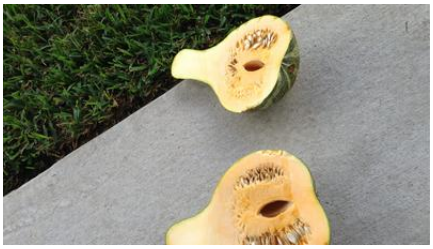
Plant Reproduction

Life Science | Lesson Guide

Kindergarten

Photo Description



This image shows two halves of a butternut squash or similar winter squash cut lengthwise. The pale yellow-orange flesh is visible, along with a central cavity containing many tan-colored seeds arranged in a fibrous, web-like pattern. The squash has a green outer skin and is photographed on concrete next to green grass.

Scientific Phenomena

Anchoring Phenomenon: Why do plants make seeds inside fruits?

Scientific Explanation: Plants create fruits (like squashes) as protective containers for their seeds. The thick flesh of the squash protects the seeds from damage, while the fibrous material holds the seeds in place. Seeds are the plant's way of making new plants—this is called reproduction. The fruit will eventually fall to the ground, break apart, and release seeds that can grow into new plants. This is part of the plant's life cycle and helps plants spread to new places where they can grow.

Core Science Concepts

* Seed Structure and Function: Seeds are tiny packages that contain a baby plant and stored food. Seeds need soil, water, and sunlight to grow into new plants.

* Fruit as Seed Protection: Fruits are the fleshy parts of plants that hold and protect seeds. The thick walls of a squash keep seeds safe from animals, weather, and damage.

* Plant Life Cycles: Plants grow, make flowers, create fruits with seeds, and then new plants can grow from those seeds. This cycle repeats.

* Plant Reproduction: Plants make seeds so they can create new plants. Unlike animals, plants don't move around, so seeds help them spread to new locations.

Pedagogical Tip:

For Kindergarteners, focus on the observable, sensory aspects rather than technical terminology. Let students touch real seeds, feel the stringy fiber, and smell the squash. Use simple repetition: "Seeds make new plants. New plants grow from seeds." Avoid complex terms like "fertilization" or "pollination"—save those for later grades.

UDL Suggestions:

Representation: Show the whole squash, then the cut halves, then individual seeds to build understanding through multiple visual supports. Use real objects students can handle (not just pictures). Action & Expression: Allow students to draw seeds, plant seeds in cups, and observe growth over weeks. Some may benefit from tracing seed shapes or sorting seeds by size. Engagement: Connect to food—butternut squash is eaten by people, creating genuine curiosity about where food comes from.

Discussion Questions

1. What do you think is inside these seeds? (Bloom's: Remember | DOK: 1)

2. Why do you think the squash has so many seeds instead of just one? (Bloom's: Analyze | DOK: 2)

3. If we planted one of these seeds in soil and watered it, what would happen over time? (Bloom's: Predict | DOK: 3)

4. How is a seed like a tiny baby? (Bloom's: Evaluate | DOK: 3)

Extension Activities

1. Seed Planting Experiment: Give each student a clear cup with soil and one large seed (sunflower, bean, or squash seed). Water it together daily and observe the sprout growing over 2–3 weeks. Children can draw pictures of changes each week and celebrate when the green shoot appears.

2. Seed Exploration Station: Provide a variety of real seeds (pumpkin, sunflower, bean, squash) in a sensory bin. Students sort seeds by size, color, and texture. They can place seeds in order from smallest to largest, encouraging observation and fine motor skills.

3. Squash Cooking & Tasting: If appropriate and following school policies, roast squash seeds with salt and let students taste them. Discuss: "We eat the seed! But if we planted it instead, a new plant would grow." Connect this to the squash they see in grocery stores.

NGSS Connections

Performance Expectation: K-LS1-1
Use observations to describe patterns of what plants need to grow.

Relevant Disciplinary Core Ideas:
- K-LS1.A - All organisms have basic needs. Plants need sunlight, water, nutrients, and air.
- K-LS1.C - Plants get the materials they need for growth chiefly from air and water.

Crosscutting Concepts:
- Patterns - Seeds follow a pattern: they grow into plants, plants make flowers and fruits, fruits contain new seeds.

Science Vocabulary

* Seed: A tiny package that has a baby plant inside and food to help it grow.

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

* Plant: A living thing that grows in soil and needs sunlight and water.

* Grow: To get bigger and taller over time.

* Life Cycle: The different stages a plant goes through: seed, sprout, plant, flowers, fruit, and new seeds.

External Resources

Children's Books:
- The Tiny Seed by Eric Carle – A beautiful picture book about a tiny seed's journey and growth.
- From Seed to Plant by Gail Gibbons – Clear illustrations showing the plant life cycle from seed to mature plant.

- Planting a Rainbow by Lois Ehlert – Colorful book about planting seeds and growing flowers.

YouTube Videos:
- "Seed to Plant in 30 Seconds" by National Geographic Kids – A fast, visually engaging time-lapse of seed growth. https://www.youtube.com/watch?v=OBjf4WNF8R4
- "The Seed Story" by Crash Course Kids – A simple, animated explanation of how seeds work and why plants need them. https://www.youtube.com/watch?v=bAjWljTDYQw

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Next Steps: This lesson works best when paired with hands-on seed planting so students experience the phenomenon directly over time. The concrete observation of a seed growing into a plant is the most powerful learning tool for Kindergarteners.