

# STORING FOOD FROM THE HARVEST

Vocabulary: store, root cellar

## Description

Students learn about and compare the effectiveness of three different methods of storing food from the garden.

## Guiding Question

How do people get food from gardens?

## Big Idea

Living and non-living things change.



SECOND GRADE

## Learning Objectives

At the end of this lesson, students will be able to make, record and interpret observations and to compare and contrast four methods of storing root vegetables. Students will understand recent and distant historical events on a timeline.

## Materials

A plastic, wooden, or plastic-coated cardboard box with a tight-fitting lid, such as a small plastic storage bin, large enough to hold three root vegetables, such as large beets.

Shovels

Access to a refrigerator in the school for 2-3 weeks.

## Preparation

Identify root vegetables such as carrots, beets, parsnips, or potatoes in the garden that are ready for harvest.

Gather materials.

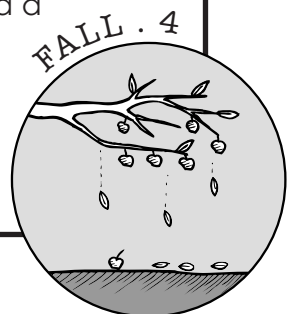
Recruit and train volunteers to help with digging a hole in the garden.

## Introducing the Lesson

1. *Activate prior knowledge.* If you and your students completed 2nd Grade Fall Lesson 1, *Is It Ready to Eat Yet? Harvest Exploration in the School Garden* and Lesson 3, *Harvesting Seeds*, remind students of the three main reasons people harvest fruits and vegetables: To eat or cook immediately, to store for eating later, and to gather seeds to start new plants. If you did not complete those lessons, start a discussion by asking students, "What are some things people can do with fruits and vegetables after they pick them?" Close the discussion by letting students know that they are going to experiment with different ways of storing food.

2. *Engage student interest.* Ask students if they have ever eaten part of their meal or snack, and gotten full. Were they able to keep the rest of the food for later? If so, how did they do it? Many students will say that they put something in the refrigerator or freezer. Ask them what would have happened to their food if they lived a long time ago, before most people had refrigerators.

**Additional time:** Approximately 2 hours, in two different sessions, 2-3 weeks apart.



Lesson time: see additional time

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### Procedure

In the classroom:

1. *Introduce some historical methods of food storage.* Draw on the board a timeline that stretches from prehistoric times to now. Then, mark on the timeline, the following developments in food storage:

- *Prehistoric times* – Leaving food in the garden. In many climates, such as much of the Pacific Northwest, some plants we eat, such as carrots, beets, and hardy greens such as collards and kale, can grow all through the year. So, people stored their food in the garden, picking or digging up whatever they wanted to eat throughout the winter.
- *Around 1200 B.C.* – Root cellars. People in places where the ground freezes too hard to dig in the winter realized that they could pick foods and dig holes in the ground before winter came. The food stayed nice and cool, and could be used throughout the winter. Some people cut blocks of ice in the winter and put them in holes in the ground, covered with straw, to help store food during the warmer months.
- *1920s* – Refrigerators. People started using ice boxes (which are a lot like today's coolers, a chest with a block of ice in it to keep food cool) even before mechanical refrigerators. An ice box and a refrigerator function the same; one with electricity and one without.

2. *Design a food-storage experiment.* Suggest to students that they try out these three methods of storing food, and compare them to just letting food sit out. Tell students which root vegetables are growing in the garden, and have them choose one. [The best root vegetables to choose are beets, carrots, or potatoes] Then, help them understand the four conditions for the experiment: 1) Some of the root vegetables will stay in the garden, the oldest method; 2) Students will pick some root vegetables, dig a hole in the ground, their own root cellar, and put some of the root vegetables in it; 3) Students will dig or pull up some of the root vegetables and put them in a refrigerator in the school. And 4) some of the root vegetables will remain at room temperature in the classroom through out the winter.

In the garden:

1. *Dig a root cellar.* Help students dig a hole of 2 or so feet deep, large enough for the box you have.
2. *Identify and harvest root vegetables.* Find the root vegetables you are using in your experiment. Tag three plants, to avoid having them accidentally be harvested and to help the class visit them later. Then, harvest at least twelve of the vegetable.
3. *Assign vegetables to experimental conditions.* Put three of the vegetables into your box, and help students bury it in the "root cellar" hole. Mark the spot to revisit later. Then, put away tools, wash hands, and bring the other vegetables into the school. Place three of the vegetables in the refrigerator. Put the remaining three in the spot you have identified in the classroom.

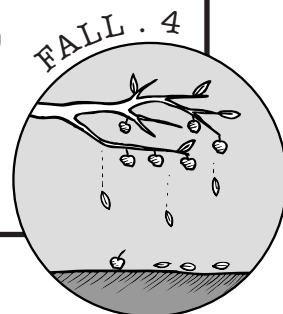
Two to three weeks later:

1. *Observe vegetables.* Visit the garden. Pull up the three vegetables you tagged, and dig up the box from your root cellar. Bring them to the classroom. Retrieve the vegetables you placed in the refrigerator and bring them to the classroom, too. Place all vegetables side by side with



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Lesson time: see additional time



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the ones you have kept in the classroom. Have students compare the vegetables from the four conditions, and decide which method(s) are the best ways to store root vegetables from the school garden. Help students record their observations in a chart like the following:

Method	How do the veggies look?	How do they feel?	How do they smell?
Leaving food in the ground			
Root cellar			
Refrigerator			
Leaving food out.			



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## Assessing Student Knowledge

Informally assess your students' understanding of the timeline by asking questions such as the following while creating and discussing the timeline of food storage methods: *What does this timeline show us? How early is the earliest time on the timeline? When does the timeline end? Which of these three ways of storing food did people start using the longest time ago? Which did we discover most recently? How long ago were the 1920s? How long ago was 1200 BC? Which is longer?*

Assess students' ability to make, record, and draw conclusions from their observations by monitoring them as they do these things. Correct any misunderstandings that students show during the observations.

## Extensions

Extend the experiment. Return the vegetables to storage (select three new plants in the garden). Continue to observe at intervals until all have become overripe. Create a bar graph of the number of weeks the vegetables last with each storage method.

Investigate other food storage methods used throughout history and today, such as drying foods, or creating pickles or preserves.

## Books & Resources

*A Pioneer Sampler*, by Barbara Greenwood (1998, Sandpiper)

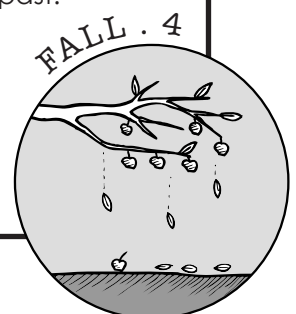
## OR. Dept. of Ed. Key Standards

Oregon Social Sciences Academic Content Standards:

- 2.4. Differentiate between events that happened in the recent and distant past.
- 2.5. Develop a timeline of important events in the history of the community.

Oregon Science Content Standards:

- 2.3S.3 Make, describe, and compare observations, and organize recorded data.



Lesson time: see additional time

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