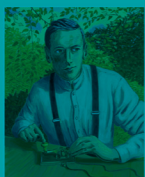


MAKING CONTACT!

MARCONI GOES
WIRELESS



Monica Kulling Illustrated by Richard Rudnicki

GOING UP!

ELISHA OTIS'S
TRIP TO THE TOP



Monica Kulling Illustrated by David Perkins

IT'S A SNAP!

GEORGE EASTMAN'S
FIRST PHOTOGRAPH



Monica Kulling Illustrated by Bill Slavin

IN THE BAG!

MARGARET KNIGHT
WRAPS IT UP



Monica Kulling Illustrated by David Perkins

SPIC-AND-SPAN!

LILLIAN GILBRETH'S
WONDER KITCHEN



Monica Kulling Illustrated by David Perkins

MAKING CONTACT!

MARCONI GOES
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Great Idea Series

ALL ABOARD!

ELIJAH MCCOY'S STEAM ENGINE



Monica Kulling Illustrated by Bill Slavin

Aligns with
Common Core
State Standards

TEACHER'S GUIDE



TUNDRA BOOKS

DEAR EDUCATOR

All Aboard! Elijah McCoy's Steam Engine presents the life of an extraordinary man. A famous inventor, engineer, and former slave, McCoy's industrial inventions were the basis for the popular expression, the "real McCoy." Combining playful, informative text with lively illustrations, *All Aboard!* tells the story of how the young McCoy changed the face of travel around the world.

All Aboard! can be used in the classroom in a number of ways, including

- Exploring conceptual and thematic connections such as function, change, connection, convenience, time, innovation, progress
- Introducing the genre of biography
- Enriching a science and technology unit
- As a whole class read-aloud or for independent reading and/or research

This activity guide includes a variety of discussion questions as well as whole class, small group, and independent activities and prompts to elicit a meaningful understanding of the text for children from five to eight years of age. The suggested activities can be adapted to suit the needs of your students. Where applicable, activities have been aligned with Common Core State Standards.

ABOUT THE BOOK

There were few opportunities for the son of slaves, but Elijah McCoy's dreams led him to study mechanical engineering in Scotland. He learned everything there was to know about engines – how to design them and how to build them. But when he returned to the United States to look for work at the Michigan Central Railroad, the only job Elijah could get was shoveling coal into a train's firebox. Undaunted, he went on to invent a means of oiling the engine while the train was running.



ABOUT THE AUTHOR

Monica Kulling was born in Vancouver, British Columbia. She received a BA in creative writing from the University of Victoria. She has published over forty fiction and nonfiction books for children, including picture books, poetry, and biographies. She is best known for introducing biography to children just learning to read and has written about Harriet Tubman, Houdini, Eleanor Roosevelt, and Amelia Earhart, among others. Monica Kulling lives in Toronto, Canada.

ABOUT THE ILLUSTRATOR

Bill Slavin has illustrated more than ninety books for children, including *The Big Book of Canada*, *Pandemic Survival: It's Why You're Alive*, and *Little Chicken Duck*. His work has received numerous awards, including the Blue Spruce Award and the Amelia Frances Howard-Gibbon Illustrator's Award, the Norma Fleck Award, and the California Young Reader Medal. He shares a studio in Millbrook, Ontario, with his wife, Esperança Melo.



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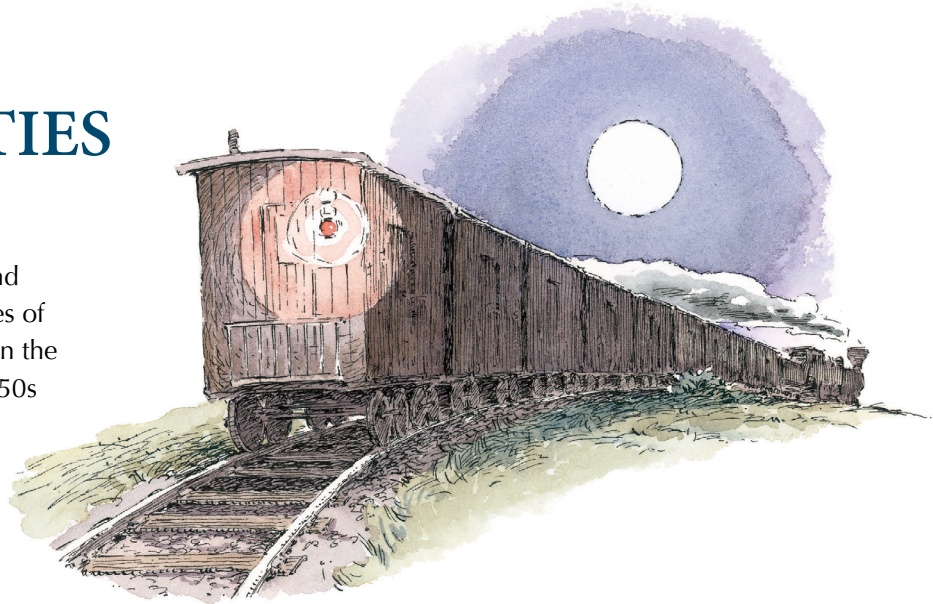
PRE-READING DISCUSSION / ACTIVITIES

1. Introduce or review the genre of biography with the class. Take out a few simple biographies from the school library as examples. Give students the opportunity to quickly skim some of the books. Introduce the idea of a biography told in picture-book format. As a class, make a list of the essential elements of a biography.
2. Discuss the difference between fiction and nonfiction. *Can a book have both fiction and nonfiction elements in it? Can you think of an example of this?*
3. In small groups, have students brainstorm as many different forms of transportation as possible and categorize whether the transportation is used for traveling by land, air, or sea.
4. *Have you ever traveled on a train?* Make a list of the pros and cons of train travel. If you have never been on a train before, think about what you have read in books or seen and heard on TV and movies, etc.
5. Reveal the title of the book without the subtitle, *All Aboard!* Which form of transportation do you think this book is about? Reveal the subtitle of the book, *Elijah McCoy's Steam Engine*. What do you think Elijah McCoy's great idea was for the steam engine?
6. *What do you know about the Underground Railroad?* Visit the school library or research the history of the Underground Railroad online.

LEARNING ACTIVITIES

1. Get On Board!

- Read the poem "Get On Board!" The Underground Railroad was not actually a railroad. It was a series of secret routes and hiding places that many slaves in the United States used to escape to Canada in the 1850s and 1860s.
- *From whose perspective is the poem written?*



2. Elijah's Dream

- Six-year-old Elijah knew what he wanted to be when he grew up. *What did he want to do? What skills did he have at such a young age that ultimately helped him achieve his dream?*
- *What is a mechanical engineer? What kind of skills (disciplinary and trans-disciplinary) do you think are needed to become a mechanical engineer?* Look through some job postings online or in a local newspaper. Write a job posting for a mechanical engineer.
- *Do you have any idea what you would like to do when you get older?* Write a journal-style entry about your hopes and dreams for the future. Think about what skills you have already and how they may apply to a future job. *Are there any subjects in school that you particularly like that could be applied in a future job?* Younger children can draw a picture of their future selves and talk in small groups or as a class about what they would like to do.

(RI.1.1, RI. 3.1)

LEARNING ACTIVITIES

(continued)

3. Locomotive Fireman

- When Elijah arrived in Michigan after finishing school, he was very excited to begin his new career as an engineer. *How do you think he felt when he realized he wasn't able to put his skills and ideas to good use? Why was he not able to get the job he wanted?*
- Elijah was offered the job of Locomotive Fireman, or "ashcat." This job was very tiring as he had to shovel coal into the fire box. He also had to oil parts of the steam engine. *Why did he take this job? How might this job have helped him when working on inventing the oil cup?*
- *What do Elijah's actions say about his personality? Write a brief character sketch of Elijah.*

(RI.1.1, RI. 2.1, RI. 3.1, W.1.1)

4. Steam Locomotive

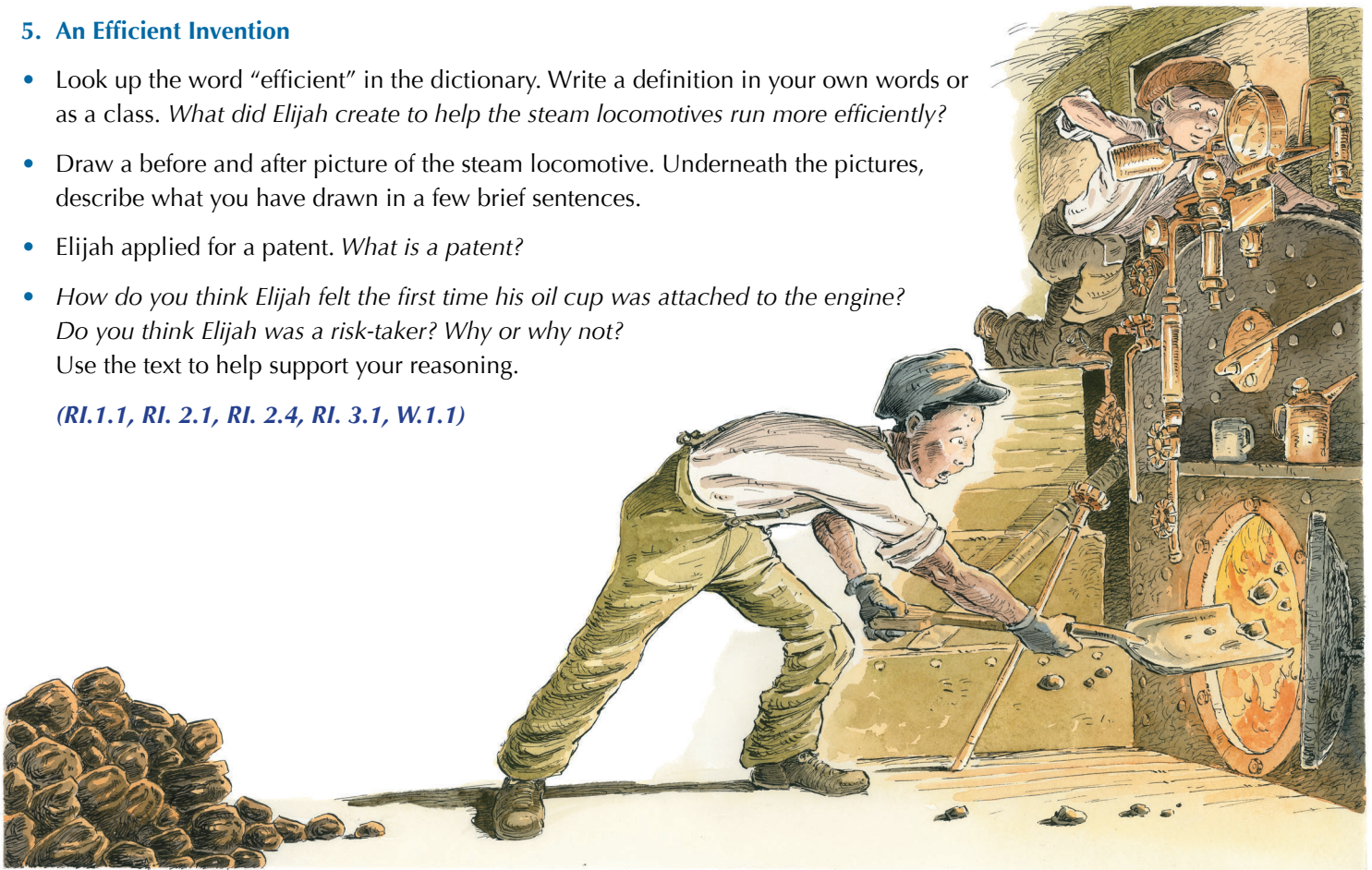
- *How did the steam locomotive work? Why was it called "the iron horse"? What were some of the advantages and disadvantages of the steam locomotive? Use a t-chart to record your thinking.*
- Research what trains looked like and how they worked. If time permits, look through some books that show pictures of how the train evolved over the years. Create an accordion book using found pictures or hand-drawn illustrations that document the evolution of the train.

(RI.1.1, RI. 2.1, RI. 3.1, W.1.7)

5. An Efficient Invention

- Look up the word "efficient" in the dictionary. Write a definition in your own words or as a class. *What did Elijah create to help the steam locomotives run more efficiently?*
- Draw a before and after picture of the steam locomotive. Underneath the pictures, describe what you have drawn in a few brief sentences.
- Elijah applied for a patent. *What is a patent?*
- *How do you think Elijah felt the first time his oil cup was attached to the engine? Do you think Elijah was a risk-taker? Why or why not? Use the text to help support your reasoning.*

(RI.1.1, RI. 2.1, RI. 2.4, RI. 3.1, W.1.1)



LEARNING ACTIVITIES

(continued)

6. Slow Journey

- Before Elijah invented the oil cup, travel on the steam locomotive could be a slow and frustrating experience. Imagine you are a passenger on a train and write a short story about your journey. Think about what you would see, hear, think, and feel on your trip. Use the pen, ink, and watercolor illustrations in *All Aboard!* as inspiration for your story.
- Write a recount of a trip you have taken in your life. Consider the forms of transportation needed to take the trip and reflect on how the trip may have differed had the form of transportation you used not been available. Younger students can draw and talk about their trip.

(W.1.3, W.2.3, W.3.3)



7. The Real McCoy!

- Had you ever heard the phrase “the real McCoy” before? If so, what had you heard it in relation to? Explain this phrase, in your own words, using examples.
- “The real McCoy” is an example of an idiom. Look up the word “idiom” in the dictionary. Can you use the following common English language idioms in a sentence that makes their meaning obvious?
 - o sick as a dog
 - o all bark and no bite
 - o bite off more than you can chew
 - o hold your horses

Can you think of any other idioms? Visit www.idiomsite.com for a common list of idioms. Select five different idioms and use them in sentences.

8. Afterword

- The afterword states that Elijah was not a “one-hit-wonder.” How many other patents did Elijah file?
- Further research Elijah McCoy’s life as an inventor. Use at least three different sources. Brainstorm with younger students where they could look for more information and conduct the research together.

(RI.1.1, W.1.7, W.3.7)

WRAP-UP DISCUSSION AND EXTENSION ACTIVITIES

1. In partners or small groups, discuss how the train has evolved. Think about cost, comfort, time efficiency, and environmental impact. What kind of an impact did Elijah’s invention have on the train’s evolution?
2. Do you have any further questions about Elijah McCoy, the Underground Railroad, or anything else about the book? Record your questions and with the teacher’s guidance, plan how best to have the questions answered.

PRAISE FOR *All Aboard! Elijah McCoy's Steam Engine*

"An engaging biography of the African-American inventor ... The narrative includes fictionalized dialogue and clear explanations about how the machinery works and concludes with an inspiring message ... Expressive watercolors ... capture the time period, allowing readers to imagine what life was like in this era, and add energy and touches of humor."

– ***School Library Journal* and Black History Month 2011: SLJ's Picks**

"...McCoy's life is an inspiration to young people as it tells of his dream and passion for becoming an engineer ... an excellent read aloud. These bold illustrations are full of action showing trains and people in motion and likely to keep young readers' interest. Highly recommended."

– **Resource Links**

LINKS

www.monickakulling.ca

www.billsalvin.com

Underground Railroad:

<http://www.blackhistorycanada.ca>

<http://education.nationalgeographic.com>

<http://www.cbc.ca/history/>

<http://www.heritagetrust.on.ca/>



OTHER BOOKS IN THE GREAT IDEA SERIES:

It's a Snap! George Eastman's First Photograph

In the Bag! Margaret Knight Wraps It Up

Going Up! Elisha Otis's Trip to the Top

Making Contact! Marconi Goes Wireless

Spic-and-Span! Lillian Gilbreth's Wonder Kitchen

To the Rescue! Garrett Morgan Underground

Clean Sweep! Frank Zamboni's Ice Machine

Zap! Nikola Tesla Takes Charge

AWARDS FOR *All Aboard! Elijah McCoy's Steam Engine*

- Finalist, Ontario Library Association's Silver Birch Express
- Finalist, *ForeWord Reviews'* Book of the Year Award - Juvenile Nonfiction Category
- Selected, The Canadian Children's Book Centre's Best Books for Kids & Teens
- Shortlisted, Vancouver Children's Literature Roundtable's Information Book Award
- Nominated, Children's and Young Adult Bloggers' Literary Awards' Non-Fiction/Informational Picture Books
- Nominated, National Science Teachers Association and the Children's Book Council's Outstanding Science Trade Books for Students K-12

APPENDIX: Common Core State Standard

- CCSS.ELA-Literacy.RI.1.1** Ask and answer questions about key details in a text.
- CCSS.ELA-Literacy.RI.2.1** Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
- CCSS.ELA-Literacy.RI.2.4** Determine the meaning of words and phrases in a text relevant to a grade 2 topic or subject area.
- CCSS.ELA-Literacy.RI.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- CCSS.ELA-Literacy.W.1.1** Write opinion pieces in which they introduce the topic or name the book they are writing about, state an opinion, supply a reason for the opinion, and provide some sense of closure.
- CCSS.ELA-Literacy.W.1.7** Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions).
- CCSS.ELA-Literacy.W.1.3** Write narratives in which they recount two or more appropriately sequenced events, include some details regarding what happened, use temporal words to signal event order, and provide some sense of closure.
- CCSS.ELA-Literacy.W.2.3** Write narratives in which they recount a well-elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.
- CCSS.ELA-Literacy.W.3.3** Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.
- CCSS.ELA-Literacy.W.3.7** Conduct short research projects that build knowledge about a topic.