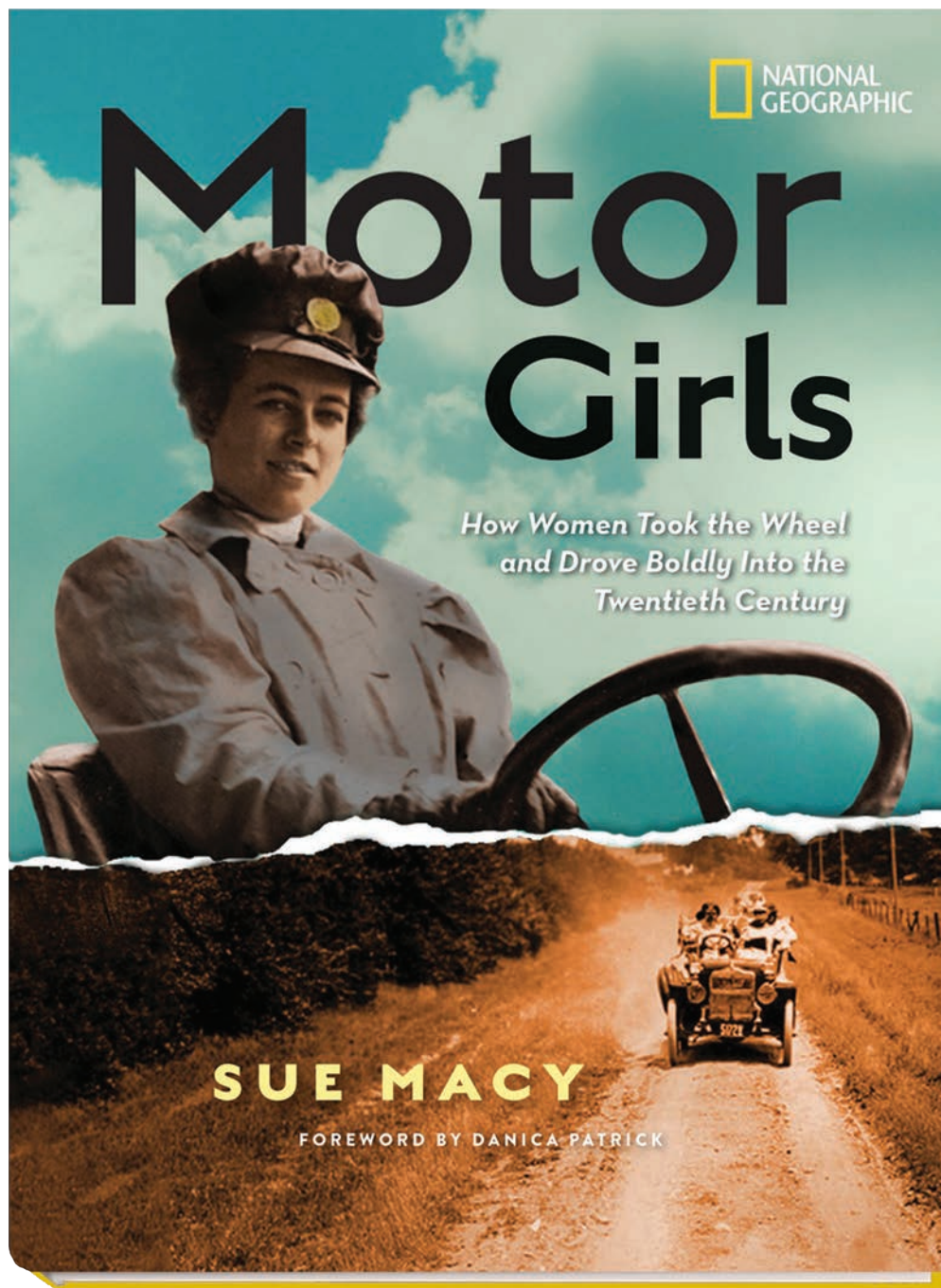
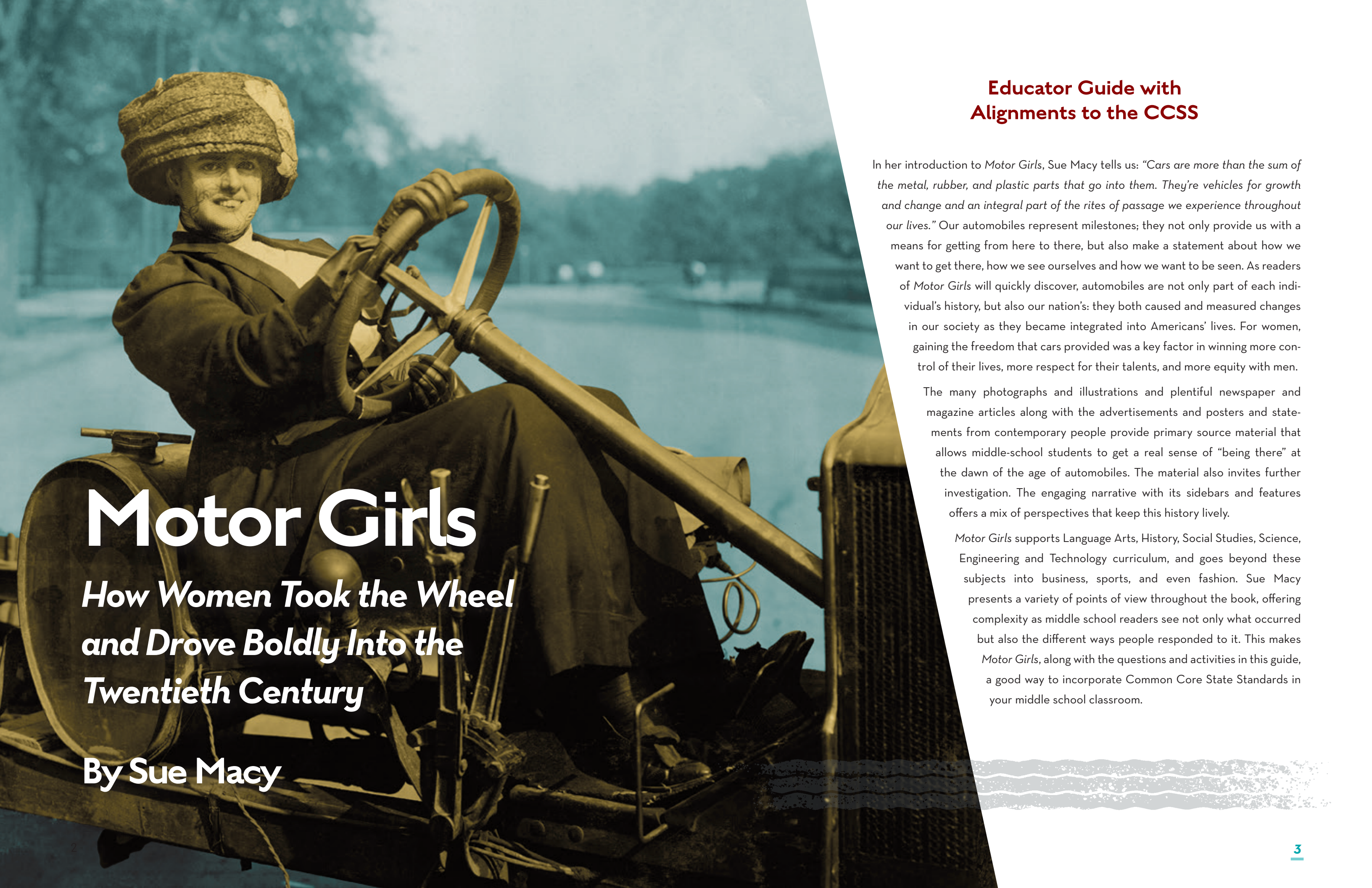


# NATIONAL GEOGRAPHIC EDUCATOR'S GUIDE

## COMMON CORE ALIGNMENTS AND CLASSROOM ACTIVITIES



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# Motor Girls

*How Women Took the Wheel  
and Drove Boldly Into the  
Twentieth Century*

By Sue Macy

## Educator Guide with Alignments to the CCSS

In her introduction to *Motor Girls*, Sue Macy tells us: “Cars are more than the sum of the metal, rubber, and plastic parts that go into them. They’re vehicles for growth and change and an integral part of the rites of passage we experience throughout our lives.” Our automobiles represent milestones; they not only provide us with a means for getting from here to there, but also make a statement about how we want to get there, how we see ourselves and how we want to be seen. As readers of *Motor Girls* will quickly discover, automobiles are not only part of each individual’s history, but also our nation’s: they both caused and measured changes in our society as they became integrated into Americans’ lives. For women, gaining the freedom that cars provided was a key factor in winning more control of their lives, more respect for their talents, and more equity with men.

The many photographs and illustrations and plentiful newspaper and magazine articles along with the advertisements and posters and statements from contemporary people provide primary source material that allows middle-school students to get a real sense of “being there” at the dawn of the age of automobiles. The material also invites further investigation. The engaging narrative with its sidebars and features offers a mix of perspectives that keep this history lively.

*Motor Girls* supports Language Arts, History, Social Studies, Science, Engineering and Technology curriculum, and goes beyond these subjects into business, sports, and even fashion. Sue Macy presents a variety of points of view throughout the book, offering complexity as middle school readers see not only what occurred but also the different ways people responded to it. This makes *Motor Girls*, along with the questions and activities in this guide, a good way to incorporate Common Core State Standards in your middle school classroom.

## Language Arts: Reading Motivation, Speaking and Listening; Social Studies

### Before Reading

As noted above, Sue Macy recognizes the role automobiles play in helping people move from one stage of life, or one role, to the next. With your students, develop a brief questionnaire to bring home to family, adult neighbors and friends to see how they think about the cars they have owned in their lifetime.

Some questions to include are:

- › How old were you when you got your first car?
- › What kind of car was it? What color? Did you use it to get to school, to a job, for social occasions? How did you feel about your car?
- › When did you get your next car? Did you feel differently about it?
- › What car do you drive now?
- › What are the best qualities of this car?

Students should take notes when they do their interviews. As they bring in the results, keep track of the answers in specific categories, for example: Responses from women, from men, and from different age-level groups—18-30, 31-50, 51 and older.

Discuss what was common among the answers and what was different. Do your students agree that cars mean more to people than just a method of transportation?

Introduce an idea for students to consider: The survey shows that cars have many meanings in people's lives today. Imagine what cars meant to people when they first came on the scene. Show your students the cover of *Motor Girls* and tell them that you will be studying this book to explore how automobiles changed lives and our nation.

**W 6.2, 6.3, 6.7; SL 6.1, 6.3, 6.4**

## Language Arts: Vocabulary

### Vocabulary

Have your students collect words that are new to them as they read *Motor Girls*. They can create an index card for each word. On one side they should copy the sentence in which the new word appears in the book. On the back of the card, they should define it. Below are 10 words to get your students started:

- › Industrious
- › Prominent
- › Internal combustion engine
- › Interchangeable
- › Commissions
- › Femininity
- › Scenarios
- › Suffrage
- › Affidavits
- › Switchbacks

### RI 6.4

Detail of a 1913 ad for Baker Electrics cars. As roads improved and Americans took longer car trips, electrics became impractical, all but disappearing by 1935. But rising gas prices in the 1970s and antipollution laws in the 1990s would bring renewed interest in electrics, making them and gas-electric hybrids a viable option in the twenty-first century.



**Language Arts: Reading for Details,  
Writing; History; Technology**

**During Reading**

Throughout *Motor Girls*, readers will meet many pioneers who established records or set the bar for various activities involving cars, including long-distance drives, races, uses of cars to accomplish different tasks, and more. Ask your students to keep track of these “firsts” as they read. Each should create a chart like the one below and enter the names, dates, event, and a brief comment.

Automobile Pioneers			
Pioneer	Event or Feat	Date	Comments
Alice Ramsey	First woman to motor across America	1909	Took 42 days*

**RI 6.1, 6.2**

\*Not including days for rest and repairs.

**Language Arts: Reading; Technology;  
Social Studies: Women’s Studies; History**

**Questions of Fact**

These questions will help you track your students’ understanding of this book, reinforce what they have learned, and support their retention of some of the details.

1. What car is widely considered the first automobile? What fuel did it use? How many wheels did it have?
2. What are the three major fuels that cars used in the early years? What were the benefits of each? What were some of the drawbacks of each?
3. What is an assembly line? How did Henry Ford’s assembly line differ from Ransom Olds’?
4. List three reasons people gave for why women were unsuitable to drive automobiles.
5. Henry Ford was not a fan of women drivers, yet he marketed his cars to them. Why?
6. How did the suffragists make use of automobiles to support their cause?
7. What roles did women drivers take on during World War I?
8. What is the NLWS? Name three specific ways they helped during the War.
9. What training was required for women who wanted to be a part of the NLWS Motor Corps?
10. After the war, what kind of services to their country did the NLWS provide?

**RI 6.1, 6.2, 6.3, 6.6**

## Language Arts: Speaking and Listening, Writing, Critical Thinking; Social Studies: Business and Marketing, Government and Law

### Questions for Discussion

Page 22

1. Henry Ford assessed the marketplace in a 1906 letter to *Automobile* magazine. “The greatest need to-day is a light, low-priced car with an up-to-date engine of ample horse-power and built of the very best material,” he wrote. “It must be powerful enough for American roads and capable of carrying its passengers anywhere that a horse-drawn vehicle will go.”

Have your students talk about each of the points Mr. Ford thought were essential for the success of the automobile. Do your students think they were as critical as Henry Ford did? Why or why not? Do they agree with each of the qualities he names? What requirements would they add to his list? Are these same requirements important today? How so or how not?

2. Reread with your students the section of *Motor Girls* called “Mind Your Manners” (pages 40-41). It describes bad driving behavior as being rude. Today, this kind of rudeness sometimes turns to “road rage.” Many accidents begin with this sort of behavior. Have your students make a list of what they think the reasons for this behavior are, including those in this section. Have them discuss both the reasons and the way this “bad behavior” is expressed in our own time. What ideas do your students have for changing this situation? The class should come to a consensus of opinion and write a letter to the editor of the local newspaper giving their reasoning and suggestions.
3. In the early days of the motorcar, each form of propulsion used—gasoline, steam, and electric—had pluses and minuses. Have your students talk about the advantages and the drawbacks of each.
  - › Why do they think the gasoline-powered auto won the day?
  - › What about today? Which form of propulsion is making a comeback? Why do your students think this is happening?

### Questions for Discussion - continued

4. The people who were our first motorists could not have imagined how much cars would change over the 120 years that have passed since their introduction. Neither would they have predicted the problems they might cause: safety issues, overcrowded roads, and fuel shortages. Have students consider cars through many lenses, and then discuss the questions that arise.
5. Have your students closely read pages 30 and 31 about the objections to women driving cars. What were the bases of these arguments? What do they tell your students about how society thought about and treated women? Discuss some of these arguments that are still prevalent today, here and in other countries around the world.

Page 84

6. “While the automobile changed the way people lived and worked, it also had a lasting impact on their surroundings.”

Author Sue Macy identifies five milestones that led to widespread changes in the American landscape.

- › Auto repair shop
- › Drive-in gas station
- › Electric traffic light
- › Drive-in restaurant
- › The motel

Have your students engage in a discussion as to which they think had the greatest impact on the American way of life.

**RI 6.1, 6.2, 6.3, 6.6, 6.8; W 6.1, 6.2, 6.3, 6.4, 6.5;  
SL 6.1, 6.2, 6.3, 6.4**

## Math and History

### Activities

**Page 11** 1. In 1895 Chicago publisher Herman H. Kohlsaat had an idea that was as crazy as it was inspired. He decided to hold a motor race for cars.

Kohlsaat's plan was to jump-start America's role in the automobile industry by offering \$5000 in prize money to competitors in a race from Milwaukee to Chicago. Due to harsh weather conditions, a shortened race took place on Thanksgiving Day, 1895. Six motorcars competed. The winning time for the 54-mile race was approximately 10-1/2 hrs including about 1-1/2 hrs for repairs.

- With your help, have your students construct an equation to calculate the average miles per hour of the winning auto and then solve it.
- Assuming a highway speed of 55 mph, approximately how long would it take to travel that distance today?

**MC.6.EE.A.1, 6.EE.A.2, 6.EE.B.6, 6.EE.B.7**



## Language Arts: Writing, Speaking and Listening; Art

### Activities - continued

**Page 22** 2. In 1899 *Scientific American* reported, "The question of a name for the automobile vehicles is still agitating many worthy persons."

Have your students read through the list of the names suggested on page 22.

- What do they think would have been a great name?

Open a discussion about what the name of the motorcar ought to communicate. Create teams for each proposed name and have each team devise an advertising campaign to promote their name as the best name. The campaign can include slogans, posters, and songs that illustrate how the name relates what the vehicle is meant to do.

**RI 6.1, 6.4; W6.1, 6.2, 6.4; SL 6.1, 6.2, 6.3, 6.4, 6.5**

## Industrial Design; Fashion; Language Arts: Research

**Page 54** 3. A new technology required new clothes, especially for women. Students should carefully read "The Well-Dressed Motorist" section of *Motor Girls*, pages 54-55. Then they should do some Internet research to see pictures of and read articles about "automobile fashions" of the early Twentieth Century. Some places to begin:

<http://www.ultimatehistoryproject.com/early-20th-century-motoring-clothes.html>

[http://www.victoriana.com/edwardianfashions/Vintage\\_Auto\\_Clothing.html](http://www.victoriana.com/edwardianfashions/Vintage_Auto_Clothing.html)

With an understanding of the kind of protection from the elements and road conditions that drivers (and passengers) needed in early automobiles, students should design clothes for motorists that use the advantages of today's technologies in fabric, fastenings, and design. They can sketch or describe the piece of apparel they design and be prepared to explain how various aspects of the garment met the challenges of the conditions.

**RI 6.2, 6.7; W 6.1, 6.2, 6.3, 6.4, 6.6, 6.7, 6.8**

## Social Studies: Government and Law; History; Language Arts: Research

### Activities - continued

- Page 26** 4. *As the motor car became popular in the United States, the need quickly arose for laws to regulate speed and safety.*

From license plates to limiting hours to daytime driving only, states and counties sought to regulate the ownership and use of cars.

Begin this activity by asking students to research other laws of the early era of motor cars, the first decade of the Twentieth Century. Remind students that early laws were local (city-wide, county-wide, and sometimes state-wide), so they may have to focus on particular places to gather information.

Each student should collect five facts they find interesting about early laws regulating car ownership, driving, and traffic patterns. Some of these sites may be useful starting places:

<http://www.detroitnews.com/story/news/local/michigan-history/2015/04/26/auto-traffic-history-detroit/26312107/>

<http://www.chicagotribune.com/news/ct-chicago-auto-show-early-cars-flash-back-0208-jm-20150207-story.html>

[http://amhistory.si.edu/onthemove/exhibition/exhibition\\_8\\_2.html](http://amhistory.si.edu/onthemove/exhibition/exhibition_8_2.html)

Invite a local police officer or driving school instructor to visit the class to talk about contemporary laws with regard to owning and operating cars in your area. To prepare for the visit, give your students access to copies of your state's driving manual either in print or online so they can become familiar with the laws for operating a motor vehicle. They will have an opportunity to ask any questions they may have when the police officer or instructor visits.

**RI 6.1, 6.2, 6.4, 6.8, 6.9; W 6.1, 6.4, 6.6, 6.7, 6.8;  
SL 6.1, 6.2, 6.4**

## Language Arts: Writing, Speaking and Listening; Art

### Activities - continued

- Page 34** 5. *“Competitive driver Joan Newton Cuneo changes a tire on her 1908 Rainier automobile.”*

This caption to a photograph shows that women, despite many people's fears, were able to change tires when they were out in their motorcars. We also learn that drivers in the National League's Women's Motor Corps had to pass a mechanics exam (Page 77), which we can assume included changing tires.

Partner with a local service station or car dealership to hold a tire-changing challenge for your students. Someone should instruct the students in how to change a tire. Then, working in teams of four, they should be timed to see how long it takes them. Keep track of the results.

Each student should write an essay describing the experience. Then the class should discuss the outcomes. What teams did best? All girls? All boys? Girls and boys?

**RI 6.7, 6.9; W 6.3, 6.4; SL 6.1, 6.5**

## Language Arts: Writing

6. Have each student select one photograph in *Motor Girls*. Using the caption of his or her chosen photo to begin, each student should write a short newspaper article about the person or event depicted in the photo. They should be sure to create a headline and follow standard reporting styles, with a lead paragraph stating the key element; details covered in the second paragraph; perhaps a quoted statement from one of the principals involved in the photograph in the third paragraph; and a wrap up in the fourth. The content of the article can be researched and real or it can be imagined. Students should evaluate each other's writing and provide feedback on how to make improvements. The finished work should be published as a class newspaper, in print and online.

**W. 6.3, 6.4, 6.5, 6.6, 6.8**

## Language Arts: Research, Writing, Speaking and Listening

### Activities - continued

7. Five women are profiled in Features throughout *Motor Girls*. Beyond that the contributions of many other women are noted in the narrative, in photos, in articles that are quoted, etc. Each student should select one of the women whose achievements are described and conduct further research on her accomplishments and contributions. (The students should clear their subject with you so that you do not have too many pupils covering the same historic character.) Students should gather a half-dozen facts about their subject. They should present those facts in a short speech that concludes with the students' opinion about why their subject's contribution is important.

The following web sites should assist your students:

Dorothy Levitt:

[http://www.slate.com/blogs/the\\_vault/2014/05/20/photos\\_advice\\_for\\_female\\_drivers\\_in\\_1909.html](http://www.slate.com/blogs/the_vault/2014/05/20/photos_advice_for_female_drivers_in_1909.html)

Alice Ramsey:

<https://www.youtube.com/watch?v=8YU-J6BiVic>

Blanche Stuart Scott:

<http://www.ladieslovetaildragers.com/history/blanche-stuart-scott>

Joan Newton Cuneo:

<https://blog.hemmings.com/index.php/2013/11/19/racing-heroes-joan-newton-cuneo>

Sara Bard Field, Maria Kindberg, and Ingeborg Kindstedt

<http://americanhistory.si.edu/blog/2014/03/traveling-for-suffrage-part-1-two-women-a-cat-a-car-and-a-mission.html>

<http://nationalwomansparty.org/following-the-1915-suffrage-envoys-historical-journeys-past-present-physical-digital>

A'Lelia Walker:

<http://www.madamcjwalker.com/bios/alelia-walker>

**W 6.1, 6.2, 6.4, 6.7, 6.8; SL 6.1, 6.2, 6.3, 6.4**

## History; Language Arts: Research

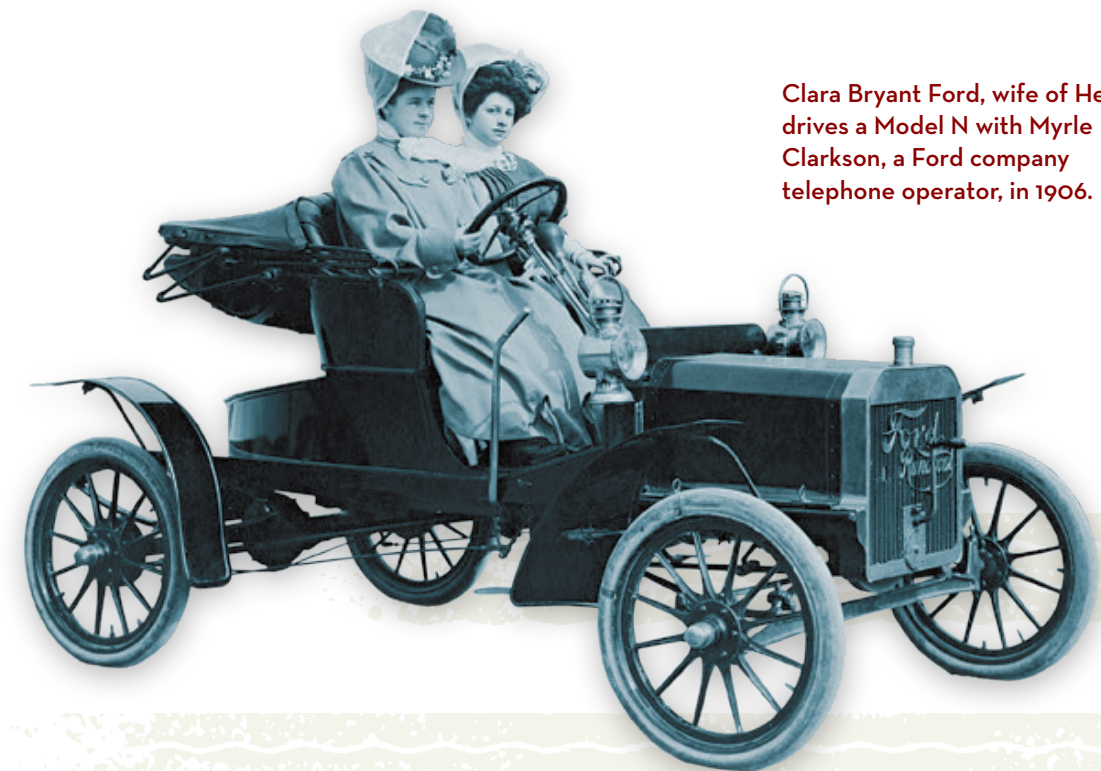
### Activities - continued

8. *Motor Girls* is a book about two concurring stories. One is the emergence of the automobile into the American consciousness and the other is the evolving role of women in society and the growth of the feminist movement.

Have your students create a double timeline for *Motor Girls*. On the top timeline they should place dates that are particular to the development of the automobile and its rise as the most used form of transportation, and on the bottom timeline they should place events in the changing role of the women in motoring and in society.

Encourage them to go beyond what they have read in *Motor Girls* by researching both technological advances in the development of the automobile and societal advances for women to the present.

**RI 6.1, 6.2, 6.3, 6.7; W 6.2, 6.4, 6.7, 6.8; SL 6.1, 6.2, 6.4**



Clara Bryant Ford, wife of Henry, drives a Model N with Myrtle Clarkson, a Ford company telephone operator, in 1906.



## Language Arts: Creative Writing

### Activities - continued

9. Laura Dent Crane penned the following series of six children's books:

- › *The Automobile Girls of the Berkshires: or, The Ghost of Lost Man's Trail*
- › *The Automobile Girls Along the Hudson: or, Fighting Fire at Sleepy Hollow*
- › *The Automobile Girls at Palm Beach: or, Proving Their Mettle Under Southern Skies*
- › *The Automobile Girls at Washington: or, Checkmating the Plots of Foreign Spies*
- › *The Automobile Girls at Newport: or, Watching the Summer Parade*
- › *The Automobile Girls at Chicago: or, Winning Out Against Heavy Odds*

Your students can read a book of their choice from The Automobile series on-line:

<http://c.web.umkc.edu/crossonm/automobilegirls.htm>

Click on "Read books from the On Line Bookshelf." Then scroll down to Laura Dent Crane, and click on the selected title. Students should critique the story they have read. They should also come up with the idea for a modern Automobiles book, including:

- › Title
- › Setting
- › Characters
- › Plot ideas

**RL 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.9; W 6.3, 6.4**



**LICENSE PLATES** Shortly after the turn of the century local officials started to require motor vehicles to display tags that identified them. In 1901 New York became the first state to register cars and directed all owners to make their own license plates showing their initials. In 1903 Massachusetts became the first state to issue license plates, choosing numbers over letters. Three years later Pennsylvania set a new precedent by issuing plates that had to be replaced every year. Every state in the Union required license plates on motor cars by 1918.

## Industrial Design; Business: Marketing, Market Research; Co-operative Learning

### Activities - continued

#### Final Activity

10. Divide the class into 4 or 5 "car making companies." Each company should:

- › Design a new car that solves some of the problems of today's automobiles.
- › Create drawings, models, and plans that best showcase each car.
- › Decide who the target audience for the car is. (For example: is it a family car, a work vehicle, etc.)
- › Study how current manufacturers market their products. How do they name their cars? What approach do they take to presenting it to potential buyers? Determine which contemporary cars are their competitors.
- › Name the car.
- › Develop a marketing campaign that includes presentation materials for customers, on-line promotions, television and other media advertising, and celebrity endorsements.

**W 6.2, 6.4, 6.6, 6.7, 6.8, 6.9, 6.10; SL 6.1, 6.2, 6.4, 6.5**

#### COMMON CORE STATE STANDARDS GRADE 6

Code:

R - Reading Information

W - Writing

SL - Speaking and Listening

MC - Math Content

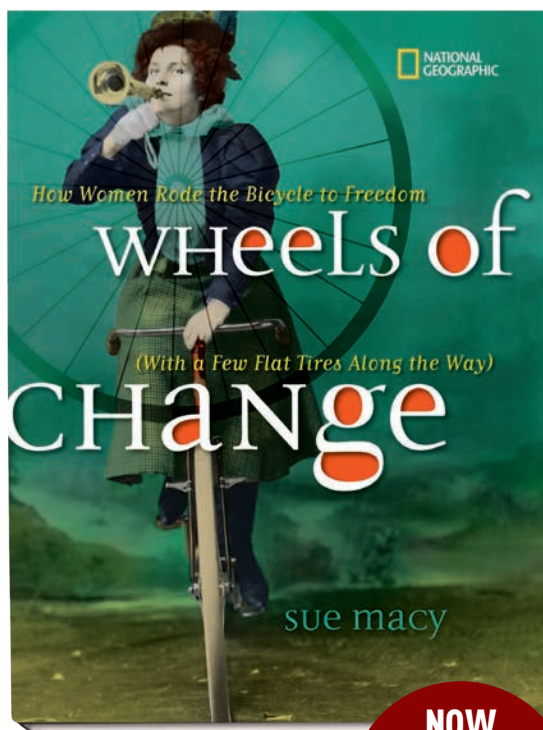
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# Wheels of Change: How Women Rode the Bicycle to Freedom

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Take a lively look at women's history through the filter of the bicycle, which gave women freedom of mobility and helped empower women's liberation. *Wheels of Change* tells the story of the impact of the bicycle on women's lives from 1870s to the early years of the 20th century. Illustrated liberally with photographs, maps, advertisements, and cartoons, as well as contemporary songs, poems, and newspaper clippings, the book helps readers travel to a time gone by to see firsthand how women used the bicycle as a vehicle to improve their lives.

*"The use of primary sources such as advertisements, excerpts from journals, photographs, and artwork all add invaluable to the informative and accessible writing. Sidebars and spotlights on individual women important to both the sport of cycling as well as the fight for more freedom are of particular interest and create an eye-catching and inviting format."*

—Starred review, SLJ

- › YALSA 2012 Excellence in Nonfiction for Young Adults Finalist
- › NCSS—Notable Social Studies Trade Books in the Field of Social Studies
- › School Library Journal Best Books
- › Eureka! Silver Honor Books—California Reading Association
- › Booklist Top 10 Sports Books for Youth, 2011
- › Brain Pickings 11 Best Photography Books of 2011
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- › SLJ's 100 Magnificent Children's Books of 2011
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