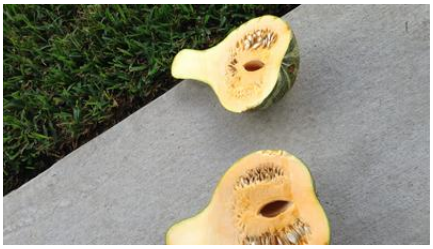
Plant Reproduction

Life Science | Lesson Guide

3rd Grade

Photo Description



This image shows two halves of a winter squash or butternut squash cut open to reveal the inside. You can see the pale yellow flesh and the central cavity filled with many tan-colored seeds attached to stringy fibers. The seeds are the part of the plant that can grow into new squash plants.

Scientific Phenomena

Anchoring Phenomenon: Why do plants make seeds inside fruits?

Plants produce seeds as a way to make new plants. Seeds are like "baby plants" that are protected inside a fruit. The fruit's thick, hard skin keeps the seeds safe until they are ready to grow. The stringy fibers around the seeds help hold them in place and provide nutrients. When the fruit is ripe and falls to the ground, or when an animal eats it, the seeds can spread to new places where they will have room and resources to grow into new plants.

Core Science Concepts

* Seeds as Plant Babies: Seeds contain a tiny plant (called an embryo) plus stored food that helps the plant grow. Each seed has the potential to become a new plant.

* Fruits Protect Seeds: Fruits are the part of the plant that holds and protects seeds. The thick flesh and skin of the squash keep seeds safe from damage, animals, and harsh weather.

* Plant Reproduction: Plants make seeds to create new plants. This is how plants reproduce and spread to new areas. Unlike animals, plants cannot move, so seeds allow plants to grow in new locations.

* Structures Inside Fruits: The fibers and flesh inside a fruit serve important jobs—they protect seeds, store nutrients, and help spread seeds when the fruit breaks down.

Pedagogical Tip:

Use real squashes or pumpkins (especially during fall) to make this lesson concrete and memorable. Let students cut them open themselves (with appropriate supervision and safety tools) to observe seeds directly. This tactile, real-world experience is far more powerful than looking at pictures alone. Store seeds in a paper envelope and have students plant some to observe germination over several weeks.

UDL Suggestions:

Multiple Means of Representation: Provide images, real specimens, and diagrams labeling seed parts. Some students may benefit from a magnifying glass to observe seed details up close. Multiple Means of Action & Expression: Allow students to draw, write, or verbally explain what they observe about seeds and fruits. Multiple Means of Engagement: Connect to student interests by asking, "What fruits do you eat that have seeds? Have you ever planted a seed?" This activates prior knowledge and increases relevance.

Discussion Questions

1. What job do you think the thick, hard skin of this squash has? (Bloom's: Understand | DOK: 1)

2. Why might it be helpful for seeds to be inside a fruit instead of just laying on the ground? (Bloom's: Analyze | DOK: 2)

3. How are seeds like babies? How are they different from animal babies? (Bloom's: Evaluate | DOK: 3)

4. If you planted one of these seeds, what do you predict would happen, and why? (Bloom's: Analyze | DOK: 2)

Extension Activities

1. Seed Saving & Planting: Have students rinse and dry seeds from the squash, then plant them in small cups with soil. Place them on a sunny windowsill and water regularly. Students observe and record changes over 2-3 weeks, noting when the first sprout appears. This directly connects to the life cycle and growth concept.

2. Seed Comparison Hunt: Provide students with different types of seeds (beans, sunflower seeds, apple seeds, watermelon seeds) in a "seed collection." Have them compare sizes, colors, shapes, and textures using a chart or Venn diagram. Discuss why different plants might make different-sized seeds.

3. Fruit & Seed Exploration: Bring in various fruits (apple, orange, banana, tomato, pepper, bean pod) and have students cut them open to find seeds. Create a class chart showing which fruits have seeds on the inside, on the outside, or scattered throughout. Discuss whether students noticed a pattern.

NGSS Connections

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

Disciplinary Core Ideas:
- 3-LS1.B: Growth and Reproduction of Organisms
- 3-LS4.B: Variation of Traits

Crosscutting Concepts:
- Structure and Function
- Patterns

Science Vocabulary

* Seed: A small package that contains a baby plant and food to help it grow into a new plant.

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

* Reproduce: To make new living things; plants make seeds to reproduce.

* Embryo: The tiny baby plant inside a seed that will grow into a new plant.

* Germination: When a seed wakes up and starts to grow into a plant.

* Fiber: Thin, string-like structures that provide support and hold things together in the fruit.

External Resources

Children's Books:
- The Tiny Seed by Eric Carle (a classic picture book about a seed's journey)
- From Seed to Plant by Gail Gibbons (informational text with clear diagrams)
- Up in the Trees by Kate Messner (explores how seeds spread in nature)

YouTube Videos:
- "Plant Life Cycle for Kids" - Crash Course Kids (https://www.youtube.com/watch?v=7YmrR7SlMQ0) — A short, engaging video showing how plants grow from seeds through germination, growth, flowering, and seed production.
- "Where Do Seeds Come From?" - National Geographic Kids (https://www.youtube.com/watch?v=sLqf0lImgBU) — Explores different types of seeds and how they are made inside fruits and flowers.