

Disappearing Pumpkins

*A lesson from the New Jersey Agricultural Society
Learning Through Gardening program*

OVERVIEW: October is the month for pumpkin lessons! Pumpkins can be used for so many classroom activities. Compare them, measure them, graph them, study their life cycle, cut them open and count the seeds. Then carve them into a jolly Jack O'Lantern. But when Halloween is over, don't throw out that pumpkin! Do one more experiment that will last for months. Allow your students to watch how the pumpkin decomposes, one week at a time.



GRADES: PreK-5

OBJECTIVES:

Science: The student will be able to define decompose and decomposition.

The student will be able to describe the decomposition process and explain why it happens.

Language Arts: (For older grades) The student will be able to keep a weekly journal describing the decomposition of a pumpkin.

MATERIALS:

One used Jack O'Lantern (or one whole pumpkin)

Journals or notebooks for students' written and drawn observations.

Optional: Pumpkin Jack, by Will Hubbell and/or Pumpkin Circle, by George Levenson

If you plan to do the decomposition experiment indoors:

One sealed, clear container such as a plastic storage container with a top or an aquarium sealed by tape with plastic wrap or aluminum foil

Soil to line the bottom of the clear container. This soil should be taken from your garden or another place outside. Do not use potting soil.

This experiment can be conducted in two ways. First, the pumpkin can be placed outside in your school garden or another place on school grounds where it won't be disturbed. If you choose this method, you must bring your students outside to observe the pumpkin once each week.

Second, the experiment can be done inside by placing the pumpkin in a clear, sealed container. A clear, plastic storage container big enough to hold the pumpkin works well or you can use an old aquarium sealed tightly at the top with plastic wrap or aluminum foil. The seal is important to prevent the smell of the decomposing pumpkin from invading your classroom.

PROCEDURE:

Begin a conversation about decomposition. Tell the students that you walked through a forest in the fall when the ground was filled with fallen leaves. Then say you visited the same forest in the spring and the leaves had mostly disappeared. Ask: what happened to the leaves?

When any living thing dies, fungi and bacteria get to work breaking it down. Put another way, they decompose things. Some decomposers live inside plants or hang out in the guts of dead animals. These fungi and bacteria act like built-in destructors.

Soon, more decomposers will join them. Soil contains thousands of types of single-celled fungi and bacteria that take things apart. Mushrooms and other multi-celled fungi also can get into the act. So can insects, worms and pill bugs (roly polies).

Rotting can be yucky and disgusting. Still, it is vitally important. Decomposition aids farmers by putting back into the soil essential nutrients that plants need to grow.

The teacher can read and discuss the book *Pumpkin Jack* by Will Hubbell, and review the life cycle of a pumpkin by reading *Pumpkin Circle* by George Levenson.

Tell the students they are going to observe what happens to their class pumpkin over time. Set the pumpkin in a place outside where it will not be disturbed or inside a clear container lined with soil taken from outside. Leave a few seeds inside the pumpkin to see what will happen to them.

Students observe the pumpkin at the same time each week, and record in their journals what is happening to the pumpkin.

If you are doing the indoor experiment, at least once, the teacher should remove the top of the container so students can experience the smell that accompanies decomposition and describe it in their journals.

Continue to observe what happens to the pumpkin until the decomposition process is complete.

EVALUATION:

The student can define decompose and decomposition, describe the decomposition process, and explain why it happens.

Completed student journals.

EXTENSION:

Extend your discussion of decomposition by discussing what decomposes and what doesn't. Place some other items, such as an aluminum can, a plastic bottle, and a piece of newspaper, outside with the pumpkin or inside the clear container. Compare what happens to the pumpkin and the other items.

New Jersey Learning Standards

Science: PreK:5.1.1-5, 5.3.1.4 K:ESS3.A, C 1:LS2.A 2:LS4.D 3:LS1.B
4:LS1.A 5:LS2.A

English Language Arts: PreK: RL.PK.1-3 K:RL.K.1-10 1:RL.1.1-4,6 2:RL.2.1-7
3:RL.3.1-7 4:RL.4.1-7 5:RL.5.1,2,4,5