

The Real McCoy: The Life of an African-American Inventor

Grade Level: 3rd Grade

Duration: 1-2 class periods

Maryland Voluntary State Curriculum (VSC):

Economics Standard: Students will develop economic reasoning to understand the historical development and current status of economic principles, institutions, and processes needed to be effective citizens, consumers, and workers participating in local communities, the nation, and the world.

- 4.A.3.a Describe how changes in technology have affected the lives of consumers such as UPC bar codes and online shopping (Grade 3)
- 4.A.3.b Describe how changes in technology have affected lives of producers, such as robot-powered assembly lines (Grade 3)

Reading Standard: Students will use a variety of strategies to understand what they read (construct meaning).

- 1.E.4 Use strategies to demonstrate understanding of the text (after reading) (Grade 3)
- 3.A.1.a Listen to critically, read, and discuss a variety of literary texts representing diverse cultures, perspectives, and ethnicities and time periods (Grade 3)

Objectives:

- Students will be able to describe the importance of Elijah McCoy's invention.
- Students will be able to describe how the changes in technology brought about by McCoy's invention affected the lives of producers and consumers.

Vocabulary/Concepts:

Consumer- An individual or group who uses resources, goods and services to satisfy economic wants.

Patent-an official document issued by the U.S. government granting the exclusive right to an invention

Productivity- producing more using the same or less amount of labor

Producer- An individual or group who combine economic resources to make goods and/or services.

Technology-Skills, methods, tools, machines and other things used to perform activities. Technology changes over time and affects the way we live, work, and play.

Materials:

For Teacher

Towle, W. *The Real McCoy: The Life of an African-American Inventor*. New York: Scholastic, 1993.

Sand Paper

Vaseline

Teacher Resource Sheet #1, "Expressions Cards"
Teacher Resource Sheet #2, "Meaning of Expressions"
Teacher Resource Sheet #3, "Patent Drawing for McCoy's Oil Cup"

For Student

Student Resource Sheet #1, "Elijah McCoy Problem/Solution Outline"
Student Resource Sheet #2, "Gallery of Inventors Exhibit Entry"

Resources:

For Teacher

Five Notable Inventors Lesson Plan. Maryland Council on Economic Education.
www.econed.org

For Student

Hudson, Wade. *Five Notable Inventors*. New Jersey: Scholastic, 1995.

Lesson Development:

Teacher's Note: Prior to conducting this activity, cut out the cards from Teacher Resource Sheet #1. You may wish to laminate them so that they can be used again.

1. **Motivation:** Distribute one of the cards from Teacher Resource Sheet #1 to each student. Tell students that they will have five minutes to find the card that matches their own. Model the activity using a student volunteer. After five minutes, call time and have student pairs tell the class who their partner is and why. Make sure that students have the correct match ups (Teacher Resource Sheet #2). Ask students if they have ever heard the term "the Real McCoy." Tell them that they will be reading about the origins of the term and the man who inspired it.
2. Read *The Real McCoy* by Wendy Towle.
3. Distribute Student Resource Sheet #1, "Elijah McCoy Problem/Solution Outline." Display a transparency of the Resource Sheet. Ask students: Do you remember the problem that McCoy faced when he was an oilman on the railroad? Revisit the page of the book that begins with "Elijah was also the oilman of the train..." (*He had to lubricate the axles, bearings and other moving parts of the each railroad car every few miles and then race back to the firebox to do his duties as a fireman.*) Record student answers.
4. Ask students to hypothesize why it was so important to lubricate the moving parts of the train.
5. To illustrate the importance of lubrication break students into small groups. Distribute two pieces of sandpaper to each group. Have students rub the pieces of sandpaper together and describe what happens. What would happen if they rubbed the two pieces together for hours or days? What could be done to prevent this?

Have students spread Vaseline on both pieces of their sandpaper. What happens when they rub the sandpaper together now? (*Lubricating the sandpaper makes it easier for the parts to move and causes less friction.*) Tell students that this is the reason why the moving parts on a train need to be lubricated and why the job of oilman was so important to the running of the train.

6. Return to Student Resource Sheet #1. Record McCoy's problem.
7. Tell student pairs to revisit the next few pages of the book in order to fill in the "Solution" section of the graphic organizer. Display Teacher Resource Sheet # 3, "Patent Drawing for McCoy's Oil Cup."
8. Display the definition of producer. Ask: How did McCoy's invention affect the lives of producers? (*It helped to increase the productivity of the trains. Increasing productivity means producing more using the same or less amount of labor. The trains could travel from one place to another in less time because they didn't have to stop so often. Oilmen could spend their time doing other things.*) Record answers on transparency.
9. Display the definition of consumer. Ask: How did McCoy's invention affect the lives of consumers? (*The time it took to transport goods and the amount of workers needed to work on the trains were reduced. This would make the cost of transporting goods cheaper. The price of consumer goods would be cheaper.*) Record answers. Discuss.
10. Display the expression "The Real McCoy." Ask: What does the expression "The Real McCoy" refer to? (*While many people tried to imitate McCoy's oil cup, train engineers could tell the difference. Because of this, they always asked for "The Real McCoy."*)
11. **Assessment:** Tell students that the Baltimore Museum of Industry is sponsoring a student produced exhibit entitled "Gallery of Inventors." Distribute Student Resource Sheet #2, "Gallery of Inventors Exhibit Entry." Have students individually complete the assessment. Have student volunteers share their entries.
12. **Closure:** Explain that McCoy developed solutions to problems he saw in his everyday life. Reinforce this idea by discussing his other inventions: an ironing table, lawn sprinkler, and a better rubber heel. Ask them to identify some everyday problems that they face and brainstorm inventions that might solve those problems.

Expressions Cards

A Dime A Dozen	Very Common, Cheap
All Tuckered Out	Tired
Hit the Hay	Go to bed
Mad as a Wet Hen	Very Angry

On Thin Ice	In Danger
Playing Possum	Pretending to Sleep
Rain Cats and Dogs	Raining heavily
Red Letter Day	A lucky or fortunate day

Smart as a Whip	Bright, Clever, Alert
Tickle the Ivories	Play the Piano
Tickled Pink	Very delighted, pleased
Under the Weather	Sick

Whole Nine Yards	Everything
Break a Leg	Good Luck
Kick the Bucket	To die
Sour Grapes	Act mean after a disappointment

Meaning of Expressions

A Dime a Dozen- Very common, cheap

All Tuckered Out- tired

Break a Leg- Good Luck

Hit the Hay- go to bed

Kick the Bucket- to die

Mad as a Wet Hen- Very angry

On Thin Ice- in danger

Playing Possum- pretending to sleep

Rain Cats and Dogs- to rain very heavily

Red Letter Day- a lucky or fortunate day

Smart as a Whip- Bright, clever, alert

Sour Grapes- act mean after a disappointment

Tickle the Ivories- play the piano

Tickled Pink- very delighted, pleased

Under the Weather- sick

Whole Nine Yards- everything

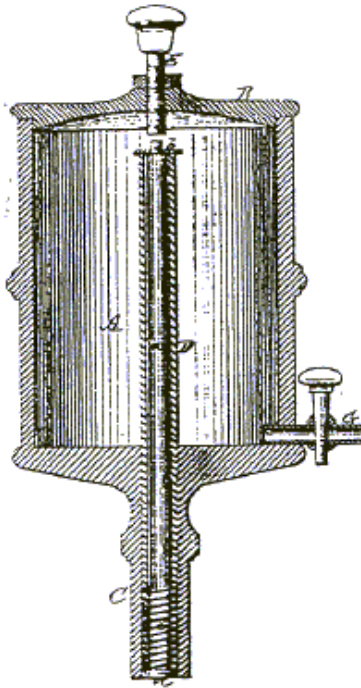
Patent Drawing for McCoy's Oil Cup

E. McCOY.

Improvement in Lubricators for Steam-Engines.

No. 129,843.

Patented July 23, 1872.



Witnesses
John A. Ellis
C. H. Weston

Inventor
Elijah McCoy
Per
Wm Alexander &
Attys.

<http://www.usi.edu/science/engineering/MISC/emccoy/emccoy.htm>



Elijah McCoy Problem/Solution Outline

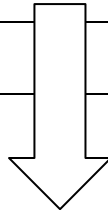
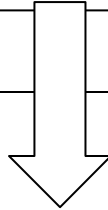
PROBLEM:

SOLUTION:

END RESULTS

Impact on Producers:

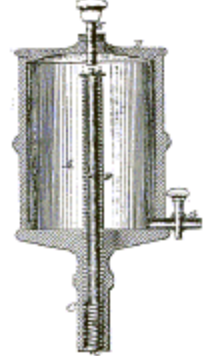
Impact on Consumers:



Student Resource Sheet #2

Gallery of Inventors Exhibit Entry

Automatic Lubricator



Patent # 129,843
July 23, 1872

Name of Inventor: **Elijah McCoy**

Name of Invention:

Purpose of the Invention:

Draw a picture of how the invention impacted producers:

A large empty rectangular box with a black border, intended for drawing a picture of how the invention impacted producers.

Draw a picture of how the invention impacted consumers:

A large empty rectangular box with a black border, intended for drawing a picture of how the invention impacted consumers.