

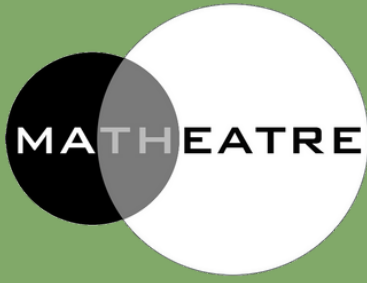
Activity and discussion guide



George Washington Carver

History Science Theatre ON DEMAND
A production of Matheatre

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George Washington Carver



Dear Teacher,

Thank you for bringing Matheatre's *History Science Theatre ON DEMAND* into your classroom or home learning curriculum. Matheatre's mission is to use live theatre to tell stories that inspire excitement about math and science. We hope that the personal storytelling and character interpretations in this video series will make the many faces of science relatable and alive for modern students.

In this guide you will find:

- A brief biography of the historical figure
- A summary of key concepts presented in the video story
- Suggested discussion questions
- Suggested activities
- Suggested reading

We believe that *stories* hold immense power to engage the imagination, foster empathy, encourage creative and critical thinking, and educate by way of entertainment. We hope the stories in this series inspire lively conversation, exploration, experimentation, curiosity, and perspective for each of your students as they make history in their own way.

Sadie Bowman
Co-founder, Managing Director
Matheatre

Who was George Washington Carver?

GEORGE WASHINGTON CARVER (1864-1943) was a botanist, agricultural scientist, artist and inventor whose research led to the modern practice of crop rotation. Due to the powerful nitrogen fixing properties of the peanut plant, he helped popularize peanuts as an agricultural commodity in order to support their growth as a healing practice for overtaxed cotton fields, and advocated for conservation and responsible stewardship of the land. While it is a popular myth that he "invented" peanut butter, he rather worked to popularize a peanut-based paste originally developed by

indigenous peoples of South America, along with many other uses for the wonderful peanut plant.

After the cotton industry depleted Southern farmland and many white land holders abandoned the fields they had used up, Carver used science to help the mostly Black farmers who remained work their way out of poverty. A well loved and popular teacher, Dr. Carver was also a talented artist and developed paint with plant pigments for beautiful paintings that depicted the natural world.

Key lesson concepts:



Plant pigmentation



The nitrogen cycle



Mathematics in
nature



Using science to
benefit humanity

Dr. Carver in his laboratory



Suggested discussion questions

- Dr. Carver loves plants and was very good at making them grow in a garden. Do you have a garden and if so, what do you grow? If you don't have one, what do you imagine you'd like to grow?
- Dr. Carver describes his early childhood as an enslaved person in the American South, and the many barriers to education faced by Black Americans because of white supremacy. Mr. and Mrs. Carver taught him to read but most enslaved children were not so lucky. What is powerful about learning to read and accessing education?
- Dr. Carver is a talented painter as well as a brilliant scientist. Do you think understanding science changes the way you appreciate art, or vice versa? Why?



Suggested activities

Make paint out of plants!
Here's Dr. Carver's recipe:



- With help from an adult, pour two cups of boiling water over a fruit or vegetable (berries like blueberries or raspberries work GREAT!).
- Let sit for 10 minutes, then mash it with the back of a spoon.
- Mix in 6 teaspoons of powdered sugar
- Paint a picture!



Dr. Carver and one of his paintings

Suggested discussion questions

- Legume plants help soil maintain an element called nitrogen that plants need to grow. What are some other elements you associate with plants? Hint: all plants emit an element that humans and other animals need to breathe! *(for more about elements, see our History Science Theatre ON DEMAND program featuring Marie Curie!)*
- Dr. Carver mentions his friend, a white lady, who wrote a letter to ask the university to accept him, even though at the time they had a policy that prevented Black students from enrolling. Why is it important for people who have privilege to advocate for equality?
- Dr. Carver believes in using science to save the world. What is a problem you see in the world today that you could help using science?



The Tuskegee Institute in Alabama where Dr. Carver taught agricultural science

Suggested activities

- **Take Dr. Carver's botany math challenge!** Go outside (or look out the window if you can't go outside) and draw a picture of something you see in nature. As you draw, think about math! Count the petals of a flower or lobes of a leaf, observe symmetry of a tree or contours of a rock, look for shapes and patterns, etc.



- **Grow a plant in your own kitchen!** Take an avocado pit and using toothpicks, suspend it over a small glass of water. Put it in a spot with lots of sunshine, and see if it will sprout! What other vegetables can you re-grow? Try celery, pineapples, onions...



- **Look up new recipes to use peanuts!** Peanuts can be used to make sandwiches and cookies but also soups, curries, and other delicious dishes. If you're allergic to peanuts, try sweet potatoes! Sweet potatoes are another plant that fixes nitrogen in the soil.

Suggested reading

A Weed is a Flower: The Life of George Washington Carver

BY ALIKI

The Nitrogen Cycle

BY BOLD KIDS

Young Trailblazers: The Book of Black Inventors and Scientists

BY M.J. FIEVRE

Save The Land

BY BETHANY STAHL



Modern day George Washington Carvers!

Botanists, biologists, horticulturalists, farmers, gardeners, naturalists, ecologists, arborists, biochemists and other scientists are still learning about plants and the natural world.

It's hard to know what George Washington Carver would be up to if he were around today, but many, many people are expanding on his work in botany, chemistry, and agricultural science.

Community gardeners like Sarah, pictured here, work with plants to make the world a better place. Sarah says *"I love to grow plants that feed people! Everywhere I go the world is full of plants, and also hungry people, and I think it's really beautiful to watch a plant grow up, make flowers, and then make food. It's like having good friends; if I take care of my garden, then my garden will always take care of me."*

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DEMAND is a
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Les Kurkendaal-Barrett!

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