

Materials

- Pint-sized mason jars
- Pruning scissors
- Rooted sweet potato cutting in a jar of water
- One sweet potato (example)
- Plastic buckets
- Spading fork
- Nail brushes
- Watering can full of water

Preparation

- Three weeks before this lesson, propagate your own sweet potato cutting to serve as an example to students
- Display materials in the gathering space
- Label a piece of flip chart paper with today's main garden tasks: (1) *taking sweet potato cuttings* and (2) *harvesting sweet potatoes* and post it in the gathering space
- Right before class begins, fetch one fresh sweet potato cutting from the garden

PROCEDURE

Part 1: Taking Sweet Potato Cuttings

- Display the rooted sweet potato cutting to the group.
- Explain that sweet potatoes reproduce from *cuttings* instead of seeds. We take cuttings from the plant's side shoots. Side shoots are leafy stems that form at the center of the plant and spread out horizontally across the garden bed. Side shoots also contain "eyes", where roots will eventually form.
- When taking a cutting, you want to select the healthiest side shoots. Look for shoots with 3-4 big, green leaves and several "nodes".
- For this activity, we will be using pruning scissors. Pruning scissors are a very helpful garden tool, but they are also very sharp. Like all garden tools, they need to be used safely and responsibly.
- Split students up into groups and send each to a sweet potato bed
- Introduce the parts of the sweet potato plant and demonstrate how to select and cut a side shoot
- Have students take turns selecting and cutting strong side shoots
- Place cuttings in a mason jar. When everyone has finished, return to the outdoor classroom and fill the mason jars with water. Place them somewhere safe before moving on to the next activity.
- Cuttings will survive indoors through the winter if they are well monitored and provided with a steady supply of fresh water. Come spring, we'll put them in pots of soil until it's warm enough for outdoor planting.

Part 2: Harvesting Sweet Potatoes

- Back in the outdoor classroom, take out the example sweet potato and pass it around
- Introduce the tools used during this activity and demonstrate how to safely use them.
- Working in the same groups, lead students to the sweet potato beds.
- Demonstrate how to use a spading fork to loosen the soil. Carefully stick the spading fork in the soil about 6 inches from the center of the sweet potato plant and gently wiggle it back and forth.
- Have students take turns loosening the soil with the spading fork.
- Then, lift up the crown of the plant to expose mature sweet potatoes. Collect sweet potatoes and set aside.
- Select a group of students to scrub the sweet potatoes with nail brushes.
- Have the remaining students compost the spent sweet potato plants and clear the garden bed of debris.
- Collect scrubbed sweet potatoes in a container and store in a cool, dry place for the Chef Demo.
- Clean tools and return to the gathering space.

ENGAGE

During the last lesson we learned about *annual* plants, or plants whose life cycle lasts for only one growing season. Ask: *Which specific garden plants did we work with last week? What did we do?* This lesson is going to focus on *perennials*, or plants that can survive for more than one growing season. Today, we'll be getting to know a very important perennial garden crop – the sweet potato plant!

Objectives

- Students will understand the difference between annual and perennial plant life cycles
- Students will understand how to cut, root, and monitor sweet potato cuttings
- Students will understand how to harvest and clean sweet potatoes

EXPLAIN

Perennials and Plant Propagation

What is the simplest way to make new plants? Planting seeds, of course! Many of our favorite garden crops start their lives as tiny seeds. A seed germinates and becomes a plant. Over the course of its life cycle, a plant will develop 6 distinct parts: roots, stem, leaves, flowers, fruits, and seeds. Some plants go from seed to seed in one growing season. These plants are called *annuals*.

There are other types of plants in the garden that can survive for more than one growing season. Under ideal conditions, they will return year after year. These plants are called *perennials*. Perennials reproduce differently from annuals. We can make new perennial plants using a method of reproduction called propagation. *Propagation* is a fancy term used by gardeners to describe techniques for making new plants without using seeds. There are three common means of propagation: grafting, division, and cutting.

In this lesson, students learn that we can grow new sweet potato plants by taking cuttings from a parent plant. Cuttings are a form of vegetative propagation – or a type of reproduction that uses vegetative parts of the plant (such as roots, stems, and leaves) to make new plants. There is no exchange of genetic material (like seeds), so propagation produces clones that are identical to the parent plants.

Over time, the sweet potato cuttings will develop roots from their “eyes” after being submerged in water. The plants can survive through the winter with a steady supply of fresh water and careful monitoring. Come early spring, we will transplant the cuttings into containers of potting soil. When it's warm enough, we'll plant them permanently into garden beds. Over the growing season, the plants will begin to develop sweet potatoes underground. Then, we'll repeat the same process over again. We'll propagate new plants for next year before harvesting a bounty of delicious sweet potatoes from our mature plants.

ADDITIONAL CONTENT INTEGRATION *(see previous page)*

Select a day each week where students can remove the sweet potato cuttings from their jars and measure their root growth. Have them record this data in their garden journals. Track this growth on a weekly basis until early spring, when they will pot up the plants.

Additional Materials

- Science Journals
- Ruler

EVALUATE

Journal prompt: Explain what sweet potato “cuttings” are and why we put them in a jar of water. Draw a picture of the process.