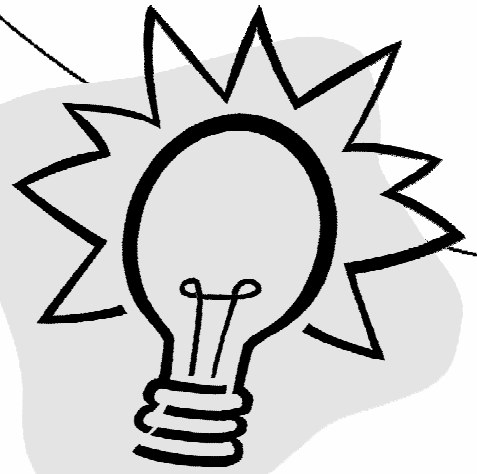


Discovery Theater

presents



Lions of Industry, Mothers of Invention

an original play by Jacqueline E. Lawton

A REPRODUCIBLE LEARNING GUIDE FOR TEACHERS.

This guide is designed to help you and your students prepare for, enjoy, and discuss *Lions of Industry, Mothers of Invention*. It contains background information, discussion questions and activities. Appropriate for ages 8-15.



The Smithsonian Associates

Discovery Theater Artistic Director:
Roberta Gasbarre

Learning Guide Text & Layout:
Anne Stewart O'Donnell

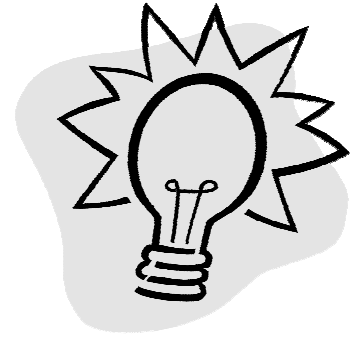
*Discovery Theater programs are made
possible, in part, by gifts from*

Guenther and Siewchen Yong Sommer

(202) 633-8700 • DTinfo@DiscoveryTheater.org • DiscoveryTheater.org

See our website for tickets, location, directions, resources for teachers, and much more!

Ideas Unlimited



What's wrong with these statements?

- **Inventors** are serious, brainy, respected grown-ups with fancy computers, microscopes, and test tubes.
- **Entrepreneurs – people who take chances and found new businesses** -- are serious, brainy, respected, *rich* grown-ups in suits who make money all day.
- In fact, **to make a difference in the world**, you need to be a serious, brainy, respected grown-up, and probably an actual genius. Money helps, too!

Lots of people think like this, but they're wrong. Oh, sure, *some* inventors are like that, and so are some businesspeople – and some of the people who have changed the world. And that's okay. But to make a change for the better – large or small – mostly **what you need is an idea, some creativity, and the belief that you can make it happen.**

Need some proof? Just look at some of the people who have made a difference:

- **York** was a slave who helped guide Lewis and Clark, the explorers who mapped and charted the territories west of the Mississippi River for President Thomas Jefferson.
- **Sarah Breedlove** washed other people's clothes *by hand* -- hard, hot, back-breaking work – before she taught herself to read, invented a hair tonic in her kitchen, and sold it door-to-door until she became the millionaire businesswoman Madame C. J. Walker.
- **Krysta Morlan** was a 10th-grader with cerebral palsy who had to spend months in a cast. It was hot and sticky until she invented the Cast Cooler to pump air in under the cast. Her next invention was the Waterbike, which let her build up her leg muscles by riding in the swimming pool.

Thousands more Americans like these have changed our world bit by bit, some in big ways and some in small ways. Some people got credit for their **innovations**. A lot of them didn't. But they didn't let that stop them. **They believed in themselves and their ideas – and kept on trying to make them happen.**

What's the Big Idea?

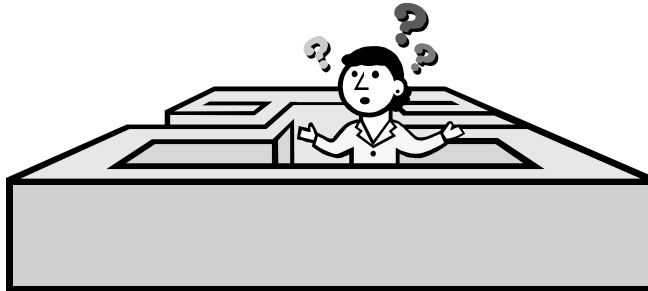
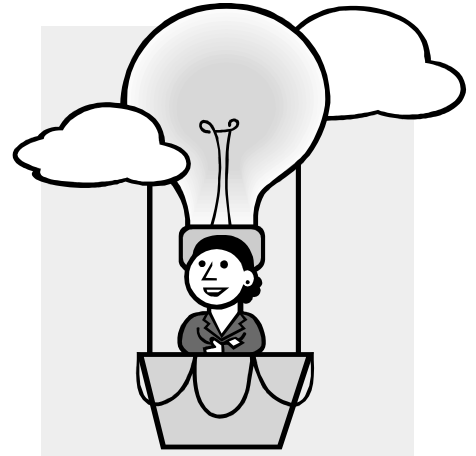
What all these inventors and world-changers have in common is that they **solved a problem or filled a need**. Sometimes it was a need for information. Sometimes it was the problem of how to do something for the first time ever – like invent the electric light bulb! Other times, it was how to do something people were doing already – but in a way that was faster, easier, cheaper, or simply more fun.

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?

Many of these problem-solvers have been African-Americans. That makes sense, because African-Americans have had a lot of problems to deal with – slavery, unfair systems like sharecropping, and segregation. But, like everyone else, African-Americans have **creativity** and **commitment**. And when creative people see a better way to do things, and work hard to make it happen – the sky can be the limit!

The same thing is true for YOU. **Look around you. Listen, too.** If you hear people say, “I wish there was a way to ... “ or “It isn’t fair that ...” or “I wonder why ... “ or “Somebody ought to fix that,” then you’ve just gotten a clue. **There’s an idea in the making – and the person who can make it is you!**



For Discussion Before the Show

What people can you think of who have had ideas and made a difference? Discuss what you know of them and their achievements. What was the problem they saw and how did they solve it? Did any of them have hardships to overcome on the way to success?

What helped these problem-solvers along the way? What skills did they need to develop? What qualities within them helped? (Hint: Think about such things as education; going out to make things happen instead of waiting for a chance to come to you; willingness to work; determination - trying again and again; inspiration; mentors to help along the way.)

For Discussion After the Show

Who were some of the people you learned about in *Lions of Industry, Mothers of Invention*? What were their achievements? how did they get their ideas? What obstacles did they have to overcome? What helped them to do that?

Who impressed you the most? Why?

What good advice can you take away from the show?

About the Playwright, Jacqueline E. Lawton

Actress, dramaturg, playwright and teaching artist Jacqueline E. Lawton received her MFA in Playwriting from the University of Texas at Austin in 2003. She currently resides in Washington DC, where she has worked with Active Cultures, Arena Stage, African Continuum Theatre Company, Extreme Exchange, Folger Shakespeare Library, Ford’s Theater Society, Journeymen Theater Ensemble, Rorschach Theatre Company, Round House -The Kitchen, Shakespeare Theater Company, Theater Alliance, Woolly Mammoth Theatre Company, and Young Playwrights’ Theater.

Activities

The Hall of Future Fame

Legendary pitchers are honored with a place in the Baseball Hall of Fame, a museum in Cooperstown, New York. There's an Inventor's Hall of Fame, too, and lots of other Halls of Fame as well.

What will **you** be famous for? Will you be the first human to go to Mars or live in a house under the ocean? Will you set up the first television network (or the first Fortune 500 company) run completely by kids? Will you invent something that changes the world – or something that makes life more fun?

Write a news story, with headlines and “photographs,” about your future self, your famous accomplishment, and what advice you'd give to young people coming after you. OR—make a poster of the future famous you.

Hang up all the stories and posters -- make a Future Hall of Fame for your class!

Do It Edison's Way

Thomas Edison said, “**To invent, you need a good imagination and a pile of junk.**”

Well? Don't just stand there—*find a pile of junk!*

Take a box and fill it with all sorts of things – a paper clip, an old button, a plastic thingy you found at the back of your closet, pieces from a broken toy, a busted balloon left over from your last birthday party – whatever. Ask your friends and neighbors to donate junk to your Inventor's Box – people love to get rid of stuff!

Then...reach into the box and **start inventing!**

Use Your Nut! A Game to Play with Your Friends

George Washington Carver took the lowly peanut and turned it into amazing things – like linoleum and shaving cream! See if you can do the same thing.

- Have each player (or team) **secretly** think of a common, everyday object (or snack food!) and write it down on a slip of paper. Fold the papers and drop them into a box.
- Choose a slip from the box and read what's on the paper out loud. Set a timer for 5 minutes.
- Working fast, each player (or team) should list as many uses for that object as possible – the wilder the better! (Serious uses are okay, too.)
- When time's up, read the lists. Were there uses everyone thought of? What were the strangest ideas? What were the funniest ones?
- Were there any brilliant ones that you think could really catch on?

Research: Your Favorite Things

- What is your favorite fun and nifty gadget?
- What's your favorite boring thing that makes life easier—something you'd really hate to give up? (Toilet paper? Toilets??? Scissors? Spoons?)
- Choose one of these two things. At the library or on the internet, look it up. Who invented them—or did they just seem to “come to be”? How? When did people start using them? What did the first ones look like? What were some of the strangest versions?
- What are the latest variations or improvements?
- What ways can YOU think of to make them even better, or more fun?
- Write a report or make a poster to share what you find out with your friends.

For Older Students: Look It Up!

There are **three legal ways** people can use to make sure they get credit for certain kinds of ideas. Hundreds of the objects you see or use each day are protected in one of these ways.

- What's a **patent**?
- What's a **trademark** (and what is its symbol)?
- What is **copyright** (and what is its symbol)?

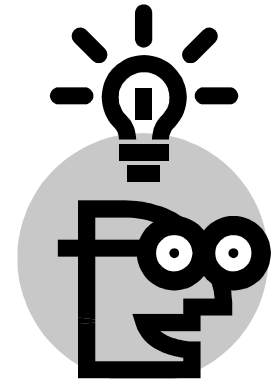
How are each of these different? What does it mean to **infringe** on one of these legal protections?

How has **infringement** been in the news recently? (Hint: Google “music download infringement” or “India yoga patent.”)

Do you think these protection laws are a good idea, or not?

What do YOU think?

- For years and years, people have used a picture of a **light bulb** to **symbolize** a new idea.
- Why do you think this is so? How is an idea like a light bulb?
- What other symbols could you use to mean “idea”? Draw a picture of yourself having an idea like that!



Extra Credit – Not all light bulbs are created equal! The light bulb that is so often used to mean “idea” is an **incandescent light bulb**. What exactly is an “incandescent bulb?” What other kinds of light bulbs have been invented since then incandescent bulb? What are their advantages and disadvantages? Why is it that the incandescent bulb may not be legal much longer? What kind of bulb will cartoonists use for “idea” in the future?

Extra Extra Credit – Who REALLY invented the incandescent light bulb? (If you haven't seen the show yet, it may not be who you think!) Do some research and write a “news story” about the invention of the bulb.

Vocabulary

Creativity – the ability to produce through imaginative skill.

Entrepreneur – one who organizes, manages, and assumes the risks of a business or enterprise.

Imagination – the power to create a mental image of something not present to the senses; ability to confront and deal with a problem; resourcefulness.

Innovate – to introduce something new.

Inspiration – something that moves the intellect or emotions

Invent – to produce something for the first time through the use of the imagination or of ingenious thinking or experiment.

Mentor – a trusted advisor or guide.

Obstacle – something that stands in the way.

Opportunity – a good chance for advancement or progress.

Related Resources

-***Up From Slavery: The Autobiography Of Booker T. Washington.*** The book that inspired Madame C. J. Walker is one of the great American autobiographies.

-***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.

-**invention.smithsonian.org** – website of the Smithsonian's Lemelson Center for the Study of Invention and Innovation. Information about Krysta Morlan, plus exciting stories, activities, lesson plans, and more to help kids learn about past inventors and inventions, and think like an inventor themselves.

-**www.uspto.gov/go/kids** -- the U.S. Patent and Trademark Office Kid's Page. Games and more for varied ages (even teachers and parents!).

-**www.emeagwali.com/african-american/upscale/african-american-inventors.html** -- stories of today's African-American inventors.

-**inventors.about.com/od/blackinventors/a/Black_History.htm** – lists hundreds of African-American patent holders, with links to biographies and other info.

-United States Patent and Trademark Office Museum – located in Alexandria, VA, this museum showcases inventions and inventors. Details:
www.invent.org/about_invent_now/4_3_1_ptomuseum.asp.

-www.invent.org/hall_of_fame/1_0_0_hall_of_fame.asp -- the Inventors Hall of Fame, with oodles of info about hundreds of inventors who are famous – or ought to be! Search by invention, inventor, or decade.

About Discovery Theater

Discovery Theater, the Smithsonian Institution's theater for children, has been dedicated to offering the best in live performing arts for young people since 1979. Each year, more than 50,000 Washington-area children and their adults visit DT (now located in the Smithsonian's S. Dillon Ripley Center on the National Mall in Washington, DC) to 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, musicians and mimes. DT 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.

DT frequently collaborates with distinguished partners such as The Library of Congress, The United States Holocaust Memorial Museum, The Lemelson Center for Study of Invention and Innovation, and America's Jazz Heritage, A Partnership of the Lila Wallace-Reader's Digest Fund and the Smithsonian Institution. Some of our favorite programs are also going on tour, and our partnership with Round House Theater in Silver Spring, MD means that DT's special brand of educational entertainment for kids is more widely available than ever before. For details, call (202) 633-8700 or see www.DiscoveryTheater.org.

