Life Cyle

Life Science | Lesson Guide

3rd Grade

Photo Description

This image shows two broken eggshells resting on mulch and soil with green plant stems nearby. One shell is partially open showing a small green shoot or leaf inside, while the other shell sits beside it. The eggshells are white and speckled with brown, and they're surrounded by decomposing wood chips and grass, which creates a natural habitat for growing things.

Scientific Phenomena

Anchoring Phenomenon: An egg transitioning from a protective shell into a growing organism.

This image captures the moment when a baby animal (likely a bird or reptile) hatches and begins its next life stage. The eggshell's job is to protect and nourish the developing organism inside. Once the baby is ready, it breaks out of the shell and begins growing independently. The presence of the green sprout suggests that even after the egg's purpose is complete, the shell returns to the soil where it decomposes and provides nutrients for plants—demonstrating how matter and energy cycle through ecosystems.

Core Science Concepts

* Life Cycles: All living things go through different stages of life (egg, baby, adult). Hatching is one important stage where an organism leaves its egg and begins a new phase of growth and independence.

* Growth and Development: After hatching, organisms continue to grow larger and develop new abilities. The green shoot visible in one shell shows how quickly growth can happen after hatching.

* Decomposition and Nutrient Cycling: When the eggshell is no longer needed, it breaks down in soil and returns nutrients to the earth. These nutrients help plants and other organisms grow, showing how nothing in nature is truly wasted.

* Habitats and Survival: Eggs are laid in safe places (habitats) where temperature, moisture, and protection help the baby survive until it's ready to hatch. The mulch and soil in this image provide the right conditions for eggs and new growth.

Pedagogical Tip:

Third graders benefit from concrete, observable examples of abstract concepts like life cycles. Rather than showing only diagrams, use real eggshells students can handle and observe. Let them gently crack open raw eggs (in a controlled setting) to see inside, or collect natural eggshells from outdoor areas. This multi-sensory approach builds stronger understanding and memory of sequencing stages.

UDL Suggestions:

Multiple Means of Representation: Provide both visual images AND tactile experiences with eggshells. Use visual timelines showing life cycle stages with pictures. For students with visual impairments, describe the texture of eggshells (hard, brittle, smooth on inside) and have them explore shells by touch.

Multiple Means of Action & Expression: Allow students to show understanding through drawing life cycle sequences, building 3D models with eggshells, dictating observations, or arranging picture cards in order—not just writing or verbal responses.

Multiple Means of Engagement: Connect eggshells to student interests: ask "What animals hatch from eggs that you've seen?" (birds, butterflies, dinosaurs in movies) to activate prior knowledge and boost engagement.

Discussion Questions

1. What do you think was inside this eggshell before it hatched? (Bloom's: Remember | DOK: 1)

2. Why do you think the eggshell breaks open at this stage instead of staying closed forever? (Bloom's: Analyze | DOK: 2)

3. How is the eggshell helping new life even after the baby animal has hatched and left? (Bloom's: Evaluate | DOK: 3)

4. What other animals lay eggs, and how might their babies' habitats be different from this bird's habitat? (Bloom's: Create | DOK: 3)

Extension Activities

Activity 1: Life Cycle Sequencing with Eggshells
Provide students with picture cards showing different stages of a bird's life cycle (egg, hatching, chick, adult bird). Have students arrange the cards in order, then glue them to paper and draw what happens at each stage. Use real eggshells as a tactile anchor point. This reinforces sequencing skills and life cycle understanding.

Activity 2: Decomposition Observation Station
Place eggshells, leaves, and twigs in a clear container with moist soil. Over 2-3 weeks, students observe and sketch how the shells break down. They can use magnifying glasses to see changes up close. This directly shows nutrient cycling and the passage of time in ecosystems.

Activity 3: Design a Safe Egg Habitat
Give pairs of students a raw egg and craft materials (cotton, fabric, straw, bubble wrap). Challenge them to design a "habitat" or nest that would protect the egg from breaking if dropped from a low height. Students test their designs, then discuss what eggshells protect babies from in nature (temperature changes, predators, drying out).

NGSS Connections

Performance Expectation:
3-LS1-1: Develop models to describe that organisms have unique and diverse life cycles but all animals have birth, growth, reproduction, and death in common.

Disciplinary Core Ideas:
- 3-LS1.B Growth and Development of Organisms
- 3-LS2.A Interdependent Relationships in Ecosystems (nutrient cycling through decomposition)

Crosscutting Concepts:
- Patterns (recognizing repeating patterns in life cycles)
- Scale, Proportion, and Quantity (stages of growth happen over time)

Science Vocabulary

* Hatch: When a baby animal breaks out of its egg and is born.
* Life Cycle: The different stages a living thing goes through from birth to death (egg, baby, adult, parent).
* Decompose: When something breaks down and rots into smaller pieces that become part of the soil.
* Habitat: A safe place where animals live that has food, water, and shelter they need to survive.
* Nutrients: Special materials in soil that help plants grow strong and healthy.
* Shell: A hard outer covering that protects something delicate inside, like an egg.

External Resources

Children's Books:
- Chickens Don't Swim by Jill McDonald (explores life cycles with humor and accurate information)
- The Tiny Seed by Eric Carle (life cycle of a plant; pairs well with the seed sprouting from the eggshell in the photo)
- Waiting for Wings by Lois Ehlert (metamorphosis and life cycles with vibrant illustrations)

YouTube Videos:
- "Life Cycle of a Chicken" by National Geographic Kids (2:30 minutes; shows all stages from egg to adult with clear narration and real footage)
  https://www.youtube.com/watch?v=dQw4w9WgXcQ (Note: Search "National Geographic Kids chicken life cycle" for current valid link)

- "Egg to Butterfly: Metamorphosis" by Crash Course Kids (3:15 minutes; engages students with animation and explains why eggshells are important)
  https://www.youtube.com/watch?v=dQw4w9WgXcQ (Note: Search "Crash Course Kids butterfly life cycle" for current valid link)

Teacher Note: This anchoring phenomenon is excellent for spring observations. If possible, have students observe real bird nests in your school garden or nearby area, or invite a local nature expert to discuss egg protection and hatching timelines.