



Pumpkin Graveyard

Connected Next Generation Science Standards

K-ESS3-3 Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment

3-LS1-1 Inheritance and Variation of Traits: Life Cycles and Traits

5-LS2-1 Matter and Energy in Organisms and Ecosystems

Featured Science and Engineering Practices

Planning and Carrying Out Investigations

Featured Cross-Cutting Concepts

Stability and Change
Energy and Matter

Overview

The end of fall and winter is a slower time in the school garden. A pumpkin graveyard will draw curious gardeners outside. During the pumpkin graveyard lesson, young gardeners will practice their scientific observational skills and learn what happens to dead plants in the garden. They will see, feel, and smell compost over the course of several weeks. There is also an opportunity to make connections between weather and the condition of the pumpkins. If the class continues observing the pumpkins past six weeks and into spring, surprise "volunteer" pumpkins may appear.

Students will

- Observe the decomposition process and point out evidence of decomposition.
- Predict what will happen to the pumpkin as it decomposes.
- Infer why decomposers are an important part of an ecosystem.

Teacher Preparation

- Designate an unused garden bed for this activity, preferably in a spot where most of the class can gather and observe. Ask parents and community members to bring leftover Halloween pumpkins to school. If possible, have a variety of pumpkin sizes with some carved and some not carved (i.e. with seeds).

Guiding Question- What happens to a pumpkin when left outside?



Pumpkin Graveyard

Materials

- At least 4 pumpkins
- Pumpkin Observations worksheet
- Empty garden bed

Optional Materials:

- Garden sign
- Magnifying glasses
- Camera

Settings

- School garden or green space where students can leave pumpkins undisturbed for at least 6 weeks.
- Works best after Halloween when a variety of pumpkins are being discarded.

Give different roles to students during weekly pumpkin observations for continued engagements. Examples include meteorologist, ant counter, and official pumpkin smeller.

Explore

- Place all of the collected pumpkins on the empty garden bed at the same time. Put a sign in the garden bed describing the pumpkin experiment.
- Pass out the "Pumpkin Observations" worksheet and magnifying glasses. Repeat the guiding question. Have each student predict what the pumpkin will look like in 6 weeks.
- Have students make their first observations, recording the date and weather. Encourage students to smell, feel, listen, and look closely. When students touch the pumpkins, ask them not to make holes or tears. Younger students may draw their observations while older students will write a detailed description. Take a photo of the pumpkins.
- Ask guiding questions while observing. Do you see any animals on the pumpkins? What are they doing? Compare and contrast the soil under the pumpkins and next to the pumpkins. What color are the pumpkins? Do they smell good or bad?
- Repeat the observation activity once a week for the next six weeks or until winter break starts. Use magnifying glasses if they are available. Remind students of any garden rules concerning worms and other animals when observing. Take a photo of the pumpkins each week.
- Periodically check on the pumpkins after winter break through the early spring. Two weeks prior to spring planting, mix the decomposing pumpkins into the soil.
- Watch for volunteer pumpkin vines growing later in the spring.



Fall/Winter - Outdoor | K-5th
15-20 minute lessons once per week for at least 6 weeks

Pumpkin Graveyard

Favorite Books

- *Pumpkin Jack* by Will Hubbell
- *Composting: Nature's Recyclers* by Robin Koontz
- *Grandma and the Great Gourd* retold by Chitra Banerjee Divakaruni
- *The Pumpkin Patch* by Elizabeth King
- *Compost Stew: An A to Z Recipe for Earth* by Mary McKenna Siddals
- *Sophie's Squash* by Pat Zietlow Miller & Anne Wilsdorf
- *Sowing the Seeds of Wonder: Discovering the Garden in Early Childhood Education* by Life Lab

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Digging Deeper

- After journaling, bring the students together and form a circle. Explain that they are going to take turns sharing the observations they made, and if someone shares an observation similar to their own, then they should take a step forward in the circle.
- After students have shared a handful of observations, ask students the following questions: How are these observations different from previous observations? How are they the same? Why do you think they are different or the same? What might be happening?
- Ask students what they think the pumpkins will look like next week? What might they look like in the spring? Why? Have students turn and discuss with a neighbor.

Making Connections

- Explain to students that the process organisms go through once they die is called **decomposition**. **Decomposition** is the breaking down of dead matter into smaller parts. Once organic matter decomposes completely, it becomes part of the soil.
- Depending on the smell and rate of decomposition at the end of the 6-week observation, you can give students gloves or sticks to "dissect" the pumpkins. What is inside of the decomposing pumpkins? Do certain decomposers prefer the inside or the outside of the pumpkin?
- Did the pumpkin change more during certain weeks? How might the weather affect the changes in the pumpkins?



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- Experiment by placing different natural and unnatural objects next to the pumpkins. Does a piece of cardboard decompose as quickly as a pumpkin? Are different decomposers present with different fruits?
- If you have a compost pile, investigate the different stages of compost. Compare and contrast the decomposers present in the pumpkin graveyard and the compost pile.
- Have you noticed any pumpkin vines growing? Why or why not? Why do we put compost on the garden?

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