the Henry Ford®

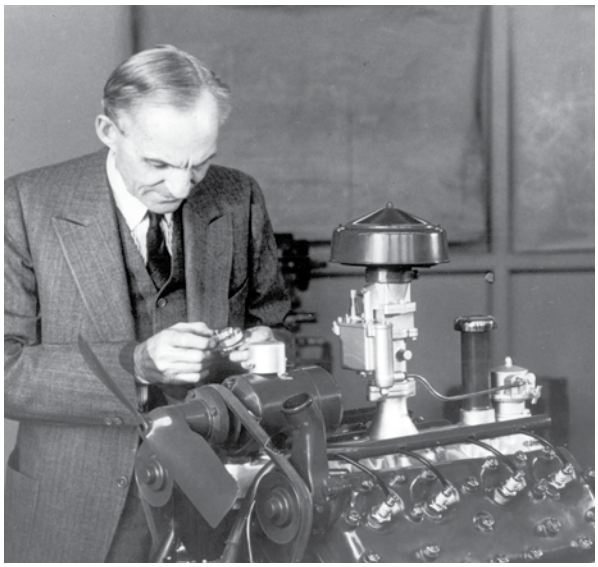
grades 3-5

You Can Be an Innovator ... Like **Henry Ford**

Henry Ford and Innovation

Educator DigiKit

Transportation in America



mission statement

The Henry Ford provides unique educational experiences based on authentic objects, stories and lives from America's traditions of ingenuity, resourcefulness and innovation. Our purpose is to inspire people to learn from these traditions to help shape a better future.

overview

The Henry Ford® invites you and your students to explore Henry Ford's world-changing innovation, the Model T, and how it continues to influence manufacturing and many other aspects of our lives today. While using this Educator DigiKit and our digitized artifacts, students will answer the overarching question, ***"How do people solve problems?"*** By examining this case study of Henry Ford and the Model T, we hope that they, too, will be inspired to imagine, take risks and persevere as Henry Ford did.

This Educator DigiKit is divided into two sections: a **Teacher Guide** and a **Unit Plan.**

The Teacher Guide section includes resources to complement the *You Can Be an Innovator … Like Henry Ford* Unit Plan. You will find a glossary, timeline, context-setting activities, bibliography, curriculum links and curriculum-supporting field trip suggestions.

The Unit Plan section follows the Teacher Guide and includes lesson plans, student handouts, answer keys, culminating project ideas, extension activities, and review and assessment questions. Many of the lessons include the use of digitized artifacts from the collections of **The Henry Ford**, which can be accessed through the hyperlinks in the Unit Plan or through our website, TheHenryFord.org/education. If you cannot incorporate the whole unit into your schedule, use the lessons or activities most relevant to your needs.

This Educator DigiKit promotes educational use of **The Henry Ford's** extensive Transportation in America collections. We hope you and your students will find these resources engaging **and relevant.**

These resources are made possible, in part, by the generous funding of the Ford Foundation.

contents

Please refer to the online version of the Educator DigiKits for the most updated links and content.

teacher guide | for grades 3-5

Glossary

Artifact
A man-made object representing a specific time or culture.

Car culture
In so many ways, our daily lives are based around automobiles: the way we travel, the things we buy, the things we build. Even the songs we sing and movies we watch often involve cars.

Collaborate
To cooperate or work with others.

Consumption
Buying things.

Curiosity
A desire for learning.

Division of labor
Each worker does one step or task of a larger job.

Human resource
The people required to make a product or provide a service.

Innovation
An invention, idea or improvement adopted by society.

Iron ore
A soft, heavy, magnetic metallic mineral. One of the raw materials necessary to make steel.

Lumber
Timber or logs, often trimmed for use.

Model T
Henry Ford's most successful car and the first affordable automobile. Made between 1908 and 1927. Nicknamed Tin Lizzie.

Mechanical inclination
A natural ability to easily build and fix machines.

Moving assembly line
A way of manufacturing so that the work and the assembly of a product moves from worker to worker. Each worker puts on a new piece of the part, then the part moves along to the next worker.

Perseverance
Being unwilling to give up, even when things are difficult.

Primary source
Documents or objects that have survived from the past, like letters or automobiles, which give us a first-hand view of that time.

Production
Making or building something.

Secondary source
Another person's explanation of a past event; it is one or more steps removed from the event. Examples include textbooks and encyclopedias.

Specialization
A way of manufacturing so that each worker only has to learn and perform one step or task.

Unintended consequences
An action's unexpected effects.

Union
A group of workers with shared interests, like safety and good wages, who agree to stick together so that their employer must either agree to their requests or not have any workers.

Vision
An idea or plan for the future.

Wage
The money a person is paid for work.

Unit Plan Timeline

Henry Ford and Innovation

1863 Henry Ford is born in Springwells Township, Michigan.

1876 Henry sees his first steam traction engine moving under its own power.

1896 Henry completes his first car: the Quadricycle.

1903 After failing at two companies, Henry starts Ford Motor Company. Its first car is the Model A.

1908 Henry introduces the Model T.

1914 Ford Motor Company initiates the $5 workday.

1927 Ford Motor Company ends Model T production.

1947 Henry Ford dies at 83 years of age.

Other Innovators

1867 Wilbur Wright is born in Millville, Indiana.

1871 Orville Wright is born in Dayton, Ohio.

1879 Thomas Edison develops first practical electric light bulb.

1896 George Washington Carver becomes agricultural director at Tuskegee Normal and Industrial Institute, where he educates former slaves and researches crops to help feed the poor.

1903 Wilbur and Orville Wright make their first flight at Kitty Hawk, North Carolina.

1908 General Electric Company patents the electric toaster.

1911 Holt Company adds internal combustion engines to its combines, increasing their grain-harvesting potential.

1929 Celebration of the light bulb's 50th anniversary in *Greenfield Village*.

National Events

1863 The Emancipation Proclamation goes into effect.

1892 Ellis Island opens; 12 million immigrants pass through Ellis Island before it closes in 1954.

1901 President William McKinley is shot by an anarchist.

1906 San Francisco experiences the Great Earthquake.

1919 The 19th Amendment gives women the right to vote.

1929 The stock market crashes, initiating the Great Depression.

1941 Pearl Harbor is bombed by the Japanese, and the U.S. enters World War II.

World Events

1867 *Das Kapital* by Karl Marx critiques capitalism as exploitive of labor.

1871 Germany is unified.

1890s Russian imperialism focuses on the Far East.

1904 Japan defeats China and annexes Taiwan.

1905 Albert Einstein's theory of relativity revolutionizes physics.

1914 World War I begins.

1931 Penicillin's medicinal properties are discovered by Dr. Howard Florey at Oxford, England.

1945 The U.S. drops atomic bombs on Japan; World War II ends.

Context-Setting Activities

These activities are excellent ways to prepare and excite your students for the *You Can Be an Innovator … like Henry Ford*. Unit Plan or for a visit to **The Henry Ford.**

Classroom Museum

Assemble a "museum collection" for your classroom. Find old tools, appliances, clothing, photographs, advertisements, etc., at home, or purchase them at garage sales to build your classroom collection. Ask your students to carefully examine the artifacts, perhaps even wearing gloves, as museum staff do when handling or examining some types of artifacts. Have your students research how these artifacts were used in the past, how they were made and how they have changed over time. Use their research and observations to create a museum exhibit or produce a creative writing piece focused on the artifacts.

What Is a Model T?

Because a Model T looks so different from our automobiles today, students may not initially identify it as a car. Show students an image of a Model T, like our Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573, and ask if they know what it is. Compare the Model T with an image of a car of today, like our Toyota Prius Automobile, 2002 ID# THF68248. Have students develop their observation skills by identifying similar and different features on each car.

Model T Road Trip Interactive Module

Use **The Henry Ford's** Model T Road Trip interactive module to help students learn more about the Model T. In this module, students follow a fictional family's adventures as they shop for, buy, drive and plan a vacation in a brand-new Model T. The module explores how early 20th-century cars offered a new level of freedom and personal mobility. Spend time in the computer lab so students can work on the module in pairs. The module also includes five online lesson plans with selected primary sources, which you can use in your classroom to build historical content and thinking skills. Lesson plan titles are: *Remembering the Model T, The Road Trip: Then and Now, The $5 Day: Mixed Blessing?, A Picture Is Worth a Thousand Words* and *The Ad Game*.

Bibliography

Print

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Hounshell, David A. Chapter 6: "The Ford Motor Company and the Rise of Mass Production in America," Chapter 7: "The Limits of Fordism and the Coming of 'Flexible Mass Production,'" Chapter 8: "The Ethos of Mass Production" in *From the American System to Mass Production, 1800-1932: The Development of Manufacturing Technology in the United States*. Baltimore: Johns Hopkins Press, 1984.

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Print (children's books)

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El Nabli, Dina. *Time for Kids: Henry Ford*. New York: HarperCollins, 2008.

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Gourley, Catherine. *Wheels of Time*. Brookfield, CT: Millbrook Press, 1999.

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Metz, John, Ed. "Henry Ford and the Model T." *Cobblestone*. March 2007.

Mitchell, Barbara. *We'll Race You, Henry: A Story about Henry Ford*. Minneapolis: Carolrhoda Books, 1986.

O'Hearn, Michael. *Henry Ford and the Model T (Inventions and Discovery series)*. Mankato, MN: Coughlan Publishing Company, 2007.

Quackenbush, Robert. *Along Came the Model T: How Henry Ford Put the World on Wheels*. New York: Parents' Magazine Press, 1978.

Online Teacher Resources

Advancing a Culture of Innovation

http://oninnovation.com/templates/_pdf/THF_OnInnovation_Advancing_A_Culture_of_Innovation.pdf

A speech by Patricia Mooradian, president of **The Henry Ford**, summarizing the institution's analysis of oral history interviews of leading contemporary innovators.

Automobile in American Life and Society

autolife.umd.umich.edu

Annotated bibliographies as well as teacher/student resources on topics of race, gender, labor, environment and design as they relate to the automobile in American life and society.

Continued…

Bibliography Continued

Online Teacher Resources Continued

Ford Animated Weekly Excerpts, 1916-1918

youtube.com/watch?v=jIrjSymgKqM

YouTube video of historic footage; the first 2:25 minutes include the assembly line and driving Model Ts.

Ford Model T Assembly Line, 1919

youtube.com/watch?v=Pf8d4NE8XPw

YouTube video of historic footage, with captions, of the Model T assembly line at the Highland Park Plant.

Ford Motor Company Chronology

thehenryford.org/exhibits/fmc/chrono.asp

Online timeline.

From the Curators – Henry Ford and Innovation

thehenryford.org/education/erb/HenryFordAndInnovation.pdf

Information on Henry Ford's story, the Model T, the assembly line and innovation from the curators of **The Henry Ford**.

Model T Road Trip

thehenryford.org/exhibits/smartfun/welcome.html

Students follow a fictional family's adventures as they shop for, buy, drive and plan a vacation in a brand-new Model T. This module explores how early 20th-century cars offered a new level of freedom with personal mobility. Includes five online lesson plans with selected primary sources: *Remembering the Model T, The Road Trip: Then and Now, The $5 Day: Mixed Blessing?, A Picture Is Worth a Thousand Words* and *The Ad Game*.

OnInnovation

oninnovation.com

Oral histories, digitized artifacts, stories and content from some of today's most visionary thinkers and doers about what thinking and working like an innovator really means.

The Life of Henry Ford

thehenryford.org/exhibits/hf/default.asp

Online biography.

From the Curators – Transportation: Past, Present and Future

thehenryford.org/education/erb/TransportationPastPresentAndFuture.pdf

Information on the American auto industry and its impact, automobile issues today and 20th-century migration and immigration from he curators of **The Henry Ford**.

Connections to National and Michigan Standards and Expectations

Michigan Grade Level Content Expectations

Social Studies

3 H3.0.2
Explain how historians use primary and secondary sources to answer questions about the past.

3 H3.0.8
Use case studies or stories to describe how the ideas or actions of individuals affected the history of Michigan.

3 E1.0.4
Describe how entrepreneurs combine natural, human and capital resources to produce goods and services in Michigan.

4 H3.0.1
Use historical inquiry questions to investigate the development of Michigan's major economic activities (manufacturing, technology) from statehood to present.
- What happened?
- When did it happen?
- Who was involved?
- How and why did it happen?
- How does it relate to other events or issues in the past, in the present or in the future?
- What is its significance?

4 H3.0.6
Use a variety of primary and secondary sources to construct a historical narrative about the beginnings of the automobile industry and the labor movement in Michigan.

4 E1.0.5
Explain how specialization and division of labor increase productivity (e.g., assembly line).

4 E3.0.1
Describe how global competition affects the national economy (e.g., outsourcing of jobs, increased supply of goods, opening new markets, quality controls).

English Language Arts

3 R.CM.03.01
Connect personal knowledge, experiences and understanding of the world to themes and perspectives in text through oral and written responses.

3 R.CM.03.02
Retell in sequence the story elements of grade-level narrative text and major idea(s) and relevant details of grade-level informational text.

3 R.CM.03.03
Compare and contrast relationships among characters, events and key ideas within and across texts to create a deeper understanding, including a narrative to an informational text, a literature selection to a subject area text and a historical event to a current event.

3 L.RP.03.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to reflect, make connections, take a position and/or show understanding.

3 R.CM.03.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

Continued...

English Language Arts Continued

3 S.DS.03.03
Respond to multiple text types by reflecting, making connections, taking a position and/or showing understanding.

3 W.GN.03.04
Use the writing process to produce and present a research project; initiate research questions from content area text from a teacher-selected topic; and use a variety of resources to gather and organize information.

4 W.GN.04.04
Use the writing process to produce and present a research project using a teacher-approved topic; find and narrow research questions; use a variety of resources; take notes; and organize relevant information to draw conclusions.

4 R.CM.04.01
Connect personal knowledge, experiences and understanding of the world to themes and perspectives in text through oral and written responses.

4 R.CM.04.02
Retell through concise summarization grade-level narrative and informational text.

4 R.CM.04.03
Explain relationships among themes, ideas and characters within and across texts to create a deeper understanding by categorizing and classifying, comparing and contrasting, or drawing parallels across time and culture.

4 R.CM.04.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

4 S.DS.04.03
Respond to multiple text types by reflecting, making connections, taking a position and/or showing deep understanding.

4 L.RP.04.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to clarify meaning, make connections, take a position and/or show deep understanding.

5 R.CM.05.01
Connect personal knowledge, experiences and understanding of the world to themes and perspectives in text through oral and written responses.

5 R.CM.05.02
Retell through concise summarization grade-level narrative and informational text.

5 R.CM.05.03
Analyze global themes, universal truths and principles within and across text to create a deeper understanding by drawing conclusions, making inferences and synthesizing.

5 R.CM.05.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

5 L.RP.05.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to clarify meaning, make connections, take a position and/or show deep understanding without major misconceptions.

5 S.DS.05.03
Respond to multiple text types by analyzing content, interpreting the message and evaluating the purpose.

5 W.GN.05.04
Use the writing process to produce and present a research project; use a variety of resources to gather and organize relevant information into central ideas and supporting details for a teacher-approved narrowed focus question and hypothesis.

Continued...

Career and Employability Skills

4.1.
Identify a problem and explain it (i.e., why it is a problem, how it affects a situation, etc.).

4.2.
Identify ways to solve a problem. Then decide and explain which solution to use.

National History Standards

For Grades K-4

Topic One

Living and Working Together in Families and Communities, Now and Long Ago

Standard **2**
The history of students' own local community and how communities in North America varied long ago.

Standard **2A**
The student understands the history of his or her local community.

Therefore, the student is able to:
- Identify historical figures in the local community and explain their contributions and significance. [Assess the importance of the individual in history] (K-4)

Topic Two

The History of the Students' Own State or Region

Standard **3**
The people, events, problems, and ideas that created the history of their state.

Standard **3D**
The student understands the interactions among all these groups throughout the history of his or her state.

Therefore, the student is able to:
- Analyze the significance of major events in the state's history, their impact on people then and now, and their relationship to the history of the nation. [Analyze cause-and-effect relationships] (3-4)

Standard **3E**
The student understands the ideas that were significant in the development of the state and that helped to forge its unique identity.

Therefore, the student is able to:
- Analyze how the ideas of significant people affected the history of their state. [Assess the importance of the individual in history] (3-4)
- Draw upon a variety of sources to describe the unique historical conditions that influenced the formation of the state. [Obtain historical data] (3-4)

Topic Four

The History of Peoples of Many Cultures around the World

Standard **8**
Major discoveries in science and technology, their social and economic effects, and the scientists and inventors responsible for them.

Standard **8A**
The student understands the development of technological innovations, the major scientists and inventors associated with them, and their social and economic effects.

Therefore, the student is able to:
- Identify and describe the significant achievements of important scientists and inventors. [Assess the importance of the individual in history] (K-4)

Standard **8B**
The student understands changes in transportation and their effects.

Therefore, the student is able to:
- Identify and describe the people who have made significant contributions in the field of transportation. [Assess the importance of the individual in history] (3-4)

Lesson 1 Henry Ford and the Beginnings of the Auto Industry

Michigan Grade Level Content Expectations

Social Studies

4 H3.0.1
Use historical inquiry questions to investigate the development of Michigan's major economic activities (manufacturing, technology) from statehood to present.
- What happened?
- When did it happen?
- Who was involved?
- How and why did it happen?
- How does it relate to other events or issues in the past, in the present or in the future?
- What is its significance?

4 H3.0.6
Use a variety of primary and secondary sources to construct a historical narrative about the beginnings of the automobile industry and the labor movement in Michigan.

English Language Arts

3 R.CM.03.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

3 L.RP.03.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to reflect, make connections, take a position and/or show understanding.

4 R.CM.04.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

4 L.RP.04.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to clarify meaning, make connections, take a position and/or show deep understanding.

5 R.CM.05.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

5 L.RP.05.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to clarify meaning, make connections, take a position and/or show deep understanding without major misconceptions.

Career and Employability Skills

4.1.
Identify a problem and explain it (i.e., why it is a problem, how it affects a situation, etc.).

4.2.
Identify ways to solve a problem. Then decide and explain which solution to use.

Lesson 2 Case Study with Primary Sources

Michigan Grade Level Content Expectations

Social Studies

3 H3.0.2
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3 H3.0.8
Use case studies or stories to describe how the ideas or actions of individuals affected the history of Michigan.

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Use historical inquiry questions to investigate the development of Michigan's major economic activities (manufacturing, technology) from statehood to present.
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- When did it happen?
- Who was involved?
- How and why did it happen?
- How does it relate to other events or issues in the past, in the present or in the future?
- What is its significance?

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English Language Arts

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4 L.RP.04.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to clarify meaning, make connections, take a position and/or show deep understanding.

Continued...

Lesson 2

English Language Arts Continued

5 R.CM.05.01
Connect personal knowledge, experiences and understanding of the world to themes and perspectives in text through oral and written responses.

5 R.CM.05.03
Analyze global themes, universal truths and principles within and across text to create a deeper understanding by drawing conclusions, making inferences and synthesizing.

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Apply significant knowledge from grade-level science, social studies and mathematics texts.

5 L.RP.05.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to clarify meaning, make connections, take a position and/or show deep understanding without major misconceptions.

Lesson 3
Resources and Location

Michigan Grade Level Content Expectations

Social Studies

3 G1.0.2
Use thematic maps to identify and describe the physical and human characteristics of Michigan.

3 G5.0.1
Locate natural resources in Michigan, and explain the consequences of their use.

3 G5.0.2
Describe how people adapt to, use and modify the natural resources of Michigan. (H)

3 E1.0.3
Analyze how Michigan's location and natural resources influenced its economic development (e.g., how waterways and other natural resources have influenced economic activities such as mining, lumbering, automobile manufacturing and furniture making). (H, G)

3 E1.0.4
Describe how entrepreneurs combine natural, human and capital resources to produce goods and services in Michigan. (H, G)

4 H3.0.1
Use historical inquiry questions to investigate the development of Michigan's major economic activities (agriculture, mining, manufacturing, lumbering, tourism, technology and research) from statehood to present. (C, E)
- What happened?
- When did it happen?
- Who was involved?
- How and why did it happen?
- How does it relate to other events or issues in the past, in the present or in the future?
- What is its significance?

4 H3.0.3
Describe how the relationship between the location of natural resources and the location of industries (after 1837) affected and continues to affect the location and growth of Michigan cities. (G, E)

4 H3.0.6
Use a variety of primary and secondary sources to construct a historical narrative about the beginnings of the automobile industry and the labor movement in Michigan. (G, E)

4 H3.0.8
Describe past and current threats to Michigan's natural resources; describe how Michigan worked in the past and continues to work today to protect its natural resources. (G, C, E)

4 G5.0.1
Assess the positive and negative effects of human activities on the physical environment of the United States.

Lesson 4 Using Human Resources on the Assembly Line

Michigan Grade Level Content Expectations

Social Studies

3 E1.0.4
Describe how entrepreneurs combine natural, human and capital resources to produce goods and services in Michigan.

4 H3.0.6
Use a variety of primary and secondary sources to construct a historical narrative about the beginnings of the automobile industry and the labor movement in Michigan.

4 H3.0.1
Use historical inquiry questions to investigate the development of Michigan's major economic activities (agriculture, mining, manufacturing, lumbering, tourism, technology and research) from statehood to present.
- What happened?
- When did it happen?
- Who was involved?
- How and why did it happen?
- How does it relate to other events or issues in the past, in the present or in the future?
- What is its significance?

4 E1.0.5
Explain how specialization and division of labor increase productivity (e.g., assembly line).

English Language Arts

3 R.CM.03.01
Connect personal knowledge, experiences and understanding of the world to themes and perspectives in text through oral and written responses.

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Retell in sequence the story elements of grade-level narrative text and major idea(s) and relevant details of grade-level informational text.

3 R.CM.03.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

3 S.DS.03.03
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4 R.CM.04.02
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4 R.CM.04.03
Explain relationships among themes, ideas and characters within and across texts to create a deeper understanding by categorizing and classifying, comparing and contrasting, or drawing parallels across time and culture.

4 R.CM.04.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

4 S.DS.04.03
Respond to multiple text types by reflecting, making connections, taking a position and/or showing deep understanding.

Continued...

Lesson 4

English Language Arts Continued

5 R.CM.05.01
Connect personal knowledge, experiences and understanding of the world to themes and perspectives in text through oral and written responses.

5 R.CM.05.02
Retell through concise summarization grade-level narrative and informational text.

5 R.CM.05.03
Analyze global themes, universal truths and principles within and across text to create a deeper understanding by drawing conclusions, making inferences and synthesizing.

5 R.CM.05.04
Apply significant knowledge from grade-level science, social studies and mathematics texts.

5 S.DS.05.03
Respond to multiple text types by analyzing content, interpreting the message and evaluating the purpose.

Lesson 5

Impacts of Henry Ford's Solution Today – and Tomorrow

Michigan Grade Level Content Expectations

Social Studies

4 H3.0.1
Use historical inquiry questions to investigate the development of Michigan's major economic activities (agriculture, mining, manufacturing, lumbering, tourism, technology and research) from statehood to present.
- What happened?
- When did it happen?
- Who was involved?
- How and why did it happen?
- How does it relate to other events or issues in the past, in the present or in the future?
- What is its significance?

4 E3.0.1
Describe how global competition affects the national economy (e.g., outsourcing of jobs, increased supply of goods, opening new markets, quality controls).

English Language Arts

3 R.CM.03.03
Compare and contrast relationships among characters, events and key ideas within and across texts to create a deeper understanding, including a narrative to an informational text, a literature selection to a subject area text and a historical event to a current event.

3 L.RP.03.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to reflect, make connections, take a position and/or show understanding.

4 R.CM.04.03
Explain relationships among themes, ideas and characters within and across texts to create a deeper understanding by categorizing and classifying, comparing and contrasting, or drawing parallels across time and culture.

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Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to clarify meaning, make connections, take a position and/or show deep understanding.

5 R.CM.05.03
Analyze global themes, universal truths and principles within and across text to create a deeper understanding by drawing conclusions, making inferences and synthesizing.

5 L.RP.04.03
Respond to multiple text types listened to or viewed knowledgeably by discussing, illustrating and/or writing in order to clarify meaning, make connections, take a position and/or show deep understanding without major misconceptions.

Field Trip Learning Enhancement Suggestions

A visit to **The Henry Ford's** *Henry Ford Museum®*, *Greenfield Village®* or *Ford Rouge Factory Tour* makes history even more real for your students. **The Henry Ford** has developed a number of resources to reinforce curriculum in a fun way during your visit. Please see the list below

If you are unable to visit, **The Henry Ford** offers you the next best thing. Visit via the Internet to explore our many sites, educational resources and digitized artifacts from our collections.

Programs and Tools at **The Henry Ford**
20900 Oakwood Blvd.
Dearborn, MI 48124
thehenryford.org

The Henry Ford

History Hunters Scavenger Hunts

History Hunters are online, thematic, educationally relevant scavenger hunts that you and your students can use during your visit to **The Henry Ford**. They are self-directed and will help focus student observation, listening and thinking skills as they explore key aspects of exhibits, sites and artifacts at *Henry Ford Museum*, *Greenfield Village* and *Ford Rouge Factory Tour*.

Greenfield Village

Explore the Model T in *Greenfield Village*
Self-Guided Itinerary

Tour the artifacts, exhibits and sites associated with the development of the Model T. The itineraries are rich with Model T-related stories that provide in-depth information and questions for teachers, group leaders and students.

History Hunters

- Investigating the Model T
- Investigating the Making of Inventors: Henry Ford and the Wright Brothers

Additional Sites to Visit in Greenfield Village

- Ford Home
- Firestone Farm
- Armington and Sims Machine Shop
- Henry Ford Theater
- Bagley Avenue Workshop
- Ford Motor Company
- Edison Illuminating Company's Station A
- Ride a Model T
  (Additional fee required.)

Henry Ford Museum

Explore the Model T in *Henry Ford Museum*
Self-Guided Itinerary

Tour the artifacts, exhibits and sites associated with the development of the Model T. The itineraries are rich with Model T-related stories that provide in-depth information and questions for teachers, group leaders and students.

Henry's Assembly Line Guided Activity
FREE with Museum admission

What better way to learn about an assembly line than to work on one? In this hands-on 20-minute program, your students will work together to assemble a miniature wooden Model T using the station and moving assembly line methods.
Offered Daily, year-round
Program Length 20 minutes
(Check the daily schedule at Henry Ford Museum.)

Build a Model T Guided Activity
FREE with Museum admission

Grab a wrench and join in the fun as we celebrate Henry Ford's Model T! Students will gain new perspective about Henry Ford and the car that changed the world as they assist in the assembly of an authentic Model T. Spend as much or as little time as you want in this one-of-a-kind activity led by experienced presenters.
Offered Daily, year-round
Program Length Flexible

Continued...

Field Trip Learning Enhancement Suggestions Continued

Henry Ford Museum Continued

History Hunters

- Investigating the Model T
- Investigating Advertising in Automobile in American Life
- Investigating Changing American Landscapes in Automobile in American Life
- Investigating Inventions in Your Place in Time: 20th-Century America

Additional Sites to Visit in Henry Ford Museum

- *Made in America: Manufacturing*
- Agriculture Collections
- *Driving America*

Ford Rouge Factory Tour

The Ford Rouge Complex: A Case Study in Industrialization

Curriculum Connector

This new curriculum-aligned tool for teachers to use with students during and after their *Ford Rouge Factory Tour* visit reinforces field-trip learning when students return to the classroom. At the *Ford Rouge Factory Tour*, students can learn about the natural, human and capital resources needed for manufacturing, the changing face of industrialization and entrepreneurs in southeastern Michigan. A timeline, glossary, review questions and post-visit activities are included in this easy-to-use and downloadable learning tool.

Flexing for the Future Self-Guided Activity

FREE with *Ford Rouge Factory Tour* admission

New methods of production have revolutionized the auto industry. During this 10-minute hands-on assembly line activity, students work together to discover the flexibility of the modern moving assembly line.

Offered Daily

Program Length 10 minutes

Test Drive Smart Tools Self-Guided Activity

FREE with *Ford Rouge Factory Tour* admission

Get your hands on one of the technological innovations transforming the American auto industry. Handle a "smart tool" that workers use on the factory floor, and simulate steering wheel installation on a Ford F-150 pickup. Discover the connections between advanced tooling (process), skilled workers (people) and the end quality of the vehicle (product).

Offered Daily

Program Length Variable, self-directed

History Hunters

- Investigating Manufacturing

Other Places to Visit

to Learn More About Henry Ford

Henry Ford Estate (Fair Lane)
4901 Evergreen Road
Dearborn, MI 48128
313.593.5580
umd.umich.edu/fairlane

Edsel & Eleanor Ford Home
1100 Lake Shore Road
Grosse Pointe, MI 48236
313.884.4222
fordhouse.org

Model T Automotive Heritage Complex
461 Piquette Avenue
Detroit, Michigan 48202
313.872.8759
tplex.org

Edison & Ford Winter Estates
2350 McGregor Blvd.
Fort Myers, FL 33901
239.334.7419
efwefla.org

Alberta Village Museum
21235 Alberta Avenue
L'Anse, MI 49946
906.524.6181
fordcenter.mtu.edu/museum

unit plan | for grades 3-5

You Can Be an Innovator ... Like Henry Ford
Unit Plan Overview

Upper Elementary School

Overarching Question

How do people solve problems?

Introduce the overarching question by posting the sign

— *How do people solve problems?* — in a prominent place in the classroom so that it can be referenced throughout the unit.

Key Concepts

- Model T
- Life at the turn of the 20th century
- Vision
- Innovation
- Collaboration
- Curious
- Took advantage of opportunities to learn
- Mechanical inclined
- Perseverance after failure
- Willing to take risks
- Able to identify and attract outstanding people
- Iron ore
- Lumber
- Human resources
- Production

Key Concepts Continued

- Moving assembly line
- Division of labor
- Specialization
- Wage
- Union
- Consumption
- Car culture
- Unintended consequences
- Opportunity to innovate

Lessons and Big Ideas

Lesson 1 Henry Ford and the Beginnings of the Auto Industry

- An innovation is an invention, an idea or an improvement or change that is used by many people.
- Henry Ford had a vision to produce a car for the masses.

Lesson 2

Case Study with Primary Sources

- Henry Ford used his love of tinkering, his persistence, his willingness to take risks and his ability to build good teams to create the Model T.
- We all have qualities that can help us be an innovator.

Lesson 3 Resources and Location

- Henry Ford used natural resources from Michigan and other places in the United States and the world to build his Model T.
- Henry Ford had to solve the problem of where to locate his factory; Detroit was the answer.

Lesson 4 Using Human Resources on the Assembly Line

- To be a successful innovator, Henry Ford determined new ways to use labor – another resource.
- However, there were some unintended consequences of this innovation.

Continued...

Tip For Connections to National and Michigan Standards and Expectations, see the Teacher Guide.

Unit Plan Overview Continued

Upper Elementary School

Lesson 5 Impacts of Henry Ford's Solution Today – And Tomorrow

- The Model T was a successful innovation that has changed people's lives in many ways, intentionally and unintentionally.
- Automobiles present us with many further opportunities for innovation.

Duration 10 class periods (45 minutes each)

- Lesson Plans 6 class periods
- Unit Project 4 class periods

Field Trips

- *Greenfield Village*
- *Henry Ford Museum*
- *Ford Rouge Factory Tour*

Assessment

- Performance assessments included with each lesson plan
- Culminating projects (see Supplemental Resources)
- Review/assessment questions (see Supplemental Resources)

Digitized Artifacts

from the Collections of **The Henry Ford**:

Lesson 1
Henry Ford and the Beginnings of the Auto Industry

- "Wabash Avenue, North from Adams Street, Chicago," 1900 ID# THF429
- Hay Wagon Coming Up from a Meadow, Flushing, New York, circa 1900 ID# THF38312
- Detroit Automobile Company Delivery Truck Outside the Factory, 1899-1900 ID# THF25005
- Duryea Motor Wagon with Barnum & Bailey Circus, 1896 ID# THF3979
- First Official Ford Motor Company Portrait of Henry Ford, 1904 ID# THF36449
- Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573
- Toyota Prius Automobile, 2002 ID# THF68248
- Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884
- Ford Quadricycle, 1896, First Car Built by Henry Ford ID# THF3854
- Bagley Avenue Workshop, Replica of Henry Ford's Workshop, in *Greenfield Village* ID# THF1840

Lesson 2
Case Study with Primary Sources

- Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884
- Henry Ford with Other Employees at Edison Illuminating Company Plant, circa 1895 ID# THF22975
- Ford Quadricycle, 1896, First Car Built by Henry Ford ID# THF3854
- Detroit Automobile Company Delivery Truck Outside the Factory, 1899-1900 ID# THF25005
- Henry Ford and Ed (Spider) Huff Driving the Ford Sweepstakes Racer at Grosse Pointe, Michigan, October 10, 1901 ID# THF23800
- Ford Race Car "Sweepstakes," 1901 ID# THF70565
- Henry Ford and Ford Motor Company Executives at *Henry Ford Museum*, 1933 ID# THF22279
- Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573
- Henry Ford with the First Ford V-8 Engine, March 26, 1932 ID# THF22218

Continued...

Unit Plan Overview Continued

Upper Elementary School

Lesson 3

Resources and Location

- Exploded Ford Model T in *Henry Ford Museum* (view 1 ID# THF52709) (view 2 ID# THF52714) (view 3 ID# THF52715) (view 4 ID# THF52721)
- Aerial View of Ford Rouge Plant Complex, 1948 ID# THF24040

Lesson 4

Using Human Resources on the Assembly Line

- Women Workers Assembling Magnetos at Ford Highland Park Plant, circa 1913 ID# THF23810
- Workers Assembling Car Bodies at Ford Rouge Plant, 1932 ID# THF23466
- 1924 Ford Model T Cars on Assembly Line at Highland Park Plant, October 1923 ID# THF23577
- Swift & Company's Meatpacking House, Chicago, Illinois, Splitting Backbones and Final Inspection of Hogs, 1910-1915 ID# THF32081

Materials

- Computers with access to the Internet, digital projector and screen (preferred) OR printed handouts of digitized artifacts' images and descriptions
- Sign: How do people solve problems?
- Student Activity Sheet 1: My Innovation
- Student Activity Sheet 2A: Artifacts Tell About Us
- Answer Key 2A: Artifacts Tell About Us
- Student Activity Sheet 2B: Henry Ford: Biography of an Innovator
- Answer Key 2B: Henry Ford: Biography of an Innovator
- Student Activity Sheet 2C: Primary Sources Tell About Henry Ford
- Answer Key 2C: Primary Sources Tell About Henry Ford
- United States map (classroom copy)
- World map (classroom copy)
- Student Activity Sheet 3: My Factory
- Scrap paper – lots
- Full roll of wrapping paper
- Empty wrapping paper tube
- Tape
- 10 feet of continuous flat surface, like desks or tables pushed together
- Student Activity Sheet 4: Henry Ford and the Moving Assembly Line
- Magazines – 1 for every 2 students
- Student Activity Sheet 5: The Automobile in My Life
- *You Can Be an Innovator … Like Henry Ford*. Culminating Projects
- *You Can Be an Innovator … Like Henry Ford*. Extension Activities
- Student Activity Sheet 6: *You Can Be an Innovator … Like Henry Ford*. Review/Assessment Questions
- Answer Key 6: *You Can Be an Innovator … Like Henry Ford*. Review/Assessment Questions

Unit Plan Overarching Question:

HOW do people solve problems

Lesson 1 Henry Ford and the Beginnings of the Auto Industry

Big Ideas

- An innovation is an invention, an idea or an improvement or change that is used by many people.
- Henry Ford had a vision to produce a car for the masses.

Key Concepts

- Model T
- Life at the turn of the 20th century
- Vision
- Innovation
- Collaborate

Digitized Artifacts From the Collections of **The Henry Ford**

Lesson 1
Henry Ford and the Beginnings of the Auto Industry

- "Wabash Avenue, North from Adams Street, Chicago," 1900 ID# THF429
- Hay Wagon Coming Up from a Meadow, Flushing, New York, circa 1900 ID# THF38312
- Detroit Automobile Company Delivery Truck Outside the Factory, 1899-1900 ID# THF25005
- Duryea Motor Wagon with Barnum & Bailey Circus, 1896 ID# THF3979
- First Official Ford Motor Company Portrait of Henry Ford, 1904 ID# THF36449
- Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573
- Toyota Prius Automobile, 2002 ID# THF68248
- Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884
- Ford Quadricycle, 1896, First Car Built by Henry Ford ID# THF3854
- Bagley Avenue Workshop, Replica of Henry Ford's Workshop, in *Greenfield Village* ID# THF1840

Materials

- Computers with access to the Internet, digital projector and screen (preferred) OR printed handouts of digitized artifacts' images and descriptions
- Sign: How do people solve problems?
- Student Activity Sheet 1: My Innovation

Duration One class period (45 minutes)

Instructional Sequence:

1 Engagement

Discuss what Henry Ford is known for and his impact on our lifestyles and culture today. To spark conversation, compare and contrast the images of the Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573 and the Toyota Prius Automobile, 2002 ID# THF68248.

2 The Problem

Henry Ford will serve as an example of a problem solver as you and your students explore the unit's overarching question, "How do people solve problems?"

Continued...

2 The Problem Continued

To introduce Henry Ford's problem of how to build an automobile for the masses and his solutions to this problem, discuss the following concepts and show the accompanying images.

Concept	Image
City life at the turn of the 20th century was bustling. People got around by walking or using horses, streetcars and trains.	"Wabash Avenue, North from Adams Street, Chicago," 1900 ID# THF429
Farm life at the turn of the 20th century required hard labor and lots of land for growing crops and raising animals. It was not always easy for farm families to travel long distances to visit town or relatives.	Hay Wagon Coming Up from a Meadow, Flushing, New York, circa 1900 ID# THF38312
Automobiles at the turn of the 20th century were experimental and only very wealthy people owned them.	Duryea Motor Wagon with Barnum & Bailey Circus, 1896 ID#THF3979 Detroit Automobile Company Delivery Truck Outside the Factory, 1899-1900 ID# THF25005
Henry Ford built automobiles because he had experience with engines and enjoyed tinkering.	Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884 Bagley Avenue Workshop, Replica of Henry Ford's Workshop, in *Greenfield Village* ID# THF1840 Ford Quadricycle, 1896, First Car Built by Henry Ford ID# THF3854
Henry Ford's vision was to build an affordable car for the masses. It would especially help farm families to become less isolated.	First Official Ford Motor Company Portrait of Henry Ford, 1904 ID# THF36449

Continued…

3 Students' Innovations

As a group, define the word "innovation".

Ask students what they would like to invent or innovate and how might they do so? Distribute the Student Activity Sheet 1: My Innovation to help them think about and answer this question. Before students complete the Activity Sheet, share the following information about Henry Ford to help them understand and respond to the questions.

1 Henry Ford had interests and skills that helped him to solve problems:

– He liked doing things and working with his hands.

– He was curious about building things, especially engines.

– He enjoyed taking apart and repairing watches as a child.

2 Henry Ford saw problems that he wanted to solve:

– He grew up on a farm and knew how isolated farm families were from towns or relatives.

– He knew how complex machines were by having to help his neighbor operate Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884 when no other neighbors knew how to make it work.

3 Henry Ford wanted to break some of the rules about the type of cars available before his Model T:

– Cars were expensive, and only the very wealthy could afford them.

– Cars were also very heavy, making them even more expensive.

– Cars were complicated to drive and maintain.

4 Henry Ford chose collaborators who had knowledge and skills that helped him solve problems:

– Henry's friend Ed "Spider" Huff was a great engineer and helped design the Model T.

– Henry chose James Couzens, who had excellent business skills, to be his second-in-command.

5 Henry Ford persevered and took risks in order to solve problems and achieve his vision:

– Henry Ford founded two companies that went out of business before he was finally successful with his third company, the Ford Motor Company.

– To attract attention and get supporters for Ford Motor Company, Henry Ford built and drove race cars, risking his life.

After students have completed the Activity Sheet, invite them to share their innovations and their vision for achieving them.

Assessment

Assess students' participation in the discussions, their thoughtfulness in completing Activity Sheet #1: My Innovation and their skill in communicating their innovations and vision

my Innovation

Name _____

These questions and activities will help you develop your ideas about a problem you'd like to solve and an invention or **innovation** you'd like to create!

Part I: Brainstorming

1. What are you curious about or interested in? List at least three things.

2. What problems do you, your family or people around you have to deal with every day? List all you can think of here.

Part II: Thinking Like an Innovator

Look back at questions 1 and 2. Choose two problems you'd like to solve or innovative products you'd like to create. Use them to fill in the following tables.

3. What do you know about these problems or products? These "facts" are rules that innovators may need to courage to break!

Problem/product	Rules of the past

4. Name one person you think could **collaborate** or work together with you on each problem/product. Why do you think this person would be a good collaborator?

Problem/product	Collaborator	Why

5. If you made it your mission to work on one of these problems/products, what risks might you have to take?

Problem/product	Risks

Part III: Vision

Now, chose one of the two problems or products. Think about your idea or vision for improving this problem or product. Remember:

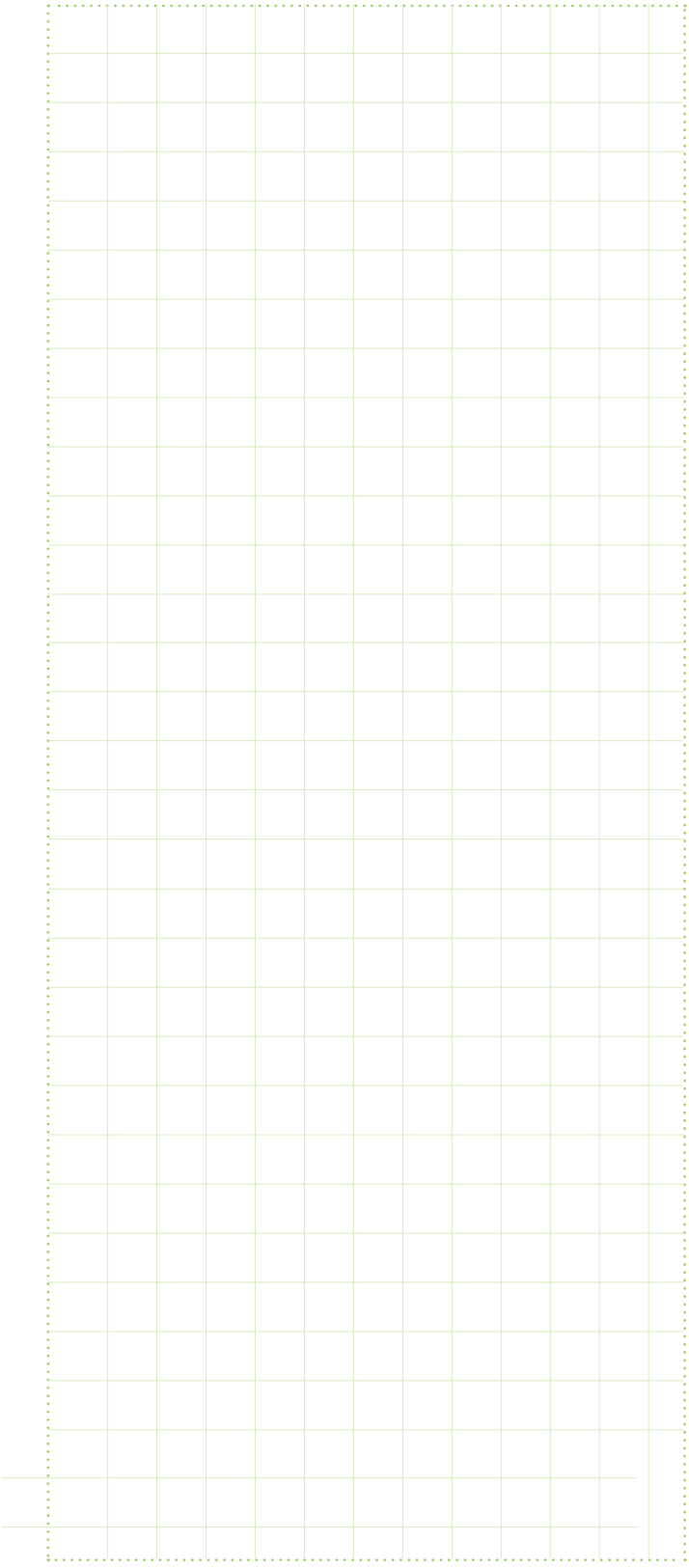
An innovation does not have to be a brand-new invention. Innovation is about improving.

An innovation does not have to be a physical object. It can be an idea, a process, or a way of doing things that is better.

It could be better for many different reasons. It might work better, be simpler, use new technology or be environmentally friendly.

It must be adopted by society at large, so it has to be something people would want.

Once you have your idea or vision, describe who and what you need to make it happen through writing, drawing or another form of communication. Be creative! Share your idea or vision with your classmates, family and friends. What do they think?



Lesson 2 Case Study with Primary Sources

Big Ideas

- Henry Ford used his love of tinkering, his persistence, his willingness to take risks and his ability to build good teams to create the Model T.
- We all have qualities that can help us be an innovator.

Key Concepts

- Curious
- Took advantage of opportunities to learn
- Mechanically inclined
- Perseverance after failure
- Willing to take risks
- Able to identify and attract outstanding people

Digitized Artifacts From the Collections of **The Henry Ford**

Lesson 2 Case Study with Primary Sources

- Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884
- Henry Ford with Other Employees at Edison Illuminating Company Plant, circa 1895 ID# THF22975
- Ford Quadricycle, 1896, First Car Built by Henry Ford ID# THF3854
- Detroit Automobile Company Delivery Truck Outside the Factory, 1899-1900 ID# THF25005
- Henry Ford and Ed (Spider) Huff Driving the Ford Sweepstakes Racer at Grosse Pointe, Michigan, October 10, 1901 ID# THF23800
- Ford Race Car "Sweepstakes," 1901 ID# THF70565
- Henry Ford and Ford Motor Company Executives at *Henry Ford Museum*, 1933 ID# THF22279
- Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573
- Henry Ford with the First Ford V-8 Engine, March 26, 1932 ID# THF22218

Materials

- Computers with access to the Internet (preferred) OR printed handouts of digitized artifacts' images and descriptions
- Sign: How do people solve problems?
- Student Activity Sheet 2A: Artifacts Tell About Us
- Answer Key 2A: Artifacts Tell About Us
- Student Activity Sheet 2B: Henry Ford: Biography of an Innovator
- Answer Key 2B: Digitized Primary Sources for Henry Ford: Biography of an Innovator
- Student Activity Sheet 2C: Primary Sources Tell About Henry Ford
- Answer Key 2C: Primary Sources Tell About Henry Ford

Duration 1 class period (45 minutes)

Continued…

Instructional Sequence

1 Engagement

Show students an object you have with you or on your desk, such as a watch, teacher ID, photograph, etc. Ask students to identify it and say why they you think you have it. Tell students that the tangible things that we own and use often reveal something about who we are. Remind students that artifacts are one type of primary source.

Ask them to choose a physical object they currently have with them, such as something they're wearing, something in their desk or backpack, etc. Pair the students up to discuss their objects using Student Activity Sheet 2A: Artifacts Tell About Us. Tell them not to answer the last question yet.

2 Henry Ford's Characteristics

Tell students that there are many artifacts associated with the life of Henry Ford, some of which are in the museum he founded.

In this activity, students in pairs or in groups of three will match digitized primary sources such as photographs, letters and artifacts with stories of Henry Ford's life. Students will read Student Activity Sheet 2B, a biography of Henry Ford that includes blanks where primary sources can illustrate a specific characteristic or story from Ford's life. They will choose which digitized primary source best fills the blanks. Students can view the digitized artifacts at Lesson 2: Case Study with Primary Sources. If you do not have Internet access, print and copy the digitized primary sources and the accompanying descriptive information.

There are multiple ways to implement this activity. Choose or adapt the ideas below to meet your students' needs:

Literacy focus

Prepare for this activity by identifying and defining words in the biography of Henry Ford that may be challenging for your students. Assign one digitized primary source to each group. Distribute the story of Henry Ford's life, and read it out loud for students. At the blanks where a digitized primary source is needed, stop and ask students to consider if their primary source fits here. Read through the whole story once before you ask the students where they think their primary source fits. As a group, discuss the story (perhaps with students summarizing it or reading it out loud again), what each image is about and what the image tells about Henry Ford's qualities. Refer to the descriptions to learn more about these digitized primary sources.

Primary source focus

Prepare by cutting the biography into one-paragraph sections. Provide, or have students look up, the definitions for difficult words as needed. Assign a paragraph to each group. Give them access to all the digitized primary sources from Lesson 2: Case Study with Primary Sources. Students should read their paragraph and then choose the most relevant digitized primary source that illustrates their blank correctly.

For either method, once students have made their initial primary source selection, review their choices and reasons with the whole class. Come to a consensus, using the answer key as a guide. Distribute the full biography to all students so that they may enter the digitized primary source into the correct blanks.

3 Students' Characteristics

Ask students to try to answer the last question on Student Activity Sheet 2A: Artifacts Tell About Us. Have them share their neighbor's object and the characteristic they think it represents with the whole class.

Assessment

Have each student complete Student Activity Sheet 2C: Primary Sources Tell About Henry Ford. Assess students on how well they understood and retained the earlier discussion, giving them extra credit for creativity and close examination of the artifact. Assess students' participation for Student Activity Sheet 2A: Artifacts Tell About Us.

artifacts Tell About Us

These are the types of questions historians ask when studying an artifact. Your answers will be the evidence that you use to figure out what this artifact tells you about your partner.

Name _____

Partner's Name _____

What is the object called?

What is the object made of?

What is it used for?

Who uses it?

Is this object part of family life, education, work, play, home, religion, etc.?

How did this object's owner obtain it?

What is it like to use this object?

What characteristics might a person using this object have? List a few ideas.

What does using this object say about your partner? What characteristics does he/she have?

Can this characteristic help your partner solve problems? How?

artifacts Tell About Us

These are the types of questions historians ask when studying an artifact. Your answers will be the evidence that you use to figure out what this artifact tells you about your partner.

Name

Partner's Name

What is the object called?

Eraser

What is the object made of?

Rubber

What is it used for?

Fixing mistakes

Who uses it?

Students, writers and many other people

Is this object part of family life, education, work, play, home, religion, etc.?

Education

How did this object's owner obtain it?

Bought it with beginning of year school supplies

What is it like to use this object?

Can be frustrating to have to use an eraser, but it can also feel good to be able to fix something you have written, especially when you know how.

What characteristics might a person using this object have? List a few ideas.

Smart, hard-working, persitent

What does using this object say about your partner? What characteristics does he/she have?

My partner will fix things as many times as necessary to get the right answer. He/she is persistent.

Can this characteristic help your partner solve problems? How?

He/she won't give up, even if it takes time to find the answer.

Henry Ford:
Biography of an Innovator

Illustrate Henry Ford's biography by filling in blanks on the next page with artifacts from his life. Choose from the artifacts in the list below.

A. Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573

B. Ford Race Car "Sweepstakes," 1901 ID# THF70565

C. Detroit Automobile Company Delivery Truck Outside the Factory, 1899-1900 ID# THF25005

D. Ford Quadricycle, 1896, First Car Built by Henry Ford ID# THF3854

E. Henry Ford with Other Employees at Edison Illuminating Company Plant, circa 1895 ID# THF22975

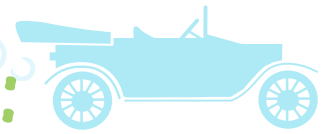
F. Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884

G. Henry Ford with the First Ford V-8 Engine, March 26, 1932 ID# THF22218

H. Henry Ford and Ford Motor Company Executives at *Henry Ford Museum*, 1933 ID# THF22279

I. Henry Ford and Ed (Spider) Huff Driving the Ford Sweepstakes Racer at Grosse Pointe, Michigan, October 10, 1901 ID# THF23800

Name _____



Henry Ford: Biography of an Innovator

By Bob Casey, Catherine Tuczek, Donna Braden
Curators, **The Henry Ford**

Henry Ford did not invent the automobile. He didn't even invent the assembly line. But his inexpensive Model T car and his improvements to production methods made him one of the major shapers of the 20th century. Why was he such an innovator?

Ford's beginnings were perfectly ordinary. He was born on his father's farm in what is now Dearborn, Michigan, on July 30, 1863. At a young age, Ford demonstrated some of the characteristics that would make him successful, powerful and famous. Using his mechanical ability, he organized other boys to build simple water wheels and steam engines. His curiosity led him to learn about full-sized steam engines by becoming friends with the men who ran them. 1. _____ He taught himself to fix watches and in doing so learned about machine design and about learning by trial and error. This way of learning fit his preference for learning by trial and error. These characteristics would become the foundation of his whole career.

Ford could have followed in his father's footsteps and become a farmer. But young Henry was fascinated by machines and was willing to take risks to pursue that fascination. In 1879, he left the farm to become an apprentice at the Michigan Car Company, a manufacturer of railroad cars in Detroit. Over the next two-and-one-half years, he held several similar jobs, sometimes moving when he thought he could learn more somewhere else. He returned home in 1882 but did little farming. Instead, he operated and repaired portable steam engines used by farmers, occasionally worked in factories in Detroit, and cut and sold timber from 40 acres of his father's land. By now Ford was demonstrating another characteristic – a preference for working on his own rather than for somebody else. In 1888, Ford married Clara Bryant, and in 1891 they moved to Detroit where Henry had taken a job as night engineer for the Edison Illuminating Company. 2. _____ Ford did not know a great deal about electricity. He saw the job in part as an opportunity to learn. Also, Henry admired Thomas Edison, the great inventor, and was able to meet his role model through this job.

Henry was a good pupil and by 1896 had risen to chief engineer of the Illuminating Company. But he had other interests. He became one of the many curious and mechanically inclined people working in barns and small shops across the country trying to build horseless carriages. Ford completed his first automobile in 1896, 3. _____ aided by a team of friends. A second car followed in 1898. Ford now demonstrated one of the key qualities to his future success – the ability to dream big and convince other people to sign on and help him achieve that dream. He persuaded a group of businessmen to back him in the biggest risk of

Continued...

his life – a company to make and sell horseless carriages.

4. But Ford knew nothing about running a business, and learning by trial and error always involves failure. The new company failed, as did a second. To revive his fortunes, Ford took bigger risks, building and even driving racing cars. **5.** The success of these cars attracted additional financial backers, and on June 16, 1903, Henry incorporated his third automotive venture, Ford Motor Company.

The early history of Ford Motor Company illustrates one of Henry Ford's most important talents – an ability to identify and attract outstanding people. He hired a core of young, able men who believed in his vision and would make Ford Motor Company into one of the world's great industrial enterprises. **6.** The new company's first car, called the Model A, was followed by a variety of improved models. In 1907, Ford's four-cylinder, $600 Model N became the best-selling car in the country. But by this time Ford had a bigger vision: a better, cheaper "motorcar for the great multitude." Working with a hand-picked group of employees, he came up with the Model T, introduced on October 1, 1908.

7. Henry Ford was right; the Model T was truly a car for the multitude. Over 15 million were produced.

The Model T's success had convinced Henry that only he knew what car people wanted. He continued to believe that the Model T was that car. He ignored the growing popularity of more expensive but more stylish and comfortable cars like the Chevrolet and would not listen to his son Edsel and other Ford executives when they said it was time for a new model. Finally the declining sales figures convinced Henry to design a new car, called the Model A. It was successful, but for only four years. In 1932 at age 69, Ford again showed his mechanical ability when he introduced his last great automotive innovation, the lightweight, inexpensive V-8 engine.

8. Even this was not enough to halt his company's decline. By 1936, Ford Motor Company had fallen to third place in the U.S. market, behind both General Motors and Chrysler Corporation.

Henry continued to tinker, sometimes with his mentor and friend Thomas Edison. He also worked with George Washington Carver to try to find new uses for the soybean. Henry retired from Ford Motor Company in 1945 and died on April 7, 1947, at age 83.

Note The main sources for the above were *Ford: The Times, the Man, the Company, Ford: Expansion and Challenge 1915-1933* and *Ford: Decline and Rebirth 1933-1962* by Allan Nevins and Frank Ernest Hill; and *From the American System to Mass Production, 1800-1932* by David Hounshell.

Henry Ford: Biography of an Innovator

By Bob Casey, Catherine Tuczek, Donna Braden
Curators, **The Henry Ford**

1. F. Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884

2. E. Henry Ford with Other Employees at Edison Illuminating Company Plant, circa 1895 ID# THF22975

3. D. Ford Quadricycle, 1896, First Car Built by Henry Ford ID# THF3854

4. C. Detroit Automobile Company Delivery Truck Outside the Factory, 1899-1900 ID# THF25005

5. I. Henry Ford and Ed (Spider) Huff Driving the Ford Sweepstakes Racer at Grosse Pointe, Michigan, October 10, 1901 ID# THF23800

   B. Ford Race Car "Sweepstakes," 1901 ID# THF70565

6. H. Henry Ford and Ford Motor Company Executives at *Henry Ford Museum*, 1933 ID# THF22279

7. A. Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573

8. G. Henry Ford with the First Ford V-8 Engine, March 26, 1932 ID# THF22218

Henry Ford primary sources Tell About

Even when the people aren't here to tell us their own stories, the photographs, letters and artifacts they leave behind reveal information about their lives.

Name _____

1. What primary source are you using?

2. What story from Henry's life does this artifact tell us about?

3. Which of Henry Ford's characteristics does this artifact tell us about?

4. How do you think this characteristic helped Henry Ford solve problems?

the Henry Ford®

primary sources Tell About Henry Ford

Artifact
Westinghouse Portable Steam Engine No. 345, Made circa 1881 and Used by Henry Ford ID# THF74884

Story Learned about steam engines from men who ran them

Characteristic Curious

Artifact
Henry Ford with Other Employees at Edison Illuminating Company Plant, circa 1895 ID# THF22975

Story Took a job at Edison to learn about electricity

Characteristic Took advantage of opportunities to learn

Artifact
Ford Quadricycle, 1896, First Car Built by Henry Ford ID# THF3854

Story First car built by Henry Ford

Characteristic Mechanically inclined

Artifact
Detroit Automobile Company Delivery Truck Outside the Factory, 1899-1900 ID# THF25005

Story Henry Ford's first company, which failed

Characteristic Perseverance after failure

Artifact
Henry Ford and Ed (Spider) Huff Driving the Ford Sweepstakes Racer at Grosse Pointe, Michigan, October 10, 1901 ID# THF23800

Story Took great risk with automobile racing in order to win financial backers

Characteristic Willing to take risks

Artifact
Ford Race Car "Sweepstakes," 1901 ID# THF70565

Story Took great risk with automobile racing in order to win financial backers

Characteristic Willing to take risks

Artifact
Henry Ford and Ford Motor Company Executives at *Henry Ford Museum*, 1933 ID# THF22279

Story People who worked closely with Henry at Ford Motor Company

Characteristic Able to identify and attract outstanding people

Artifact
Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford. ID# THF70573

Story The result of Henry Ford's vision of a car for the multitude

Characteristic Visionary

Artifact
Henry Ford with the First Ford V-8 Engine, March 26, 1932 ID# THF22218

Story Henry Ford's last great innovation, the V-8 engine

Characteristic Mechanically inclined

Lesson 3 Resources and Location

Big Ideas

- Henry Ford used natural resources from Michigan and other places in the United States and the world to build his Model T.
- Henry Ford had to solve the problem of where to locate his factory; Detroit was the answer.

Key Concepts

- Iron ore
- Lumber

Digitized Artifacts From the Collections of **The Henry Ford**

Lesson 3 Resources and Location

- Exploded Ford Model T in *Henry Ford Museum* (view 1 ID# THF52709) (view 2 ID# THF52714) (view 3 ID# THF52715) (view 4 ID# THF52721)
- Aerial View of Ford Rouge Plant Complex, 1948 ID# THF24040

Materials

- Computer with access to the Internet, digital projector and screen (preferred) OR printed handouts of digital artifacts, images and descriptions
- Sign: How do people solve problems?
- United States map (classroom copy)
- World map (classroom copy)
- Student Activity Sheet 3: My Factory

Duration 1 class period (45 minutes)

Instructional Sequence

1. Engagement

Introduce Henry Ford's problem of how to build affordable cars for the masses.

Ask students to brainstorm what is needed to build cars. Answers may include natural resources to make metal and glass, capital resources such as factories and machines, and human resources such as workers and engineers.

Tell students that the way cars are built today is very different from the way Henry Ford built his first Model T in 1908.

2. Henry Ford Uses Resources

- Exploded Ford Model T in *Henry Ford Museum* (view 1 ID# THF52709) (view 2 ID# THF52714) (view 3 ID# THF52715) (view 4 ID# THF52721)

You may want to zoom in so students can examine it very closely. Challenge them to list as many materials they can see that are used in the Model T and to identify where on the car each material was used. Record their answers in chart form on the board. Invite them to guess other materials that may have been used that they cannot see. After a few minutes, add the materials used that they haven't guessed.

Group students in pairs and give each pair a sticky note with the name of a material. Ask the students to predict where in the world these resources came from. Direct them to look at the classroom maps of the United States and of the world. Each pair of students should tape their paper to the place they think Henry Ford would have purchased their resource or material.

Review the answers as a class, making corrections as necessary.

Continued…

2. Henry Ford Uses Resources Continued

Material/Natural Resource	Used in	From
Wood	Body frame	Michigan's Upper Peninsula
Iron Ore/Metal	Body panels, chassis, engine, many other small parts	Michigan's Upper Peninsula, Minnesota
Rubber	Tires	Southeast Asia
Sand/Glass	Headlights, windshield	Many possible source locations
Petroleum	Gasoline, oils, lubricants	Southwest United States
Cotton	Stuffing for seats	Southern United States
Horsehair	Stuffing for seats	Many possible source locations
Leather	Upholstery	Many possible source locations
Brass (an alloy of tin and copper)	Headlights, radiator, trim	Copper from Michigan's Upper Peninsula, Tin source location unknown

Note: Some materials changed during the 18 years Ford produced the Model T.

3. Location for Manufacturing

Tell students Henry Ford also had to move the resources to his factory. The Model T was made at the Highland Park Plant in Detroit, Michigan. Have students locate Detroit on a map of the United States. Use the map to start a discussion by asking questions such as:

Why might Detroit be a good place for Henry Ford to locate his automobile factory?

It is on a river so boats could get there easily. It's also close to the Upper Peninsula where he could obtain wood and iron ore.

If a resource was coming from Southeast Asia, how would it get to Detroit? What forms of transportation would it take? Trace the route you think the resource would take.

By ship Students should trace a route from Southeast Asia through the Pacific Ocean to the Panama Canal, north through the Atlantic Ocean to New York, following the Hudson River north to the Erie Canal to Lake Erie and up the Detroit River to Detroit.

By ship and railroad Trace a route from Southeast Asia through the Pacific Ocean to California (ship route) and east across the United States to Detroit (railroad route).

Is the Highland Park Plant on the water?
How were resources moved to the factory?

No, the Highland Park Plant is not on the water. Resources could be moved on the railroad.

Tell students that although Henry Ford did build a railroad track right to the Highland Park Plant, he wasn't satisfied. He wanted a larger factory right on the water, so he built the Ford Rouge Factory. Ask students to locate the River Rouge, just south of Detroit, which intersects with the Detroit River. This is where the Ford Rouge Factory was built. Ask students what the advantages of this location are.

The Rouge is on the water.

Show students the digitized images

– Aerial View of Ford Rouge Plant Complex, 1948 ID# THF24040. Point out that a railroad came right along the river next to where the boats dock, too
– Have them list the types of transportation they see in this diagram that could be used to bring resources to the Rouge.

Assessment

Give students the Student Activity Sheet 3: My Factory. To complete the assignment, students should use what they learned today about how Henry Ford selected the location for his Ford Rouge Factory. There is no one right answer. To get full credit, students need to show at least one form of transportation (water, railroad or road) going to their factory. In class the next day, discuss advantages and disadvantages of relying on each of these forms of transportation.

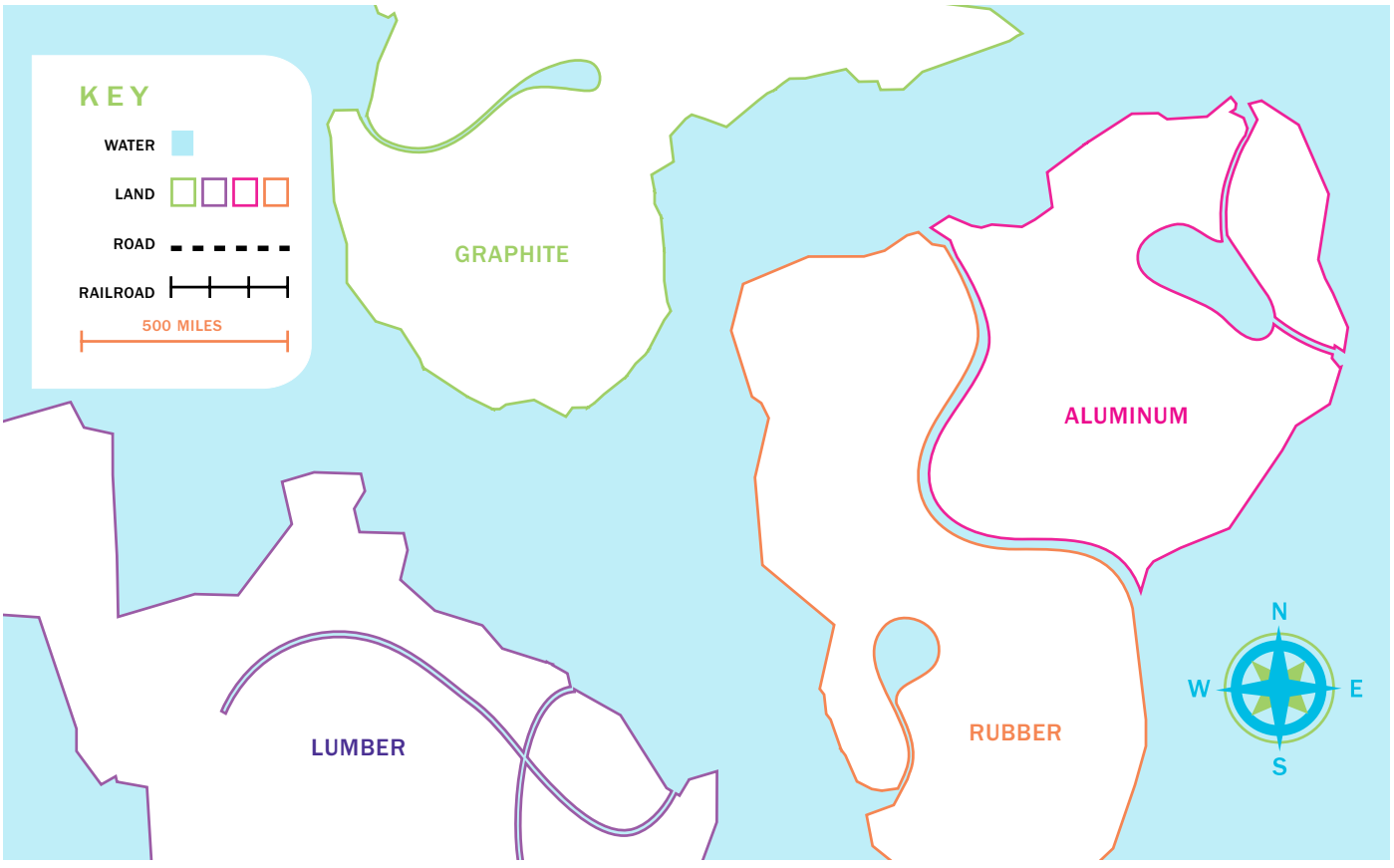
my factory

Name _____

Imagine that you are starting your very own factory. It is a pencil factory. To produce pencils, certain natural resources are required:

1. Lumber
2. Graphite
3. Rubber
4. Aluminum

Below is a map of your imaginary world. It shows the places where each natural resource needed to produce pencils can be found, as well as the waterways in those places. Draw a star where you would locate your factory. You may draw in railroads or roads if necessary. Draw a path from each resource's current location to your factory, following the modes of transportation – water, railroad or road.



1. How did you choose the location for your factory?

2. What forms of transportation do your resources use to travel to your factory?

3. What other changes could you make to improve your factory location?

Lesson 4 Using Human Resources on the Assembly Line

Big Ideas

- One of Henry Ford's innovations was new ways to use human resources.
- However, there were some unintended consequences of this innovation.

Key Concepts

- Human resource
- Production
- Moving assembly line
- Division of labor
- Specialization
- Wage
- Union
- Consumption

Digitized Artifacts From the Collections of **The Henry Ford**

Lesson 4 Using Human Resources on the Assembly Line

- Women Workers Assembling Magnetos at Ford Highland Park Plant, circa 1913 ID# THF23810
- Workers Assembling Car Bodies at Ford Rouge Plant, 1932 ID# THF23466
- 1924 Ford Model T Cars on Assembly Line at Highland Park Plant, October 1923 ID# THF23577
- Swift & Company's Meatpacking House, Chicago, Illinois, Splitting Backbones and Final Inspection of Hogs, 1910-1915 ID# THF32081

Materials

- Computer with access to the Internet (optional); digital projector and screen (optional).
- Sign: How do people solve problems?
- Scrap paper – lots
- Full roll of wrapping paper, any type
- Empty wrapping paper tube
- Tape
- 10 feet of continuous flat surface, like desks or tables pushed together
- Student Activity Sheet 4: Henry Ford and the Moving Assembly Line

Duration 2 class periods (45 minutes each)

Instructional Sequence

1 Engagement

Discuss capital resources and both natural and human resources with students. Introduce Henry Ford's problem of not only hiring but also keeping enough workers to perform the many repetitive tasks on the moving assembly line. Ask students to predict or guess what kinds of problems Ford might have, related to workers.

2 Paper Airplane Workshop*

Students will produce paper airplanes as goods would have been produced before the innovation of the moving assembly line.

Continued....

Paper Airplane Workshop Continued

Instruct each student to make his or her own paper airplanes from start to finish. Find out how many were made after five minutes, share a few designs and allow flight testing. Clean up.

Tell the students that Henry Ford was especially innovative in how he made use of people in his company. Show the digitized artifacts from Lesson 4: Using Human Resources on the Assembly Line to provide students with some visual images of the moving assembly line. Read the article "Henry Ford and the Moving Assembly Line, Part I."

Stop at the end of Part I and facilitate the Paper Airplane Moving Assembly Line★ activity described below.

3 Paper Airplane Moving Assembly Line★

Paper Airplane Assembly Line Setup

Recommendation: Set up the physical assembly line before your students come to class.

Setup

- Tape the end of the roll of wrapping paper to an empty roll of wrapping paper in a few places along the end.
- You will need ten feet of continuous flat surface; you might line up desks or tables to achieve this.
- Place the wrapping paper at one end of the surface; unwind it so that the empty roll-end reaches the other end of the flat surface to form the conveyor belt.
- Place a stack of scrap paper at the end with the full roll. This will be Station One on the assembly line.

Assembly Line Stations

- Station One: Take one piece from the stack of paper and place it on the conveyor belt.
- Station Two: Make a center vertical fold in the piece of paper.
- Station Three: Open the folded paper.
- Station Four: Fold the top right corner of the unfolded paper in to the fold line.
- Station Five: Fold the top left corner of the paper in to the fold line.
- Station Six: Fold the center to create the nose.
- Station Seven: Fold one side down to create one wing.
- Station Eight: Fold other side down to create the other wing.
- Station Nine: Adjust the folds so that the wings are horizontal.
- Station Ten: Test-fly the airplane.

Each station is a job on the assembly line. The airplane should move on the conveyor belt (wrapping paper) between stations.

Choose ten students to fill these positions. You will also need two students to run the conveyor belt, with one holding the full tube and one winding paper around the empty tube. The second student will be the belt-controller, controlling the speed of the assembly line.

Students not working on the assembly line should each be assigned to closely observe one of the workers. Let the observers know that they'll be asked to comment on what their worker seems to find easy and what their worker seems to find challenging.

Continued....

Paper Airplane Moving Assembly Line Continued

Introduce the scenario that the speed of production is controlled by the speed of the conveyor belt in the moving assembly line. Before you begin, ask students to explain why Henry Ford might feel this is a good idea. After they answer, ask the workers to be aware of their feelings while they are working on the moving assembly line.

Review each of the jobs with the students. Explain to students how the moving assembly line will work. Once you are sure everyone understands his or her jobs, try out the moving assembly line!

Discuss students' reactions, successes and challenges. Take notes on the board.

Next, try speeding up the line.

Now ask the students: How do the workers' feelings change? Does the work become more challenging? If so, for whom, and how? How does speeding up the line change the quality of the product?

Update your notes on the board.

4 Henry Ford and the Moving Assembly Line, Part II

Read Part II of Student Activity Sheet 4: Henry Ford and the Moving Assembly Line. If students want to examine the images in the article more closely, access the digitized artifacts and project them onto a screen, if you have one. When you are finished reading, ask students to answer the reflection questions in writing.

Assessment

Evaluate your students' answers to the reflection questions in Student Activity Sheet 4: Henry Ford and the Moving Assembly Line.

⋆ Adapted from *The Power in Our Hands: A Curriculum on the History of Work and Workers in the United States*, by William Bigelow and Norman Diamond. New York: Monthly Review Press, 1988.

Name _____

Henry Ford and the moving assembly line

Part I

Have you ever wondered how the items you use every day, such as the shoes you wear and the pen with which you write, were made? They were probably made by workers on a moving assembly line in a factory. Products have been made on moving assembly lines for almost 100 years. But in 1908, when Henry Ford began producing automobiles on the first moving assembly line, it was a major innovation in the way workers did their jobs.

Producing anything requires people. The people who play a part in producing a product are human resources. Henry Ford used human resources very well in his company, as "teammates" who helped him run the company and as workers who made the cars.

Henry Ford was a great team builder. He knew how to choose good workers and how to inspire them to make the business better. Ford employed engineers and business people to help plan the production, or building, of vehicles and the sales of cars. Members of his team started Henry Ford on his way to the moving assembly line. In 1906, a new production overseer rearranged the tools in Ford's factory. Now the tools were in the same order of the steps needed to produce an automobile part! But it took seven more years for Henry Ford and his team to fully develop the moving assembly line.

In 1908, Henry Ford began building a new factory in Highland Park, Michigan. This factory is where the moving assembly line came to life.

Women Workers Assembling Magnetos at Ford Highland Park Plant, circa 1913 ID# THF23810

There are many different stories about what inspired the moving assembly line, which Ford started using in 1913. Henry Ford once said that he had observed the processes in a meatpacking plant. In a meatpacking plant, the animal's body was attached to a moving conveyor belt and moved from worker to worker, who each cut off a particular piece of meat. One of Henry's top engineers, Charles Sorenson, said that he and some of his assistants developed the assembly line by pulling an automobile chassis along on a rope past piles of parts, adding one part at each new spot. Historians think all of the stories probably have a bit of truth. It is certain that a variety of influences, many people and lots of

Continued...

experimentation led to the development of the moving assembly line. Henry Ford encouraged his workers to try new ways of doing things. He was a great example for them, too, as he was always tinkering with his machines and automobiles.

Swift & Company's Meatpacking House, Chicago, Illinois, Splitting Backbones and Final Inspection of Hogs, 1910-1915 ID# THF32081

This type of "disassembly" line inspired Henry Ford's moving assembly line. In the moving assembly line, the work moves from worker to worker. Each worker puts on a new piece of the part; then the part moves along to the next worker. Each worker does one step of the bigger job; this is called division of labor. Also, each worker only has to learn and perform one step; this is called specialization. At first, Ford Motor Company used the moving assembly to make the individual parts of cars. It was so efficient, allowing workers to make parts so quickly, that eventually it spread to all aspects of the assembly process. Even the chassis (the bottom of the car to which the wheels attach) moved on a conveyor belt from worker to worker.

Workers Assembling Car Bodies at Ford Rouge Plant, 1932 ID# THF23466

Part II

This new method of production changed the way that people worked. Instead of being involved in the whole process of building a car, workers just completed one small part of the process. This was faster and made it easier to train workers. However, doing a small task over and over again was boring. Also, workers had to work at the same speed the conveyor belt moved; if one worker slowed down or got behind, the rest of the process would be held up. In 1914, in order to convince workers to do this unpleasant work, Henry Ford began paying his

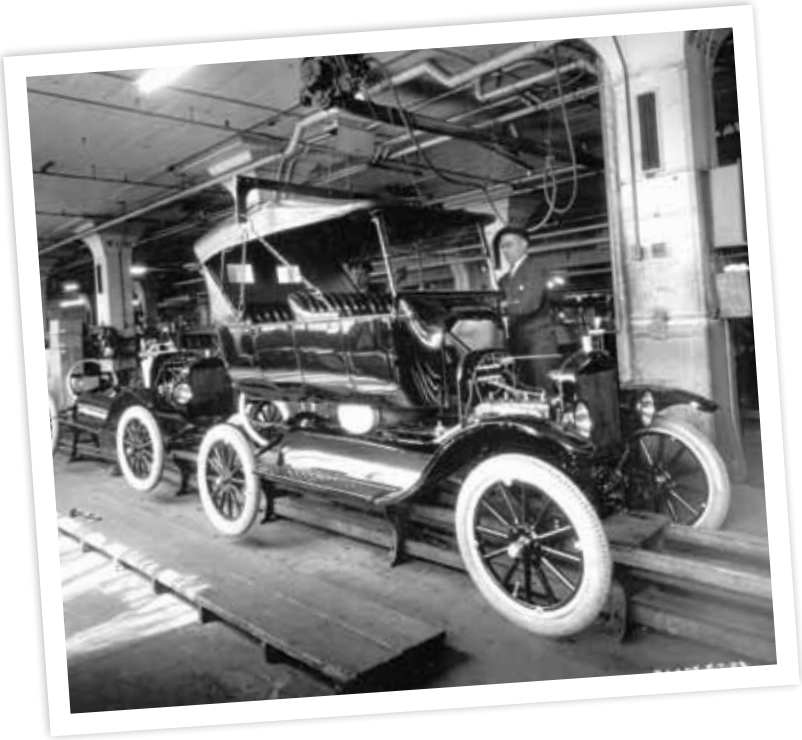
Continued...

Part II Continued

workers $5 a day – almost twice as much as what they had been earning. Workers came to expect these high wages from Ford Motor Company and other automobile companies. When companies decreased wages during the Great Depression, workers formed a union, or group of workers with shared interests, so auto companies would always have to pay them good wages.

While the work was tedious, items could be produced faster and more cheaply than ever. Also, with workers being paid so well, they could afford to buy more. Soon, consumption – buying things – became a way of life for Americans. While Henry Ford did want all people to be able to get around with a Model T, Henry did not like unnecessary consumption, which increased partly because of his innovation of the moving assembly line.

By the 1920s, making, selling and buying automobiles became very important, especially in Michigan, where many automobile companies were located. Today, automobile companies selling cars in the United States are located all over the world. Michigan now faces the challenge of developing other economic activities, since the automobile industry is no longer as strong. However, the innovations of Henry Ford can be an example for the present and future of the Michigan economy.



1924 Ford Model T Cars on Assembly Line at Highland Park Plant, October 1923 ID# THF23577

Questions for Reflection

1. What are some of the advantages of the moving assembly line?
2. What are some of the disadvantages of the moving assembly line?
3. How is the moving assembly line important to Michigan history?
4. If you were offered a job on the moving assembly line for twice the wage you currently make, would you take it? Why or why not?

Lesson 5 Impacts of Henry Ford's Solution Today – And Tomorrow

Big Ideas

- The Model T was a successful innovation that has changed people's lives in many ways, intentionally and unintentionally.
- Automobiles present us with many further opportunities for innovation.

Key Concepts

- Car culture
- Unintended consequences
- Opportunity to innovate

Materials

- Computers with access to the Internet, digital projector and screen (preferred) OR printed handouts of digitized artifacts' images and descriptions Sign: How do people solve problems?
- Magazines – 1 for every 2 students
- Student Activity Sheet 5: The Automobile in My Life

Duration One class period (45 minutes)

Instructional Sequence

1. Engagement

Discuss the question, "How have automobiles changed our culture, making it into a 'car culture'?" with your students.

Distribute a magazine to each pair of students. Tell them that to understand what you mean by "car culture," you want them to go through the magazine, page by page, and select items that they think are related to cars.

Give the students no more than five minutes. Have a few students share an item they found and describe its connection to car culture. Then, ask students to imagine how what they see in magazines would be different if we did not have cars and how our culture would be different without cars.

2. Unintended Consequences

Ask the students to consider the question, "What if Henry Ford was alive today – would he be surprised at some of the effects cars have had on our culture?" Brainstorm consequences of the automobile that Henry Ford probably did not intend. Examples might be related to mass production, changed wage-skill relationships, mass automobility, suburbanization, pollution, traffic accidents, oil dependence, etc.

3. Opportunity to Innovate

Remind students that these unintended consequences should not be considered just as negative problems. These problems or challenges can provide us with opportunities for innovation and problem solving.

Have students complete Student Activity Sheet 5 The Automobile in My Life in class or as homework in order to think more about our car culture and the kind of innovating and problem solving they could do to improve automobiles.

Assessment

Assess students' participation in the magazine activity and the thoughtfulness they express on the Student Activity Sheet 5: The Automobile in My Life.

Name _____

the automobile in my life

Even if your family does not own or drive a car, there are many ways the automobile influences your life. In this activity, consider all the ways the automobile affects your everyday experiences. Think about some of the questions on your own, and then talk to your family members about them.

Riding in an Automobile

1. Think about times throughout a day, week or month when you ride in some kind of automobile to go somewhere. List some of these places below.

Evidence of the Automobile

2. We see reminders of automobiles all around us, whether we are walking or riding in a car. In the box below, draw a picture of some of things you see when you're outside that are evidence of automobiles in our lives.

Changing the Automobile

3. The automobile was an innovation. It was also a reason for many other innovations, like windshield wipers and drive-thru windows. What is one problem or issue in our **car culture** that you would like to improve? Draw or describe it in the box below.

extra credit

This is your opportunity to be an innovator!

What's your vision for solving this problem? Draw or describe it on a separate piece of paper.

supplemental resources | for grades 3-5

You Can Be an Innovator ... Like Henry Ford Culminating Projects

Consider introducing the culminating projects at the outset of the unit *You Can Be an Innovator … like Henry Ford* so that students can gather information along the way. These projects are designed as opportunities for students to demonstrate their learning and their response to the question, "How do people solve problems?"

Choose the project option or options that best fit your class's needs:

Individual Off-Line Project

Letters from Henry

Write a letter as if you were Henry Ford, giving advice to an innovator-entrepreneur today. Your letter should incorporate some of the ideas about the question, "How do people solve problems?" discussed in this unit. What personal characteristics might you encourage? What lessons from home or work life might you share? There are a number of angles to take with this, so focus on what aspect of the topic matters most for you, and be creative!

Individual Online Project

ExhibitBuilder: Curate Your Own Exhibition

Create your own exhibition through **The Henry Ford's** website, using digitized artifacts and the ideas and information you've learned from this unit. Your exhibition should be on the topic, "How do people solve problems?". Use **The Henry Ford's** Transportation in America website to access ExhibitBuilder – or click here.

Team Project

Timeline

With a team of your classmates, make a timeline that follows Henry Ford's innovations through his life and beyond. Use **The Henry Ford's** online exhibit, articles and reports about the life of Henry Ford as resources. Include other dates on the timeline, such the development of popular innovations today, your birthday, important national or world events, etc. Use OnInnovation.com as another resource. Illustrate your timeline with drawings or digitized images from the collections of **The Henry Ford**. Present your timeline to your class, and post it on the classroom wall or in the hallway.

You Can Be an Innovator ... Like Henry Ford Extension Activities

These extension activities provide additional opportunities for the eager learner curious about topics related to Henry Ford and the Model T.

Henry Ford's Story

Have students conduct further research using the digitized artifacts and resources in the Unit Plan, as well as books and websites suggested in the bibliography, to learn more about Henry Ford. Encourage students to develop presentations for their class to help others learn more about Henry Ford.

Natural Resources and the Automobile

Have students conduct additional research to identify which of the natural resources used in the Model T were renewable and which were nonrenewable. Find out how using these resources affected the environment. Find out both where the automobile industry gets natural resources today and about the impact this has on the environment.

Today's Innovators

To learn more about the innovators of today, explore websites about innovators and inventors, such as OnInnovation.com, TED.com or Invention.smithsonian.org, together as a class; or allow students to do so individually or with partners. Ask students to keep track of the innovations and innovators and their characteristics. Discuss with students, "What are some of the characteristics that have made these innovators successful?"
For additional information, see "Advancing A Culture of Innovation," a speech by Patricia Mooradian, president of **The Henry Ford.**

Transportation Podcasts

Have your students listen to Transportation Podcasts created by *Henry Ford Academy*® (HFA) sophomores. HFA students researched and reported on compelling issues related to alternative fuels, transportation networks and more, using rap, talk shows and other fun formats. Ask students to produce their own podcasts on automobile and car-culture-related issues.

Name _____

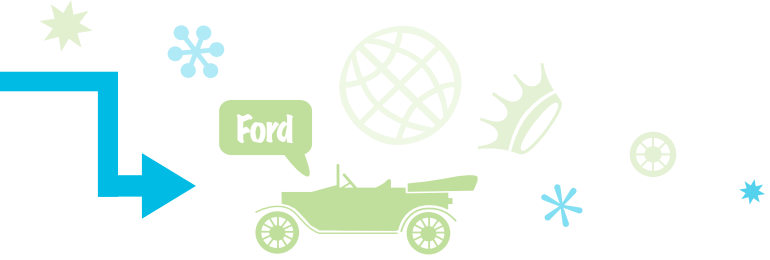
You Can Be an Innovator ... Like Henry Ford
review/assessment questions

1. What are some examples of primary sources we used in this unit? How did they help us answer questions about the past?

2. What are some examples of secondary sources we used in this unit? How did they help us answer questions about the past?

3. How did Henry Ford affect the history of Michigan?

4. In what ways did Henry Ford use human resources in his factories in Michigan?



5. What happened to make the automobile industry a major economic activity in Michigan? Explain, using Ford Motor Company as a case study.

6. When did the automobile industry become a major economic activity in Michigan?

7. Who was involved? Explain, using Ford Motor Company as a case study.

8. How and why did the automobile industry become a major economic activity in Michigan? Use Ford Motor Company as an example.

9. How did Henry Ford increase productivity for the Model T?

10. How has globalization affected the automobile industry and the general economy in Michigan?

11. How does Ford Motor Company relate to other events or issues in the past, present and future?

12. What is the automobile industry's significance?

You Can Be an Innovator ... Like Henry Ford
review/assessment questions

1. Primary sources used included **The Henry Ford's** digital collections and modern magazines.

   They are first-hand accounts of the past and give us a more accurate glimpse into everyday life in the past (or present). (3 – H3.0.2)

2. Secondary sources used included Henry Ford and the Moving Assembly Line and Henry Ford: Biography of an Innovator.

   They give us background information and tell us what others have already learned about the past. (3 – H3.0.2)

3. Henry Ford helped found the automobile industry, which is an important part of Michigan's economy. (3 – H3.0.8)

4. Henry Ford used engineers and business people to help plan automobile production and sales, and workers on his assembly line to produce automobiles. (3 – E1.0.4)

5. Henry Ford created a car for the masses, which was inexpensive enough for many people to buy. His company in Michigan had to produce many cars to supply consumers' needs. (4 – H3.0.1, 4 – H3.0.63 – R.CM.03.02, 4 – R.CM.04.02, 5 – R.CM.05.02)

6. Auto industry was very important by the 1920s. (4 – H3.0.1, 4 – H3.0.6)

7. Henry Ford was the visionary, but he also had a great team of engineers and business people, as well as thousands of workers. (4 – H3.0.1, 4 – H3.0.6)

8. Henry Ford's background and qualities, and the turn of the century experimentation with automobiles, prompted him to start an automobile company. Even though he failed twice, he persevered until he achieved his vision of a car for the masses, the Model T. (4 – H3.0.1, 4 – H3.0.6)

9. He used the assembly line to allow specialization and division of labor. (4 – E1.0.5)

10. Michigan must find additional economic activities because automobile manufacturing is now located in other parts of the world, not just in Michigan. (4 – E3.0.1)

11. Ford Motor Company created well-paying jobs and unintentionally influenced the creation of autoworkers unions. The mass production of the Model T, which spread to other industries and products, also increased consumption in the United States. (4 – H3.0.1, 4 – H3.0.6, 3 – R.CM.03.03, 4 - R.CM.04.035 - R.CM.05.03)

12. The auto industry helped create an American way of life that can be seen all around us – consumption, mass production, high wages for low-skill jobs, a car culture, suburbs, pollution, traffic accidents and oil dependence. (4 – H3.0.1)

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