Sweet Potatoes

*Lesson Plan for Grade 1, Science*

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*Modified by Mississippi State University, School of Human Science*

*for Mississippi Farm Bureau Federation - AITC*

# OVERVIEW & PURPOSE

In this lesson, students will learn more about the roots of a plant. They review all 6 plant parts and then focus on the purpose of roots. Students dissect a radish and learn how to make observations and predictions through this activity. Students taste different examples of root vegetables.

# EDUCATION STANDARDS

**Mississippi College-and-Career Readiness Standards:**

L.1.1.3 Design and conduct an experiment that shows the absorption of water and how it is transported through the plant. Report observations using drawings, sketches, or models.

ELA-W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

**NALOs:**

T1.K-2 b Describe the importance of soil and water in raising crops and livestock.

# OBJECTIVES

* Students will identify the roots on a plant
* Students will describe the purpose of the roots
* Students will demonstrate how to make observations and predictions
* Students will taste root vegetables

# MATERIALS NEEDED

* A garden plant with roots showing
* Radishes (1 for every 2 students)
* Plastic knives (1 for every 2 students)
* Magnifying glasses (1 for every 2 students)
* Plain white paper for students to draw on
* Crayons (1 pack per student)
* Root vegetables for tasting (suggestions: carrots, parsnips, potatoes, radishes, beets, turnips, ginger)
* Sweet potato (1)
* Mason jar with water
* 8-10 toothpicks

Lesson Set Up:

1. Purchase root vegetables and some sweet potatoes.
2. Obtain several mason jars and some toothpicks.
3. Set out plastic knives, crayons, and paper for students.

# Vocabulary

**potato:** an erect South American plant widely cultivated for its thick, starchy, edible underground tubers

**seed potato:** a potato tuber grown for its buds which are used to start new plants

**staple food:** a food that is eaten regularly and is a dominant part of the diet, supplying a major proportion of energy and nutrient needs

**tuber:** a short, fleshy, usually underground stem (as of a potato plant) having tiny scale like leaves each with a bud at its base that can produce a new plant

# Ag Facts:

* The sweet potato (*Ipomoea batatas*) is an underground tuber.
* It’s rich in an antioxidant called beta carotene, which is very effective at raising blood levels of vitamin A, particularly in children.
* Sweet potatoes are nutritious, high in fiber, very filling, and delicious. They can be eaten boiled, baked, steamed, or fried.
* Sweet potatoes are usually orange but also found in other colors, such as white, red, pink, violet, yellow, and purple.
* In some parts of North America, sweet potatoes are called yams. However, this is a misnomer since yams are a different species.
* Sweet potatoes are only distantly related to regular potatoes.
* Taxonomically, Sweetpotato should be one word because it is not technically a potato (root vegetable) it is a tuber. However, commercially it is usually presented as two words (Sweet Potato).

# Background Information for Teacher:

This lesson should come after students have studied the parts of a plant. Sweet potatoes pack a powerful nutritional punch. In one medium spud, there are over 400 percent of your daily vitamin A requirement. Sweet potatoes also contain high amounts of fiber and [potassium](https://www.medicalnewstoday.com/articles/287212.php). They have more grams of natural sugars than regular potato but more overall nutrients with fewer [calories](https://www.medicalnewstoday.com/articles/245588.php).

# LEARNING PROCEDURES

Interest Approach:

1. Ask students:

**“Who remembers learning about the 6 parts of a plant? What are the 6 parts?**”(Answer: roots, stems, leaves, flowers, fruit, seeds)

**“Today we are going to focus on one very important plant part – the roots.”**

1. Hold up the garden plant with roots showing. Point out the roots to the class. Let’s think more about roots. Ask students:

**“Why are roots so important? What is the job of the roots?”** Answer: support the plant and take in water and food for the plant

**“What are some of the ways we can discover something new about plant roots?”** Answer: By dissecting them

**“Today we are going to dissect a root, taste a root and color with a root.”**

1. Divide students into pairs.
2. Hold up a radish. **“Raise your hand if you have seen this before. What is it called?”**
3. Give each pair of students 1 radish to work with, a magnifying glass and crayons. Have them draw the outside of the radish, write down observations of the outside of the radish, and predict what they will see inside. For predictions, guide them by asking:

o What do you think is inside?

o What color do you think the inside is?

o Will it be wet or dry?

o Will it be smooth or rough?

1. Next, review safety rules for using plastic knives.

o Hold the point away from yourself and others.

o Only make cuts when using a stable surface.

o Keep your fingers away from the area that you are cutting.

o Make a steady cut straight down and not at a slant or toward you.

o Set the knife aside in a safe place once you are done making your cut.

1. Pass out plastic knives.
2. Demonstrate how you would like them to safely cut their radish into 2 parts, and then have them cut their radishes.
3. Show the students how you closely observe the inside of the radish – look closely at it and tell the students out loud all the things that you see.
4. Now examine your radish. How does it smell, feel, and look?
5. Instruct the students to draw the inside of their radish and use a lot of details. As well as to color in their drawing using the skin and greens from the radish.
6. Next, discuss what the students observed:

**“What did you observe on the inside of the radish? Was this what you predicted?”**

**“Why do you think the radish was wet inside?”** Answer: water was absorbed through the roots

**“How did water get inside the radish?”** Answer: through the roots

**“Why do you think root vegetables have little hairs on them?”** Answer: they are the little roots that are growing out of the big root – they are the major site for water and food uptake

**“Raise your hand if you have ever eaten a root vegetable before. What kinds of roots do we eat?”** (Answers: carrots, parsnips, sweet potatoes, potatoes, radishes, beets, turnips, ginger) **2.**

1. Pass out different root vegetables for tasting.

**Activity: 1**

1. Show the sweet potato you brought to class.

**“Have you seen this vegetable before? What is it?”**

**“Today I’m going to show you how to sprout a sweet potato.”**

3. Cut the sweet potato in half.

4. Fill a mason jar with water.

5. Stick toothpicks into the top part of the sweet potato, like spokes of a wheel so that you rest them on the mouth of the jar and the potato will be suspended half in water and half out. Place the cut side of the sweet potato in the water.

7. Place the jar in a bright area close to the window. Find a place where students can watch it over the next few weeks. Tell the students they need to refill the jar with water when the water level gets low.

8. After a few weeks the sweet potato will start sprouting.

9. Inform the students that the sprouts are called slips. When the top of your potato is covered in slips, carefully twist each one off. They will resemble small leaves with a short stem. Put your slips into another jar of water and watch the roots start to grow.

**Concept Elaboration and Evaluation**

* Review the following questions for the students:

**What are the 6 parts of a plant?** (Answers: roots, stems, leaves, flowers, fruit, seeds)

**What does the root do for a plant?** (Answer: supports the plant, takes in water and food)

**We were all plant scientists today. What is the name of a plant scientist?** (Answer: botanist)

**What are some roots that we eat?** (Answers: potatoes, carrots, radishes, parsnips, turnips, beets, ginger)

**Why do root vegetables have little hairs on them?** (Answer: they are the little roots that are growing out of the big root – they are the major site for water and food uptake)

**How much water should you drink every day?** (Answer: at least 6 cups of water a day)

**How many fruits and vegetables should you eat every day?** (Answer: at least 5 fruits and vegetables a day)

**Does gardening connect you to your culture and help you learn new words in your language?** (Answer: yes)

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# Additional Learning Procedures

To help students review and elaborate more about sweet potatoes, complete a [“I used to think… now I think…”](https://drive.google.com/file/d/1QkQm2CwbLiMciiiusqCA6pJXtYxkRUf9/view?usp=sharing) chart and share with other students.

Providing additional learning opportunities outside the lesson like reading the book [“The Life of a Potato” by:Vicki Hutchings](https://www.amazon.com/Life-Potato-Vicki-Hutchings/dp/0578727609/ref=sr_1_4?crid=3SZKKL56K4OZW&keywords=potato+agriculture+children%27s+book&qid=1692903613&sprefix=potatoe+agriculture+children%27s+book%2Caps%2C196&sr=8-4).

Additional Texts to Include:

[From Eye to Potato](https://www.agfoundation.org/recommended-pubs/from-eye-to-potato)

[The Potato](https://www.agfoundation.org/recommended-pubs/potato)

[What’s for Lunch, Potato](https://www.agfoundation.org/recommended-pubs/whats-for-lunch-potatoes)



Source: <http://caih.jhu.edu/>

*For more information and additional lessons visit*

*https://msfb.org/ag-in-the-classroom/lesson-plans/.*