

# LEARNING WITH *Sweetpotatoes*



## Mini-Lesson

### Agriculture Education, Horticulture: Plant Anatomy

#### Sweetpotato Ag Mag Edition

#### Grades 9-12

#### Mini-Lesson Focus:

- Plant Anatomy
- Growing sweetpotatoes

#### Sweetpotato Plant Anatomy

The word **anatomy** refers to the structure and internal workings of something (a living organism). A sweetpotato is classified as *Ipomoea batatas* – a storage root and part of the morning glory family. Understanding the structure and function of root systems is important in how plants are grown, beginning with plant anatomy and in this case, a sweetpotato plant.

#### Procedures:

1. Say, “Let’s start with what plants need to survive.” *Students should quickly identify abiotic factors: water, sunlight, and soil. Some may extend understanding by including materials needed or fertilizers used, etc.*
2. Say, “Now let’s take a closer look at the parts of a sweetpotato plant. What role does each structure have in producing sweetpotatoes?” Ask students to discuss the anatomy and functions of a plant.
3. Use the diagram to guide students in their thinking about the structure and function of the plant. Ask scaffolding questions such as, “What is the function of flowers and leaves? What is the difference between fibrous roots and storage roots?” Allow students to provide responses verbally, in a journal, or use a Google Jamboard to gather information.
4. After student discussion, say, “We have the understanding of the function and anatomy of plants, now let’s take it deeper.” Ask students, “Does a sweetpotato start as a seed, a sprout, neither, or both? Discuss your idea with someone next to you and provide a reason why.” *Most students will assume a seed; some will identify a sprout/cutting.*
5. The answer is both! Sweetpotato flowers can produce seeds that are used to produce seedlings. However, many sweetpotatoes are used for what farmers call “slips.” Slips are transplanted to grow sweetpotatoes.

# SWEETPOTATO PLANTS

## **Have**

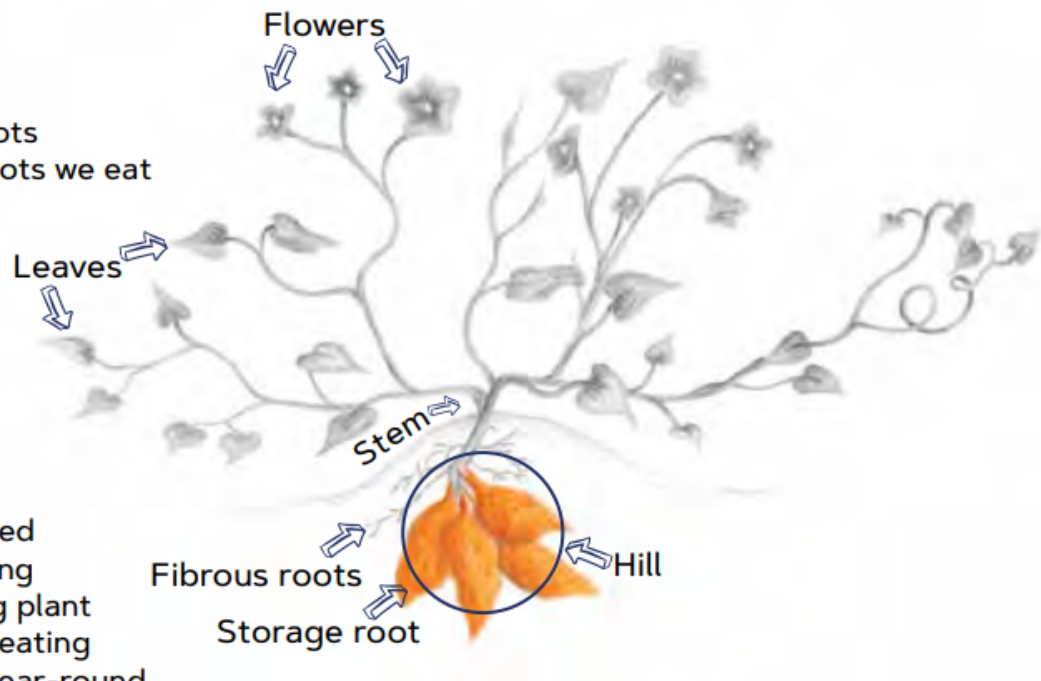
Leaves  
Stems  
Flowers  
Fibrous roots  
Storage roots we eat

## **Need**

Soil  
Water  
Nutrients  
Sunlight

## **Are**

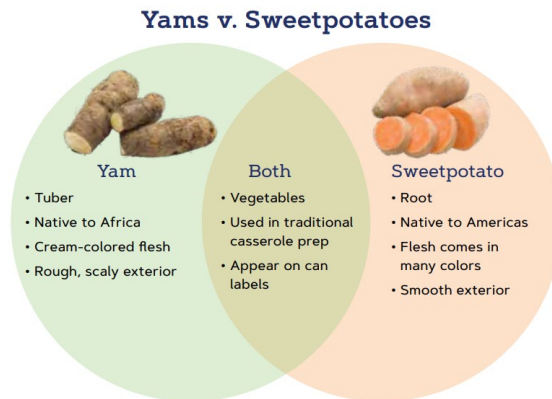
Harvested  
Transplanted  
A living thing  
A flowering plant  
Grown for eating  
Available year-round



## **Extension Activities:**

- Share the [A Year in the Life of the NC Sweetpotato Bedding video](#) with students and say, “Here is an awesome video to give you a glimpse into how sweetpotato plants are grown.”
  - After viewing the video, students can add more information to their responses (journal or Google Jamboard) about bedding sweetpotatoes.
  - Allow students the opportunity to bed their own sweetpotatoes to grow sprouts. Students would harvest sprouts/cuttings to be transplanted and grow sweetpotatoes.
  - See the Growing Sweetpotatoes Quick Activity for instructions.
  - Note: Note: In approximately 4 weeks, sweetpotato sprouts will have reached about 8-10 inches tall and produce several leaves. At this point it is time for transplanting (replanting in a different location). Carefully remove the sprouts by giving them a twist or cutting them with knife/scissors (with teacher’s supervision). Allow each student to receive a sweetpotato sprout. 11. Transplant the sprouts. Have students make note of the soil type and test the pH of the soil before planting. As we have learned in earlier lessons, sweetpotatoes need to be grown in well-

- drained, sandy, loamy soil. Prepare the soil by tilling and applying fertilizer (Miracle-Gro will be sufficient). Plant the sprouts 9 to 10 inches apart in the center of a ridge row at a depth of about 3 inches with at least 2 plant nodes (part of plant that will become stem/leaf) underground and two or more leaves above ground. Plants will need water immediately after transplanting. 12. Students will take notes about the process of the plant root system and how important a good root system is to the growth of sweetpotatoes and all plants alike. Additionally, have students to discuss the role of ATP, active transport, concentration gradients, and diffusion. The roles of each in the growth of a plant.
- Share the [NC Sweetpotatoes Ag Mag](#) with students.
- [The Science of North Carolina Sweetpotatoes](#) lesson plan
- [Understanding the history of sweetpotatoes](#)



**Subset of Standards:**

[NCCTE.AP41.03.00](#) - Summarize plant anatomy.

- [NCCTE.AP41.03.01](#) - Discuss biological terms used to describe plants.
- [NCCTE.AP41.03.02](#) - Discuss the anatomy and functions of plants.

[NCCTE.AP41.04.00](#) - Examine factors relating to plant growth and development.

[NCCTE.AP41.04.01](#) - Explain the growth process of plants.

*Thank you*  
to our partners



Ag in the Classroom

