



SC Farm Bureau
Ag in the Classroom
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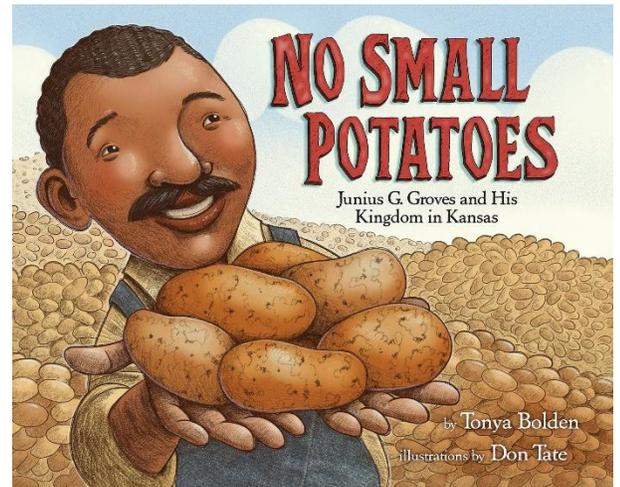


February 2019 Book of the Month

No Small Potatoes: Junius G. Groves and His Kingdom in Kansas

By: Tonya Bolden

Junius G. Groves came from humble beginnings in the Bluegrass State. Born in Kentucky into slavery, freedom came when he was still a young man and he intended to make a name for himself. Along with thousands of other African Americans who migrated from the South, Junius walked west and stopped in Kansas. Working for a pittance on a small potato farm was no reason to feel sorry for himself, especially when he's made foreman. But Junius did dream of owning his own farm, so he did the next best thing. He rented the land and worked hard!



As he built his empire, he also built a family, and he built them both on tons and tons and tons of potatoes. He never quit working hard, even as the naysayers doubted him, and soon he was declared Potato King of the World and had five hundred acres and a castle to call his own. From award winning author Tonya Bolden and talented illustrator Don Tate comes a tale of perseverance that reminds us no matter where you begin, as long as you work hard, your creation can never be called small potatoes.¹

Did You Know? (Ag Facts) ²

- 55% of potatoes produced in the US are utilized as frozen French fries.
- Idaho is the top potato producing state with over 13 billion pounds yielded annually.
- Japan, Canada, and Mexico are top export destinations for fresh and processed potatoes.

Discussion Questions

- Who were the Exodusters?
- Why is Junius called the "Potato King of the World?"
- What is the theme of the story? What can we learn from Junius?

Grade Level(s): 2-6

Purpose: Students will explore life science concepts, geography, and historical events through the growth of potatoes.

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
- **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

Background Agricultural Connections ²

The fourth most prominent crop in the world and the top vegetable crop in the United States, potatoes are not a root but an underground storage area. Strong potato plants with plenty of sunlight, water and soil nutrients generate more energy than can be used by the growing plant at once. The plant stores excess energy in oval packages known as tubers. These tubers provide the energy of the plant to grow again in the spring. When the greenery falls and turns brown, the potatoes are ready to be harvested.

After harvesting, potatoes can be stored for 2-3 months and remain dormant when kept in a cool, dark place. When the potatoes are moved to a warmer place, they start to grow within one to three weeks. Sprouts grow from the potato's "eyes," which are nodes on this enlarged underground stem. Each branch is capable of developing in to a branch and in turn grow into a shoot above the ground. As the branches grow, they use the energy from the original seed potato, which shrinks and shrinks with the consumption of starch. The plant branches will soon become bushy and have many new leaves, all of which generate energy through photosynthesis. New potatoes are now forming in the underground sections of the branches that have grown up from the seed potato.

There are thousands of potato varieties. There are different colors of potatoes, including white, red, russet, yellow and blue. Various varieties also mature at different times and can be grouped as potatoes in the early, mid and late season.

Potatoes are commercially grown in 30 states, but Idaho grows more potatoes than any other state and Washington follows them. North Dakota, Wisconsin and Colorado are also the major potato producers.

Potato Life Science ⁴

Materials:

- 2 large potatoes
 - Preferably an early-maturing variety like Yukon Gold
- *Potato Pattern*, 10 copies per student
- Paper plate
- Large pot
 - Any container that is at least 12" deep and 12" wide with drainage holes will work
- Potting soil to fill the pot
 - Choose a potting soil that contains nutrients to feed for at least two months
- Lamp or lights
 - Any lamp or light that can be positioned to shine closely and directly on the growing potato will work
- Watering can or pitcher

Procedures:

1. Provide each student with 10 copies of the *Potato Pattern*, and ask them to cut out each one. Explain that they will be using these cutouts to make a journal, and they should color the front and back covers. Ask them to write their names and the title "Potato Journal" on their front covers. Then staple the cutouts together on the top or left side.
2. Place one of the large baking potatoes on a paper plate in a location where students can easily make observations.
3. Ask students to examine the potato and describe it on the first page of their journals. They should make sure to note the date on which observations are made.
4. Ask students if they think the potato is living or nonliving. Discuss the characteristics of living and nonliving things.
5. Using the information provided in the *Background Agricultural Connections*, discuss how potatoes grow with students.
6. Explain to students that they will observe the potato to find the number of days that pass before the eyes begin to sprout. The potato contains enough nutrients, energy, and water for the plant to begin to grow without any soil.
7. Tell students that they will also observe a potato planted in soil and compare its growth to that of the potato with no soil. Show students the bag of potting soil and ask them if it is living or nonliving. Point out that the soil contains nonliving nutrients that the potato will use as it grows.
8. Plant and care for the potato as follows:
 - Fill the pot approximately one-quarter full of potting soil. Place the potato on top of the soil and cover with three to four inches of soil or until the pot is about half full.
 - Position light to shine on pot.
 - Water lightly. Do not over water or the potato may rot. After green sprouts appear, pay attention to the soil moisture and water when dry.
 - As shoots appear and get tall, cover them with more soil, and tie them to a stake.

- When flowers start to appear, stop watering to prevent the potatoes from rotting.
 - As the potato grows, it may push up the dirt around the stem or even crack the container in which it's planted.
 - After six to eight weeks, when the potato plant has finished flowering or the top starts to die, harvest the potatoes by gently pulling the plant out of the pot.
 - Lay the plant on newspaper.
 - Have students sift through the dirt to find any potatoes left behind in the pot.
9. Instruct students to document their observations of the potatoes in their journals at regular intervals (e.g., once a week).
10. As the potatoes grow, or after harvesting the first new potatoes from the potted plant, discuss the differences that students observe between growing a potato with and without soil. Discuss the importance of soil to plants as an example of the interaction between living and nonliving things. Ask students if they can think of any other nonliving things that affect plants (e.g., light, water, temperature).

Potatoes in a Bucket

Materials:

- 3 seed potatoes or small normal potatoes
- an egg carton
- a large plastic bucket
- some stones or gravel
- some compost
- a watering can

Procedures:

1. Put the potatoes into an egg carton, with their eyes at the top. The eyes of a potato are the little indents or pits you see on their skins. Leave them in a cool, dry place or windowsill for about 4 weeks until they grow shoots.
2. When the shoots are a few centimeters long, rub off most of the shoots, leaving the two which look the strongest. Then leave them to grow for another week.
3. Make some small holes in the base of the bucket. Then add a layer of gravel or stones, and half fill the bucket with compost.
4. Very gently push the potatoes into the compost with the shoots pointing up. Add a little more soil to cover the potatoes. Water your potatoes every three days.
5. As the plants grow, shoots will appear out of the compost. When this happens cover them with more soil so they are just buried. Add more compost every time the shoots appear until the bucket is completely full.

6. The plants will continue to grow and grow. Keep the compost well-watered, especially if the weather gets hot. Make sure you put the bucket next to a window, or in the garden.
7. If any potatoes appear, make sure you cover them again with compost. If you leave them in the sunlight they will turn green and green potatoes can be poisonous.
8. When flowers start growing on your plant it's a sign that the potatoes have reached a good size, so you can pick some to eat as 'new potatoes'.
9. Otherwise wait until the leaves of the plant die. Then tip over the bucket and enjoy finding the potatoes buried in the compost.



Who was Junius G. Groves?

Materials:

- *No Small Potatoes* by Tonya Bolden
- Writing journals or writing paper

Procedures:

1. Gather students to begin read aloud of *No Small Potatoes*. Before you begin reading, discuss with students their knowledge of farmers, slavery, potatoes, etc.
2. Read the book aloud to students, stopping to answer questions and focus on Junius' character traits. (There are also suggested discussion questions posted at the beginning of this document.)
3. Once students are finished, have them respond to the following questions: What kind of character traits did Junius have in order to overcome his obstacles? Why did Junius continue to persevere, even when times were tough?

*You may also choose to extend this activity as part of Black History Month and have students research Junius G. Groves further. Students could create a presentation, a timeline, or another type of product to show their learning.

Enriching Activities ⁴

- **Make potato stamps:**
 - Cut potatoes in half.
 - Have students create simple designs to carve into the meat of the potato (e.g., star, heart, circle).
 - Help students carve the designs in the potatoes using plastic knives.
 - Mix water-based paints in aluminum pie pans or other shallow dishes.
 - Instruct students to dip the potato surface into the paint, press to the surface of paper, and carefully lift the potato, leaving the print on the paper.
- **Use one or more of the following activities to integrate math with this potato lesson:**
 1. Have students conduct a survey of students in their school to find the most popular way to eat potatoes—as French fries, potato chips, mashed potatoes, etc. —and graph their results.
 2. Review your school menu as a class to see how many times a week potatoes are served and the different ways they are cooked.
 - Have students use tally marks to record findings.
 - Then, have students use the data they have collected to make bar graphs comparing the different ways the potatoes are cooked with the total number of times they are served.
 3. Have students tear potato shapes from brown construction paper and then:
 - Measure the length and width of the potato shapes in inches and centimeters, and find the perimeter of the shapes.
 - Use non-standard units of measure (beans, seeds, etc.) to measure the area of the potato shapes by first estimating how many units it will take to fill the potato shapes and then filling in the shapes and recording the data.
 4. Have students weigh different sizes of potatoes using scales and compare the weights to various classroom materials: bottle of glue, linking cubes, etc. Then instruct students to write sentences to show their results (e.g., my potato is lighter than ____, but it is heavier than ____).
- **Use one or more of the following activities to integrate English language arts with this potato lesson:**
 1. Guide students to create a classroom story to explain why a potato needs so many eyes. Use multimedia to present the story.
 2. Read a book about potatoes. (See *Suggested Companion Resources*)
 - Give each student two *Potato Cutouts*—one printed on brown paper and one on white paper.
 - The brown potato will be the cover. Instruct students to write the title and author of the book you read on the cover.
 - Next, have students divide the cover potato into three equal sections and cut it to make flaps that will lift to reveal the white potato beneath.
 - On the white potato have students write “beginning,” “middle,” and “end” under the correct flap.

- Ask students to write one sentence to retell the main idea for each part of the story and draw a picture to illustrate each of the sentences.
3. Following the potato dress up contest, ask students to select one of the following ideas to write about, and submit their writing with their potato:
- How-To: Write detailed directions to explain how you made your potato's clothes. Use transition words.
 - Persuasive: Write a detailed letter from your potato to the judge. Convince the judge to pick your potato as the winner.
 - Narrative: Write a detailed story from your potato's perspective describing a day in its life.
 - Friendly Letter: Write a letter from your potato to another potato describing what your potato likes to do.

Suggested Companion Resources

- [Tomatoes, Potatoes, Corns and Beans](#) (book)
- [Step into the Inca World](#) (book)
- [Ag Today](#) (booklets and readers)
- [Potato Goodness](#) (website)

Sources/Credits

1. Bolden, T. (2018). *No Small Potatoes: Junius G. Groves and His Kingdom in Kansas*. New York: Alfred A. Knopf.
2. [National Potato Council](#)
3. [National Ag in the Classroom](#)
4. Oklahoma Ag in the Classroom and Utah Ag in the Classroom

Suggested SC Standards Met:

English/Language Arts -

- 2.RL.5.1 Ask and answer literal and inferential questions to demonstrate understanding of a text; use specific details to make inferences and draw conclusions in texts heard or read.
- 2.RL.5.2 Make predictions before and during reading; confirm or modify thinking.
- 2.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.
- 3.RL.5.1 Ask and answer literal and inferential questions to determine meaning; refer explicitly to the text to support inferences and conclusions.
- 3.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.
- 4.RL.5.1 Ask and answer inferential questions to analyze meaning beyond the text; refer to details and examples within a text to support inferences and conclusions.
- 4.RL.6.1 Determine the development of a theme within a text; summarize using key details.
- 4.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.
- 5.RL.5.1 Quote accurately to analyze the meaning of and beyond the text to support inferences and conclusions.
- 5.RL.6.1 Determine and analyze the development of a theme within a text; summarize using key details.
- 5.RL.8 Analyze characters, settings, events, and ideas as they develop and interact within a particular context.
- 6.RL.5.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
- 6.RL.6.1 Determine a theme of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

Social Studies –

- 2-4.3 Recognize the cultural contributions of Native American tribal groups, African Americans, and immigrant groups.
- 3-4.1 Compare the economic conditions for various classes of people in South Carolina, including the elite, the middle class, the lower class, the independent farmers, and the enslaved and free African Americans.
- 4-5.2 Explain the motivations and methods of migrants and immigrants, who moved West, including economic opportunities, the availability of rich land, and the country's belief in Manifest Destiny.
- 4-5.5 Explain how the Missouri Compromise, the fugitive slave laws, the annexation of Texas, the Compromise of 1850, the Kansas-Nebraska Act, and the Dred Scott decision affected the institution of slavery in the United States and its territories.

- 4-6 The student will demonstrate an understanding of the causes, the course, and the effects of the American Civil War.
- 5-1 The student will demonstrate an understanding of Reconstruction and its impact on the United States.
- 5-2 The student will demonstrate an understanding of the continued westward expansion of the United States.
- 6-1.2 Explain the emergence of agriculture and its effect on early human communities, including the domestication of plants and animals, the impact of irrigation techniques, and subsequent food surpluses.

Science –

- 3.E.4A.3 Obtain and communicate information to exemplify how humans obtain, use, and protect renewable and nonrenewable Earth resources.
- 3.L.5A.2 Develop and use a food chain model to classify organisms as producers, consumers, and decomposers and to describe how organisms obtain energy.
- 3.L.5B.1 Obtain and communicate information to explain how changes in habitats (such as those that occur naturally or those caused by organisms) can be beneficial or harmful to the organisms that live there.
- 4.L.5 The student will demonstrate an understanding of how the structural characteristics and traits of plants and animals allow them to survive, grow, and reproduce.
- 5.L.4 The student will demonstrate an understanding of relationships among biotic and abiotic factors within terrestrial and aquatic ecosystems.
- 6.L.5 The student will demonstrate an understanding of the structures, processes, and responses that allow protists, fungi, and plants to survive and reproduce.

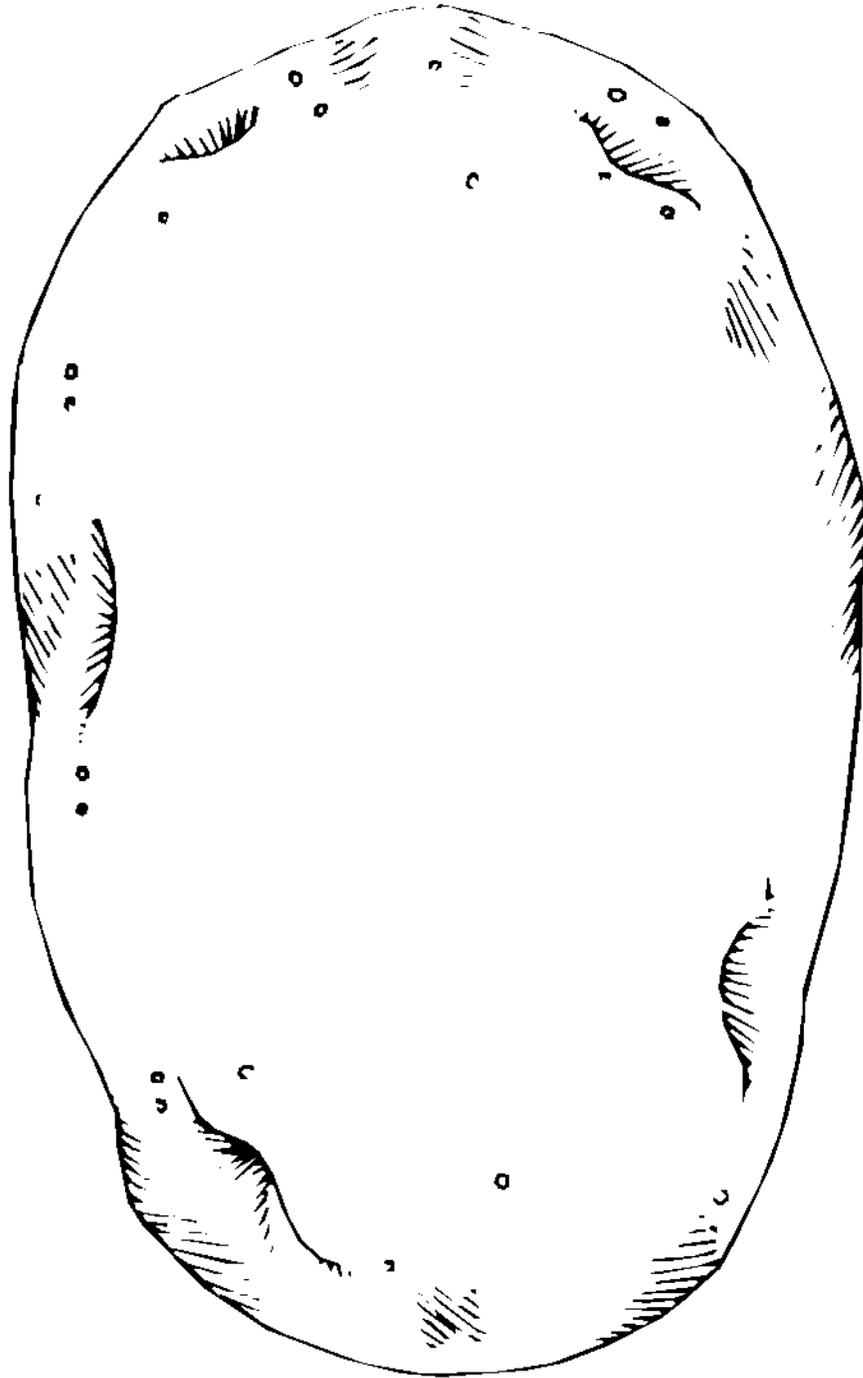
A special THANK YOU to
Walther Farms for making
this month's book possible!



Lesson Plans Available Online at

[agclassroom.org/sc](https://www.agclassroom.org/sc)

Potato Pattern



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