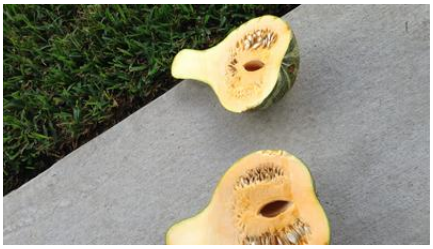
Plant Reproduction

Life Science | Lesson Guide

1st Grade

Photo Description



This image shows two halves of a cut butternut squash displaying the seeds and pulp inside. The pale yellow-orange flesh is visible, along with the fibrous center chamber where many small, flat seeds are clustered together. The green outer skin frames the pale interior, showing what plants look like on the inside.

Scientific Phenomena

Anchoring Phenomenon: Why do plants have seeds inside their fruits?

Plants create seeds as a way to make new plants. When a fruit grows on a plant, it protects the seeds inside and helps them spread to new places. The squash shown here is a fruit—even though we think of it as a vegetable to eat! The seeds inside are ready to grow into brand-new squash plants if we plant them in soil with water and sunlight. This is how plants make babies and continue their families.

Core Science Concepts

* Seeds are baby plants: Each small seed in the squash contains everything needed to grow into a new plant.

* Fruits protect and hold seeds: The thick, hard squash skin keeps seeds safe until they're ready to grow.

* Plants make seeds to reproduce: Making seeds is how plants create new plants, just like animals have babies.

* Seeds need conditions to grow: Seeds require soil, water, and sunlight to sprout and develop into mature plants.

Pedagogical Tip:

For First Grade students, use the term "baby plants" instead of "embryos" or "reproduction." Let students touch and observe real seeds from various fruits—this concrete experience is essential for developing foundational understanding. Consider having students plant seeds in small cups during this unit so they can observe growth over weeks.

UDL Suggestions:

Representation: Provide multiple ways to explore this concept—use the real squash image, actual cut squash (tactile), and a labeled diagram. Some students benefit from touching real seeds while others learn best visually. Action & Expression: Allow students to communicate learning through drawing seeds, creating a seed collage, or arranging real seeds in patterns. Engagement: Connect to student interests by asking, "Where do the vegetables in your lunch come from?" to build personal relevance.

Discussion Questions

1. What do you see inside the squash? Why do you think the seeds are inside and not outside?
   (Bloom's: Understand | DOK: 1)

2. If we plant one of these seeds in soil and give it water and sunlight, what do you predict will happen?
   (Bloom's: Predict | DOK: 2)

3. How is a seed like a baby? How might it be different?
   (Bloom's: Compare | DOK: 2)

4. Where do you think seeds go after they fall from a plant? How might they travel to new places?
   (Bloom's: Analyze | DOK: 3)

Extension Activities

1. Seed Sorting & Observation Station: Provide students with seeds from various fruits and vegetables (sunflower, pumpkin, bean, apple). Have students sort seeds by size, color, and shape using a simple chart. Students can draw or paste real seeds onto paper to create a "seed collection."

2. Plant a Seed & Track Growth: Give each student a small cup of soil and a bean or squash seed. Students plant the seed, water it daily, and observe growth over 2-3 weeks. Have them draw pictures or create a simple bar graph to show how tall the plant grows each week. This builds patience and reinforces that seeds need time, water, and light.

3. Seed Sensory Exploration: Provide a tray with different seeds (soaked beans, dry rice, pumpkin seeds, sunflower seeds). Let students feel, listen to (shake in containers), and smell the seeds. Create a sensory word web together: "Seeds feel..." "Seeds look..." "Seeds sound..." This supports language development and sensory learning.

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.A: All organisms have basic needs. Plants need sunlight, water, and minerals from soil.
- K-LS1.C: Many characteristics of an organism are inherited from the parent; other characteristics are learned or influenced by the environment.

Crosscutting Concepts:
- Patterns: Patterns in nature help us predict how plants grow and develop.
- Structure and Function: The structure of seeds allows them to protect and distribute plants.

Science Vocabulary

* Seed: A small part of a plant that can grow into a new plant.

* Fruit: The part of a plant that holds and protects seeds.

* Pulp: The soft, spongy part inside a fruit.

* Sprout: When a seed begins to grow and push through the soil.

* Soil: The dirt or earth where plants grow their roots.

External Resources

Children's Books:

- The Tiny Seed by Eric Carle (A classic about a small seed's journey and growth)
- From Seed to Plant by Gail Gibbons (Clear, illustrated explanation of plant life cycles)
- Up in the Garden and Down in the Dirt by Kate Messner (Explores life above and below ground)

YouTube Videos:
- "The Seed Song" by StoryBots (1:59 min) — Catchy, animated song about how seeds grow; great for engagement
  https://www.youtube.com/watch?v=3WRlhkWkFjk

- "How Do Seeds Grow? | Plants for Kids" by Homeschool Pop (4:30 min) — Clear, kid-friendly explanation with visuals of seed germination
  https://www.youtube.com/watch?v=lVnKqgS0eYg

Teacher Note: This lesson works beautifully as a multi-sensory, hands-on unit. The combination of observing a real squash, discussing what students see, planting seeds for long-term observation, and exploring other seeds creates multiple entry points for First Grade learners. Be prepared for excitement and lots of questions!