

Discovery Theater



Recommended for
Ages 7 to 11
Grades 2 to 6



LIONS OF INDUSTRY, MOTHERS OF INVENTION

A Reproducible Learning Guide for Educators

This guide is designed to help educators prepare for, enjoy, and discuss Seasons of Light. It contains background, discussion questions and activities appropriate for Ages 5-10.

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The Nora Roberts Foundation, Smithsonian Women's Committee, Sommer
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Smithsonian Associates

Discovery Theater ● P.O. Box 23293, Washington, DC

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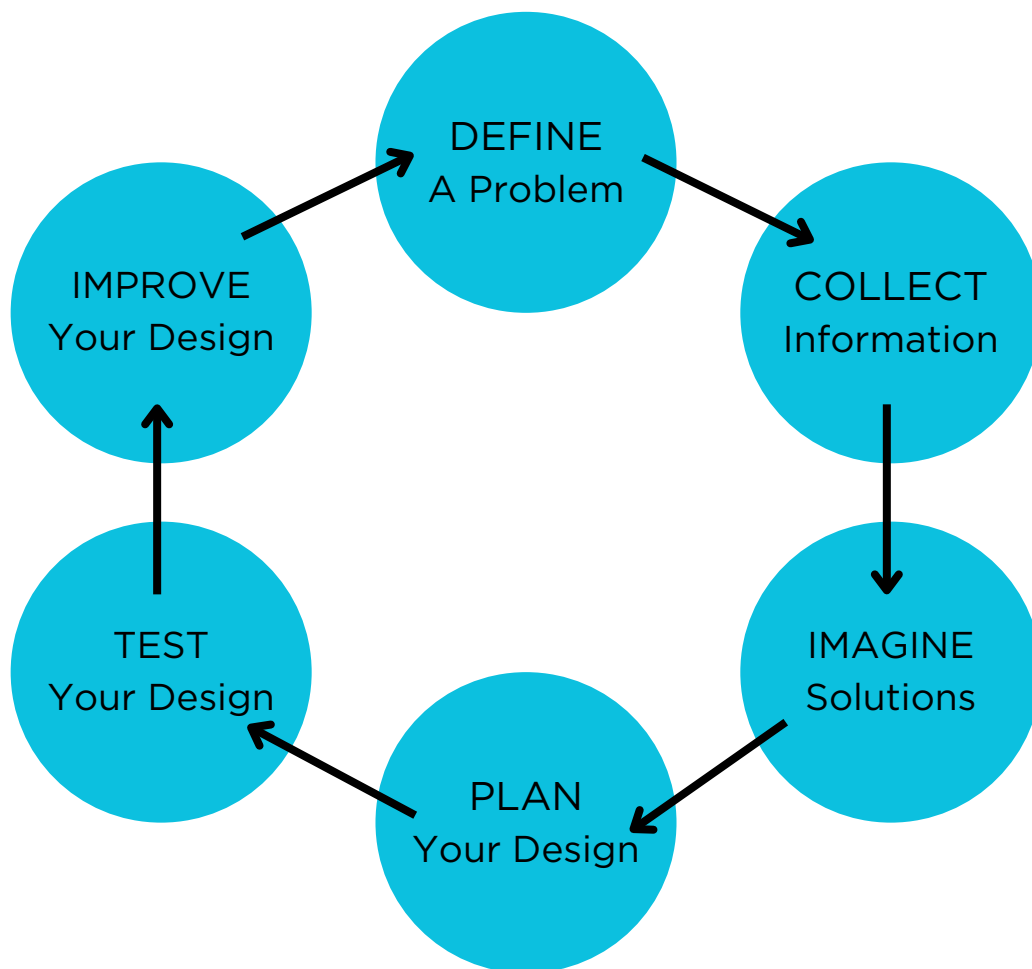
ABOUT THE PLAY

Beauty magnate Madame C.J. Walker, agricultural chemist and “peanut man” George Washington Carver, education pioneer Booker T. Washington, and even cranky chef George Crum, who accidentally created the potato chip, all take center stage in this vibrant living-history production. This original, interactive play, written by Jacqueline E.

Lawton, honors the creativity and genius of African American entrepreneurs and inventors - and inspires the achiever in all of us. Come and join a science fair of Carver’s inventions using the peanut, hear Washington’s great oratory, and be inspired by the story of the world’s first female, self-made millionaire!

THE DESIGN PROCESS

Being an inventor requires some big thinking! Inventors, Entrepreneurs, Designers, and Engineers use a series of steps to create called **The Design Process**. The important thing to remember about the process is that it is a cycle! When you have a problem that you are solving, you might not have the solution the first time around.



GEORGE WASHINGTON CARVER

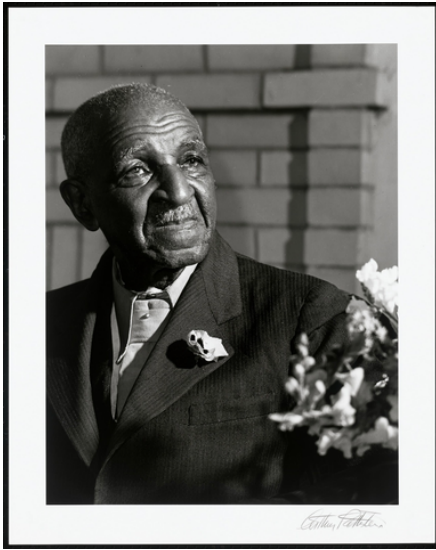


Photo from
Smithsonian National Portrait Gallery

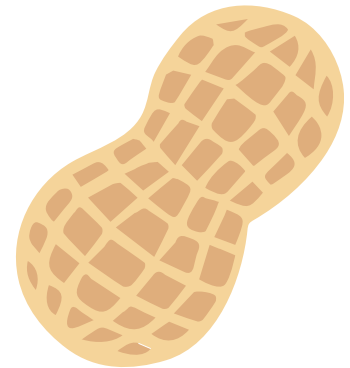
Born an enslaved person in the 1860s in Missouri, George Washington Carver became one of the most famous Black scientists and inventors for his invention, peanuts.

In order to share the knowledge that he had learned while researching as a botanist, Carver created a mobile laboratory. The Jesup Wagon traveled across the country to teach former enslaved people about agriculture and managing livestock.

Carver was the first Black person to graduate from Iowa State College and taught at Tuskegee Institute.

LEGUME LIFE CYCLES

George Washington Carver worked with **legumes** which is the family of plants that peanuts are a part of. This plant family is known for having an edible seed called a **pod**. String beans, chickpeas, and lentils join the peanut in this family of plants.



Experiment Time!

Inspiration for this activity came from [ScienceFun](#). Let's observe how legumes grow and see some of George Washington Carver's research in action with this gardening activity!

Materials:

- 1 pinto bean
- 1 sealable plastic bag
- 1 paper towel
- Spray bottle for water

Instructions:

- Dampen the paper towel with spray bottle
- Place the wet paper towel in the plastic bag
- Place the bean on top of the paper towel
- Seal the bag and put it in a warm sunny spot
- Add water to paper towel as it dries out
- Check back in 3-5 days to see your bean start to grow!

BOOKER T. WASHINGTON

Booker T. Washington was born on April 5, 1856 as a slave on the 207-acre farm of James Burroughs.

Washington started the Tuskegee Institute in Alabama. When the school opened in 1881, the school taught both academic and trade skills to newly freed African Americans. By teaching formerly enslaved African Americans these skills, it gave them opportunities to make money and to teach others.

Later as an adviser, author and orator, his past would influence his philosophies as the most influential African American of his era. His book *Up from Slavery* inspired Madam CJ Walker as well as many other African Americans.



Photo from
Smithsonian National Portrait Gallery

Discussing the Show: Before and After

Before the Show

- Think of a time when you have had a problem. How did you solve that problem? What skills did you use to solve the problem?
- Have you ever heard the saying, “Necessity is the Mother of Invention”? What do you think it means? Is it true? Can you think of any examples?

After the Show

- Why do you think the title of the play is *Lions of Industry, Mothers of Invention*?
- What qualities or characteristics are needed for someone to be an inventor or entrepreneur?
- How did the people we met in the play come up with their ideas?
- What is one lesson you learned from the play?

SARAH BREEDLOVE



Photo from
Smithsonian National Portrait Gallery

Born in Louisiana in 1867, Sarah Breedlove, who later became known as **Madam C.J. Walker**, was the first Black woman to become a self-made millionaire.

The path to becoming a millionaire was filled with hard times and great successes. She faced money problems, hard work, and problems like hair loss. This led her to create a line of hair care products for Black women that would help grow their hair.

One of Walker's successes came from "The Walker System" which was a process for caring for hair that made her products more important and necessary for her customers. She was able to not only invent the products, but also educate people how her products were used. Throughout her career, she hired thousands of Black workers to bring her system to the Nation.

PITCH YOUR INVENTION

Through the invention of her "Walker System" of hair care and cosmetic products, Madam C.J. Walker had to show how useful her products were to both her employees and her customers. How would you sell the next great invention? Imagine. You have created something that is going to make your everyday life a breeze. You just have to convince everyone else that they need it.

MATERIALS: an object easy to pass

INSTRUCTIONS

- Instruct the class to sit in a circle
- Pick one object. Example: hair brush
- Pass the object. Each student says "This is a hair brush but it's also a ____". Say what new invention the object has become. Now in 30 seconds or less, explain why it is the best new invention for the everyday person. Make it too good to turn down!
- Continue to pass the object until your class runs out of ideas
- Try with a new object!



Photo from
National Museum of African American
History and Culture

Vocabulary

Aspire - to have an ambitious plan or lofty goal

Entrepreneur - one who organizes, manages, and carries the risks of a business or enterprise.

Invent - to create something for the first time through the use of the imagination or of original thinking or experiment.

Obstacle - something that stands in the way. George Washington Carver's obstacle was that he had weak lungs and couldn't pick cotton in the fields like other children.

Patent - a writing granting to an inventor for a term of years the only right to make, use, or sell his or her invention

Other Important Black Inventors and Entrepreneurs

Alfred Cralle invented the ice cream scoop. A patent was issued in 1897 for this scoop.

George Crum was a mixed race trapper who then became a cook at Moon Lake Lodge. He is known for inventing the potato chip.

Lewis Howard Latimer created the incandescent light bulb.

Jan Matzeliger was an African-American inventor in the shoe industry. He patented a machine that could produce up to 700 pairs of shoes a day.

John H. Murphy was a former slave who founded the Afro-American newspaper in 1892.

Jean Baptiste Point Du Sable set up a trading post and became known as the founder of Chicago.

Maggie Walker was the black woman banker who opened the St Luke Penny Savings Bank and served as president.

Accidental Invention Trading Cards

There are plenty of other "Oops" moments in history that have led to important inventions. George Crum's Potato Chip is a great example of an invention having a very different use from the original intent. Some other examples include: Silly Putty, Instant Ramen, Sticky Notes, Penicillin, and Coca-Cola.

The next page gives you a template to make trading cards for different "Oops" Inventions throughout history. Research 2 to 3 different accidental inventions and collect the ones that your classmates could not live without!

Trading Card Template



Invention:

Inventor:

What Was it Supposed to Be?

Fun Fact:



Invention:

Inventor:

What Was it Supposed to Be?

Fun Fact:



Invention:

Inventor:

What Was it Supposed to Be?

Fun Fact:



Invention:

Inventor:

What Was it Supposed to Be?

Fun Fact:

BOOKS AND MEDIA

- **What Color is My World?: The Lost History of African-American Inventors**, by Kareem Abdul-Jabbar and Raymond Obstfeld. Discover a lineup of some little-known Black Inventors who have shaped our everyday lives. (Ages 8 to 12)
 - **Young Trailblazers: The Book of Black Inventors and Scientists**, by M.J. Fievre. (Ages 8 to 12)
 - **Madam C.J. Walker and New Cosmetics**, by Katherine E. Krohn. In this Graphic Novel, Madam Walker's rise and life is shown for readers of all ages. (Ages 8 to 14)
- **Mr. Crum's Potato Predicament**, by Anne Renaud. Legend mixed with fact on the tale of George Crum inventing the potato chip. (Ages 4 to 8)
- **The Kids' Invention Book**, by Arlene Erlbach. Profiles 11 inventors and entrepreneurs aged 8 to 15. For ages 9-12.
 - **Kids Inventing! A Handbook for Young Inventors**, by Susan Casey. Ages 9-12.
 - **The History of Everyday Life**, by Elaine Landau. Describes the inventions that revolutionized the household, like central heating, indoor plumbing, washing machines, and microwave ovens. Ages 9-12.
 - **Brainstorm!: The Stories of Twenty American Kid Inventors**, by Tom Tucker. Tales of young inventors from colonial to modern times, including girls and kids from ethnic minorities. Ages 9 & up.
 - **Girls Think of Everything : Stories of Ingenious Inventions by Women**, by Catherine Thimmesh and Melissa Sweet. "A inspired ode to women inventors" for ages 8 & up.
- Explore the **Lemelson Center for the Study of Invention and Innovation**. Their website can be found here: <https://invention.si.edu/explore/invention-stories>
- **National Geographic Kids: Black Scientists and Inventors**. Read about some important Black figures in STEM.
- **The U.S. Patent and Trademark Office Kid's Page** has games and more for students, teachers and parents.
- Search the **National Invention Hall of Fame** for different inventors.

Check out Discovery Theater on Smithsonian Learning Lab:
www.learninglab.si.edu/q/ll-c/85ytqAT21jm9DRPG

OUR MISSION: “THE INCREASE AND DIFFUSION OF KNOWLEDGE”

Smithsonian Associates advances the Institution’s mission through life-enriching educational and cultural experiences inspired by the Smithsonian’s research and collections for DC-region students, families, and adults, and for learning communities nationwide.

Discovery Theater has been presenting DC-area children with live educational performances for more than 30 years. With programs that enrich the Smithsonian experience for nearly 50,000 children annually, Discovery Theater is a gateway to the exhibits, collections, and themes contained in the museums and galleries on the National Mall and beyond. We explore American history and cultures, folk tales from around the world, and exciting, accessible science and math programs in the company of puppeteers, storytellers, dancers, actors, and musicians. Discovery Theater performances unite ideologies, enact themes that reflect the diversity of its audiences, open avenues of self-reflection, and offer an enjoyable means for parents and teachers to demonstrate life’s lessons.

There’s so much to do and explore at the Smithsonian—and Discovery Theater is the ideal place to begin! For more information, please visit our website

www.discoverytheater.org



Smithsonian Institution

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