

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.

Zoom In / Zoom Out

Zoom In: Inside the Seed

If we could look really, really close with a special microscope, we'd see that inside each tiny seed is a baby plant waiting to wake up! The seed has a hard coat protecting a soft inside with a tiny root, a tiny leaf, and food stored up—like a lunch box for the baby plant. When the seed gets water and warmth, it "wakes up" and starts to grow. The baby plant eats the food in the seed first, then pushes roots into the soil to find more food and water. This tiny beginning is called an embryo—it's the tiniest version of a whole new squash plant!

Zoom Out: Seeds in Nature's Food Web

The squash and its seeds are part of a much bigger picture! Squash plants grow in gardens and farms, and when they make seeds, many animals want to eat them—like birds, mice, and insects. Some animals eat the seeds and then drop them far away, helping new squash plants grow in new places. Other animals eat squash for food, and humans do too! The seeds that aren't eaten can be planted by farmers to grow next year's squash. The squash plant also needs bees to visit its flowers so seeds can form. Everything in nature is connected—the soil feeds the plant, the plant makes seeds, animals help spread seeds, and round and round it goes!

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)

Potential Student Misconceptions

Misconception 1: "Seeds are already tiny plants that just get bigger."

Clarification: Seeds contain the beginning of a plant, but they're not complete tiny plants yet. A seed is more like instructions or a package with everything needed to start growing. The baby plant inside needs to sprout first, growing roots downward and a shoot upward, before it looks like a real plant. Growth is about change and development, not just getting bigger.

Misconception 2: "All fruits taste good to eat, and all seeds are for planting."

Clarification: While we eat some fruits and seeds (like apple seeds and sunflower seeds), a fruit's real job in nature is to protect and spread seeds—not to be food for humans. Some seeds are poisonous, and some fruits we don't eat at all. Plants make fruits to help their seeds travel and survive, which is why the squash has that hard skin and thick pulp around the seeds.

Misconception 3: "You need to plant seeds in a pot of soil right away—they won't grow anywhere else."

Clarification: Seeds are actually very tough! They can survive in many places before sprouting—on the ground, in water, even in an animal's stomach. Seeds prefer soil because it has nutrients and moisture, but they're designed by nature to land in many different spots and still have a chance to grow. This is why weeds pop up in unexpected places!

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.

Cross-Curricular Ideas

Math Connection: Seed Counting & Estimation

Have students predict how many seeds are inside a whole squash before cutting it open. Then count the actual seeds from the halves shown and create a simple bar graph or tally chart. Students can sort seeds by size and create patterns: "Small, small, big, small, small, big..." This builds number sense, estimation skills, and early data representation.

ELA Connection: Storytelling & Sequencing

Students create a narrative story from a seed's perspective: "My Journey as a Squash Seed." Prompt them to draw or write (with teacher scribing) about: 1) Being in the squash, 2) Getting planted in soil, 3) Growing roots, 4) Sprouting above ground, 5) Becoming a big plant. This reinforces sequencing, vocabulary, and story structure while deepening understanding of plant life cycles.

Art Connection: Seed Collage & Nature Art

Collect real seeds from various fruits and vegetables. Students create a picture or design by gluing seeds onto paper—arranging them by color, size, or type. They can make a butterfly, a flower, an animal, or an abstract design. This combines fine motor skill development, creativity, and tactile exploration of the diversity in nature.

Social Studies Connection: Where Does Our Food Come From?

Discuss with students where squash and other vegetables come from—farms! Show pictures of squash fields or invite a local farmer to visit. Students can learn that farmers save seeds from good plants to plant again next year, connecting to cycles, sustainability, and community food systems. Students might draw a "farm to table" picture showing squash growing in a field, then on a table, then being cooked and eaten.

STEM Career Connection

Farmer / Agricultural Grower

Farmers plant seeds in big fields and gardens and take care of plants so they grow big and healthy. They decide when to water, when to pick vegetables, and which seeds to save for planting next year. Farmers use science every day to help plants grow! Average Salary: \$68,000–\$75,000 USD per year

Plant Scientist / Botanist

Plant scientists study how plants grow, what they need, and how to make them stronger and healthier. They might work in a lab looking at seeds under microscopes, or in a garden testing new types of vegetables. Some plant scientists help create seeds that can grow in dry places or taste extra delicious! Average Salary: \$62,000–\$85,000 USD per year

Seed Company Specialist / Plant Breeder

These scientists work for companies that save seeds and create new varieties of squash, tomatoes, and other plants. They choose the best plants to make seeds from and test new seeds to make sure they grow well. If you like working with seeds and want to help farmers grow food, this could be your job! Average Salary: \$58,000–\$90,000 USD per year

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)

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!