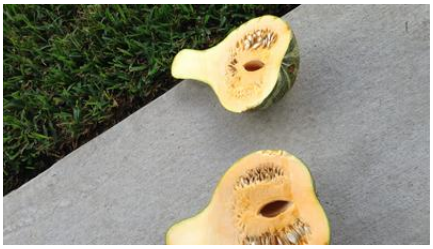
Plant Reproduction

Life Science | Lesson Guide

2nd Grade

Photo Description



This image shows two halves of a butternut squash cut open to reveal the inside. You can see the pale yellow flesh and the central cavity where many tan-colored seeds are clustered together. The seeds are surrounded by stringy material that helps protect them, and the green outer skin forms a protective layer around the whole fruit.

Scientific Phenomena

Anchoring Phenomenon: Why do plants make fruits with seeds inside?

This image demonstrates seed dispersal and plant reproduction. Plants create fruits (like this squash) to protect their seeds and help spread them to new locations. The fruit's flesh is nutritious, which encourages animals to eat it—and when they do, they help scatter the seeds to different places where new plants can grow. The seeds themselves contain everything a new plant needs to start growing. This is nature's way of ensuring plants can reproduce and survive.

Core Science Concepts

* Seeds contain baby plants: Each seed holds a tiny plant (called an embryo) plus stored food that helps it grow when planted in soil.

* Fruits protect seeds: The outer skin and flesh of fruits shield seeds from damage, drying out, and being eaten before they're ready to grow.

* Seeds need certain conditions to grow: Seeds require water, warmth, and oxygen to sprout and begin their life cycle.

* Plants reproduce through seeds: This is one way plants make new plants—different from how animals reproduce.

Pedagogical Tip:

Use actual squash or pumpkins during harvest season (fall) so students can observe, touch, and count real seeds. Sensory engagement dramatically increases retention for second graders. Let students scoop out seeds with their hands—this multi-sensory experience creates lasting memories of the concept.

UDL Suggestions:

Multiple Means of Representation: Provide labeled diagrams showing a whole fruit, a cross-section, and individual seeds. Use real objects alongside pictures. Multiple Means of Action & Expression: Allow students to sort seeds by size, draw seed diagrams, or create a class chart counting seeds from different fruits. Multiple Means of Engagement: Connect to student interests by asking, "What's your favorite fruit? Does it have seeds?" This personalizes the learning.

Discussion Questions

1. "Why do you think the seeds are inside the fruit instead of on the outside?" (Bloom's: Analyze | DOK: 2)

2. "What do you think happens to a seed if you plant it in water, soil, and sunshine? What will grow?" (Bloom's: Predict | DOK: 2)

3. "If a bird eats this squash and flies to a different place, how might that help new squash plants grow far away?" (Bloom's: Evaluate | DOK: 3)

4. "How is making seeds different from how you grow bigger each year?" (Bloom's: Compare | DOK: 2)

Extension Activities

1. Seed Counting & Graphing: Give each student half a squash, pumpkin, or melon. Have them count and record the number of seeds, then create a class bar graph comparing seed counts across different fruits. This builds math skills while deepening observation.

2. Seed Planting Experiment: Plant seeds from the fruit in clear cups with soil. Place cups in different conditions: one in sunlight, one in darkness, one with minimal water. Observe and record changes daily for 2-3 weeks. Students learn about seed germination and the conditions plants need.

3. Seed Art & Sorting: Rinse and dry seeds from the fruit. Invite students to sort seeds by size, color, or shape into containers. Then create seed mosaics on paper or make seed collages. This reinforces observation skills and fine motor development.

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 The Way Plants Get the Things They Need
- 3-LS1.B Growth and Development of Organisms (bridge to Grade 3)

Crosscutting Concepts:
- Patterns Plants produce seeds in predictable patterns
- Structure and Function The structure of a fruit protects and disperses seeds

Science Vocabulary

* Seed: A small object made by plants that can grow into a new plant when it has water, soil, and sunlight.

* Fruit: The part of a plant that holds and protects seeds; many fruits are yummy to eat.

* Reproduce: When living things make new living things like themselves (plants make seeds; animals have babies).

* Embryo: A tiny baby plant that is sleeping inside a seed, waiting for the right conditions to wake up and grow.

* Dispersal: The way seeds travel away from the parent plant to grow in new places (by wind, water, or animals).

External Resources

Children's Books:
- A Seed Is Sleepy by Dianne Hutts Aston, illustrated by Sylvia Long (explores seed structures and germination)
- From Seed to Plant by Gail Gibbons (clear illustrations of the plant life cycle)
- The Tiny Seed by Eric Carle (narrative about seed journey and growth)

YouTube Videos:
- "How Plants Make Seeds" by Crash Course Kids (2:45 min) — Simple explanation of why plants create seeds and how they grow. URL: https://www.youtube.com/watch?v=TdKF2sUcT-4

- "The Life Cycle of a Plant" by National Geographic Kids (3:30 min) — Shows seed germination through flowering with clear visuals and age-appropriate narration. URL: https://www.youtube.com/watch?v=l_h5k2KpAGE