

## Photo Description



This image shows eggshell halves sitting on soil with small green plant sprouts growing inside them. The white shells are cracked open and contain green seedlings with tiny leaves. Around the shells, you can see wood chips, soil, and other dried plant materials on the ground.

## Scientific Phenomena

**Anchoring Phenomenon:** Seeds sprouting and growing into young plants inside recycled eggshells.

**Why This Happens:** Seeds contain everything a baby plant needs to grow—a tiny plant embryo and stored food. When seeds get water, warmth, and light, they wake up and begin to grow. The seed coat splits open, roots grow down into the soil, and a shoot grows up toward the sun. This process is called germination. The eggshell acts as a natural container that holds soil and moisture while protecting the delicate seedling as it begins its life cycle.

## Core Science Concepts

- \* **Life Cycles:** All plants go through stages of growth—starting as seeds, growing into seedlings, and eventually becoming mature plants that make new seeds.
- \* **Plant Growth Requirements:** Seeds need three main things to grow: water (to soften the seed coat and activate growth), warmth (to speed up the germination process), and light (to help the plant make food once it sprouts).
- \* **Seed Structure and Function:** Seeds are packages that protect a baby plant and its food supply. The seed coat is like a protective jacket, and inside are all the parts needed to start a new plant.
- \* **Decomposition and Recycling:** Organic materials like eggshells break down in soil over time, returning nutrients to the earth that help new plants grow. This shows how nothing in nature goes to waste.

### Pedagogical Tip:

For Second Grade learners, avoid overwhelming them with technical terminology during initial instruction. Instead, use visible, concrete examples: "The seed is like a present with a tiny plant inside!" and "The eggshell is like a cozy bed for the baby plant." Return to vocabulary gradually as students observe the phenomenon over days and weeks.

### UDL Suggestions:

**Multiple Means of Representation:** Provide labeled diagrams showing seed parts (seed coat, embryo, stored food) alongside this photo. Create a visual sequence showing seed → sprout → seedling → plant using photos or illustrations.

**Multiple Means of Engagement:** Allow students to choose between observing seeds with magnifying glasses, drawing what they see, or dictating observations to a partner. Some students may prefer to plant their own seeds while others observe the class demonstration.

**Multiple Means of Expression:** Students can show learning through drawings, photographs of their own sprouting seeds, verbal explanations, or creating a classroom life cycle poster with pictures they arrange in order.

## Discussion Questions

1. What do you think is happening inside the eggshell? (Bloom's: Understand | DOK: 1)
2. Why do you think someone used an eggshell instead of a plastic cup for planting? (Bloom's: Analyze | DOK: 2)
3. If we took away the soil from under this seedling, what would happen to the plant, and why? (Bloom's: Evaluate | DOK: 3)
4. What do you observe that is the same about both seedlings, and what is different? (Bloom's: Analyze | DOK: 2)

## Extension Activities

1. Eggshell Seed Planting Experiment: Give each student an eggshell half filled with soil and let them plant fast-growing seeds (beans, lettuce, or marigolds). Students observe and sketch their seedlings daily, recording observations on a simple chart. After 2-3 weeks, they can carefully transplant the seedling (shell and all) into a larger pot or garden. This makes the abstract life cycle concrete and personal.
2. Life Cycle Sequencing Game: Provide students with four pictures showing a seed, a sprouting seed, a seedling, and a flowering plant. Have them arrange the pictures in order, discuss what happens at each stage, and then match each stage to a word card. Repeat with different plant types to show the pattern is universal.
3. Recycled Planting Center: Set up a station where students collect eggshells from snack time, rinse them, and prepare them for planting. This connects the lesson to real-world recycling and environmental stewardship, showing students that waste materials can be reused to help nature.

## NGSS Connections

Performance Expectation: 2-LS2-1

Plan and conduct investigations to provide evidence that plants get the materials they need for growth chiefly from air and water.

Disciplinary Core Ideas:

- 2-LS2.A (Plants obtain energy and materials for growth chiefly from air and water)
- 1-LS1.B (Plants grow and change over time; they have different needs at different stages)

Crosscutting Concepts:

- Patterns (The predictable pattern of seed germination ! growth ! maturation)
- Cause and Effect (Water and warmth cause seeds to sprout and grow)

## Science Vocabulary

- \* Seed: A small package that holds a baby plant and food to help it grow.
- \* Sprout: A baby plant that is just starting to grow out of its seed.
- \* Germination: The process when a seed starts to grow and a sprout appears.
- \* Seedling: A young plant with just a few leaves; older than a sprout but younger than a full-grown plant.
- \* Soil: The dark brown or black material in the ground that holds water and nutrients to feed plants.
- \* Root: The part of a plant that grows downward into the soil to drink water and hold the plant in place.

## External Resources

Children's Books:

- The Tiny Seed by Eric Carle (a classic story about a seed's journey through seasons and growth)
- From Seed to Plant by Gail Gibbons (clear, illustrated explanations of plant growth with diagrams)
- What Do Roots Do? by Kathleen V. Kudlinski (explores the underground world of plant roots)

YouTube Videos:

- "Plant Growth Time Lapse - Seed to Flower in 60 Seconds" by National Geographic Kids

Description: Mesmerizing video showing a complete plant life cycle in fast-motion, perfect for capturing student attention and showing the full journey.

URL: <https://www.youtube.com/watch?v=R4V4x3iKVsQ> (verify current availability)

- "How Do Plants Grow? | Science for Kids" by SciShow Kids

Description: Friendly host explains germination, growth stages, and what plants need using simple language and engaging visuals.

URL: <https://www.youtube.com/watch?v=d0rZN6YroFQ> (verify current availability)

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Teacher Tip: This lesson works best when paired with a long-term observation project. Start seeds early and have students check them daily, creating a real-time connection between the photograph and their own sprouting seeds. Consider documenting growth with photos to create a classroom time-lapse or growth chart on the wall!