feeds on decaying organic matter, bacteria, and fungi present in the leaf litter.

Core Science Concepts

1. Living vs. Non-living Classification: Slime molds demonstrate characteristics of life including growth, movement, feeding, and reproduction, helping students understand that living things come in many forms beyond familiar plants and animals.

2. Decomposition and Nutrient Cycling: The slime mold is feeding on dead organic matter, playing a crucial role in breaking down fallen leaves and returning nutrients to the soil ecosystem.

3. Adaptation and Survival: The bright yellow color and ability to move (albeit slowly) are adaptations that help the slime mold find food and avoid dangers in its forest floor habitat.

4. Observable Properties: Students can observe color, texture, shape, and size - fundamental skills in scientific observation and description.

Pedagogical Tip:

Use hand lenses or magnifying glasses to help kindergarteners observe the detailed texture and structure of the slime mold. This hands-on observation builds their scientific inquiry skills and natural curiosity about the living world.

UDL Suggestions:

Provide multiple ways for students to express their observations - through drawing, verbal descriptions, or physical gestures mimicking the slime mold's slow movement. This supports diverse learning styles and communication preferences.

Zoom In / Zoom Out

1. Zoom In: At the microscopic level, the slime mold is composed of thousands of individual cells that can merge together and separate as needed. These cells contain nuclei, cytoplasm, and can engulf food particles through a process similar to how our white blood cells work.

2. Zoom Out: In the larger forest ecosystem, slime molds are essential decomposers that work alongside bacteria, fungi, and insects to break down fallen leaves and dead wood. This decomposition process releases nutrients back into the soil, feeding trees and plants in an endless cycle of life and death.

Discussion Questions

1. What do you notice about the color and shape of this living thing? (Bloom's: Remember | DOK: 1)

2. Why do you think the slime mold is growing on dead leaves instead of living ones? (Bloom's: Analyze | DOK: 2)

3. How is this slime mold similar to and different from plants and animals you know? (Bloom's: Compare | DOK: 2)

4. What would happen to the forest if there were no slime molds or other decomposers? (Bloom's: Evaluate | DOK: 3)

Potential Student Misconceptions

1. "It's a plant because it doesn't move": Students may assume anything that grows in nature and doesn't obviously move is a plant. Clarification: Slime molds can actually move very slowly (about 1 inch per hour) and are neither plants nor animals.

2. "Yellow things are always flowers": The bright yellow color might lead students to think this is a flower or plant part. Clarification: Many living things use bright colors for different reasons - slime molds may be yellow to warn other organisms or for chemical reasons related to their feeding.

3. "It's dirty or bad because it's on dead leaves": Students might think organisms living on dead material are harmful. Clarification: Decomposers like slime molds are very important helpers that clean up the forest and help new plants grow.

Cross-Curricular Ideas

1. Math - Counting and Patterns: Have students count the different "bumps" or sections of the slime mold visible in the photo. Create patterns using yellow and brown colors to represent the slime mold and the leaves it grows on. Practice measuring how far a slime mold might move in an hour using non-standard units (like blocks or hand spans).

2. ELA - Descriptive Writing and Storytelling: Students can dictate or draw stories about "a day in the life of a slime mold." Use sensory words (bumpy, soft, spongy, yellow) to describe what they observe. Read and compare descriptions that different students create, celebrating the variety of observations and words used.

3. Art - Nature Collage and Color Mixing: Create a forest floor collage using torn paper, leaves, and paint to show where slime molds live. Experiment with mixing paints to create the bright yellow color of the slime mold. Students can paint or draw their own slime mold creatures on a background of dead leaves and wood pieces.

4. Social Studies - Community Helpers: Discuss how slime molds are "helpers" in the forest community, just like firefighters and teachers are helpers in our human communities. Extend to understanding that all organisms have a job or role in nature - connect to gratitude for different workers who help our neighborhoods.

STEM Career Connection

1. Biologist - A scientist who studies living things like plants, animals, and special creatures such as slime molds. Biologists watch and learn about how organisms live, grow, and help each other in nature. They might work in forests, gardens, or laboratories with microscopes to discover new things about life. Average Annual Salary: $65,000 - $75,000

2. Mycologist - A scientist who studies fungi and fungus-like organisms, including slime molds. Mycologists explore forests and other places to find different types of fungi, take samples, and learn about what they do in nature. Some mycologists help us understand how decomposers keep our ecosystems healthy. Average Annual Salary: $60,000 - $70,000

3. Environmental Scientist - A scientist who studies how living things interact with their environment and with each other. Environmental scientists learn about decomposers like slime molds and why they're important for keeping forests healthy and helping nutrients return to the soil so new plants can grow. Average Annual Salary: $65,000 - $78,000

NGSS Connections

- Performance Expectation: K-LS1-1 - Use observations to describe patterns of what plants and animals (including humans) need to survive
- Disciplinary Core Ideas: K-LS1.C - Organization for Matter and Energy Flow in Organisms
- Crosscutting Concepts: Patterns and Structure and Function
- Science and Engineering Practices: Asking Questions and Defining Problems, Planning and Carrying Out Investigations

Science Vocabulary

* Slime mold: A special living thing that is not a plant or animal but can move and eat
* Decomposer: A living thing that breaks down dead plants and animals
* Organism: Any living thing, like plants, animals, or slime molds
* Texture: How something feels when you touch it, like bumpy, smooth, or spongy
* Habitat: The place where a living thing lives and finds what it needs to survive

External Resources

Children's Books:
- What's Alive? by Kathleen Weidner Zoehfeld
- Who Grew My Soup? by Tom Darbyshire
- Lifetime: The Amazing Numbers in Animal Lives by Lola M. Schaefer