

grades
8-12



Transportation Systems

Transportation: Past, Present and Future

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.

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overview

Transportation is a tangible way students can relate to topics such as consumption, migration and public goods. In this Educator DigiKit, you and your students will use artifacts, documents and photographs from **The Henry Ford's** collections to explore the overarching question, *"How do cultural attitudes affect day-to-day life, both intentionally and unintentionally?"* Through our collections, students explore a variety of topics, including the movement of goods and people, the availability and consumption of goods, and the financing of public goods and services, and envision new transportation systems for the future.

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

The Teacher Guide section includes resources to complement the *Transportation Systems Unit Plan*. You will find a glossary, timeline, context-setting activities, a bibliography, curriculum links and curriculum-supporting field trip suggestions.

The Unit Plan section follows the Teacher Guide and includes lesson plans, student activity sheets, answer keys, and culminating project ideas and extension activities. 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 at 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.

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

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Glossary

Democracy of consumption

The idea that the widespread production and consumption of goods is an expression of American democracy.

Democracy of land ownership

The idea that widespread land ownership is an important part of a democracy; it was espoused by Thomas Jefferson and Andrew Jackson, among others, and still impacts society today.

De-urbanization

The phenomenon of people and businesses moving out of urban centers.

Franchise

A right granted by the government to a company, group or person to operate in the community in a certain manner.

Free-rider problem

The problem that people receive public goods and services even if they do not contribute to paying for them. See “Public goods.”

Freight

Transported goods.

Good Roads Movement

Efforts at the turn of the 20th century, led first by bicyclists and then motorists, to make roads smoother by paving and other means.

Inexhaustible natural resources

The view that America’s natural resources are so abundant that they will not run out.

Intermodal containers

Containers, used for shipping freight, that can be moved from one mode of transport to another; for instance, from ship to rail.

Interstate Highway System

The network of express highways across the United States allowing safe, high-speed travel. The Interstate Highway System was initiated by President Dwight Eisenhower in 1956, partially due to military concerns.

Mass transportation

Transportation moving large numbers of individuals by buses, airplanes, subways, etc. Mass transportation requires passengers to travel (sometimes by foot) to a centralized pickup point, share personal space and follow established timetables.

Monopoly

Control by one company of the entire market for a good or service.

Cumberland Road

The road built between 1811 and 1838 from Cumberland, Maryland, to “the West” – Vandalia, Illinois. The Cumberland Road is also known as the National Road.

Personal transportation

Transportation appropriate for one person or a family that allows more individual freedom and flexibility than mass transportation.

Public goods

Goods or services that benefit all, payers and nonpayers, alike; for example, bridges.

Public transportation

Mass transportation that is owned and operated by the government.

Suburbanization

The phenomenon of people moving from city centers to the adjacent land outside the city, which began with the use of streetcars at the turn of the 20th century and accelerated with highways and interstates built after World War II.

Toll

A fee charged to travel on a road or bridge.

Transcontinental Railroad

The first railroad to cross the continental United States was completed in 1869.

Unit Plan Timeline

Transportation Systems

- 1807 America's first commercially successful steamboat travels up the Hudson River in N.Y.
- 1825 The Erie Canal officially opens.
- 1869 Completion of the first Transcontinental Railroad at Promontory Point, Utah.
- 1896 Thanks to railroads, rural mail delivery begins, allowing farm families to purchase goods through mail-order catalogs.
- 1908 Ford's Model T is made available to the public.
- 1913 Ford experiments with the assembly line.
- 1940 Dick and Mac McDonald open the first McDonald's restaurant.
- 1956 The Federal-Aid Highway Act of 1956 initiates the largest construction project in world history: the Interstate Highway System.
- 2001 President George W. Bush signs the Aviation and Transportation Security Act, placing airport security under federal control.

World Events

- 1804 Napoleon crowns himself Emperor of France.
- 1858 Rule of India is transferred from the East India Company to the British Crown.
- 1899 The Boer War begins in South Africa.
- 1909 Robert Peary and Matthew Henson reach the North Pole.
- 1914 World War I begins.
- 1922 Britain's Howard Carter opens Pharaoh Tutankhamen's tomb.
- 1939 World War II begins.
- 1949 Mao Zedong proclaims the formation of the People's Republic of China.
- 1961 Soviet Yuri Gagarin is the first person to leave Earth's atmosphere.
- 1994 Nelson Mandela is elected as first black president of South Africa; apartheid ends.

National Events

- 1803 The Louisiana Purchase.
- 1838 The forced removal and relocation of Cherokee and other Indians, known as the Trail of Tears.
- 1861 - 1865 The American Civil War.
- 1898 The Spanish-American War.
- 1906 The Great Earthquake in San Francisco.
- 1919 The 19th Amendment gives women the right to vote.
- 1929 The U.S. stock market crashes, initiating the Great Depression.
- 1945 World War II ends.
- 1959 - 1979 The Vietnam War.
- 2001 Passenger planes are hijacked by terrorists and crash into New York, Washington, D.C., and Pennsylvania.

Context-Setting **Activities**

Transportation to School

Have students learn how their classmates travel to school. Ask each student to record on a slip of paper the modes of transportation he or she uses to travel to school, such as school bus, city bus, walking, automobile, subway, etc. Collect the slips of paper, and sort and tally the various modes of transportation used. Infuse math by asking students to analyze the data and create charts and graphs that represent what they have learned about the various modes of transportation used.

Transportation Worldwide

Ask students to choose another region of the world and research how people and goods there are transported. Ensure that students choose a wide range of regions – urban, rural, industrialized, agrarian, socioeconomically diverse, developed, developing, etc – across all continents. Ask each student to develop and share a brief two-minute PowerPoint presentation illustrating how people and goods are transported in the region he or she has selected.

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Online Resources

America on the Move
americanhistory.si.edu/ONTHEMOVE

Explore transportation history through on-site and online exhibitions, artifacts, stories from curators, games and lesson and activity plans.

Automobile in American Life and Society

autolife.umd.umich.edu

Scholarly articles, 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.

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 from **The Henry Ford**.

James Madison:

Internal Improvements Balancing Act: Federal/State, Executive/Legislative
edsitement.neh.gov/view_lesson_plan.asp?id=565

A lesson plan on the debate regarding the constitutionality of federal funding and control of a national road during Madison's presidency.

From the Curators – Transportation: Past, Present and Future

thehenryford.org/education/erb/TransportationPastPresentAndFuture.pdf

Information on transportation systems throughout American history, the American auto industry and its impact, automobile issues today, and migration and immigration from the curators from **The Henry Ford**.

Connections to National and Michigan Standards and Expectations

Michigan Grade Level Content Expectations

Social Studies

8 U4.2.1

Comparing the Northeast and the South – Compare and contrast the social and economic systems of the Northeast and the South with respect to geography and climate and the development of

- transportation, including changes in transportation (steamboats and canal barges) and impact on economic markets and prices. (E1.2,1.3) (*National Geography Standard 3, p. 148*)

8 U5.2.2

Make an argument to explain the reasons why the North won the Civil War by considering the

- respective advantages and disadvantages, including geographic, demographic, economic and technological. (E1.4) (*National Geography Standard 15, p. 173*)

8 U6.1.1

America at Century's End – Compare and contrast the United States in 1800 with the United States in 1898, focusing on similarities and differences in

- systems of transportation (canals and railroads, including the Transcontinental Railroad) and their impact on the economy and society. (E1.4, 3.2) (*National Geography Standard 11, p. 164*)

8 P3.1.1

Identify, research, analyze, discuss and defend a position on a national public policy issue.

- Identify a national public policy issue.
- Clearly state the issue as a question of public policy orally or in written form.
- Use inquiry methods to trace the origins of the issue and to acquire data about the issue.
- Generate and evaluate alternative resolutions to the public issue and analyze various perspectives (causes, consequences, positive and negative impact) on the issue.

- Identify and apply core democratic values or constitutional principles.
- Share and discuss findings of research and issue analysis in group discussions and debates.
- Compose a persuasive essay justifying the position with a reasoned argument.
- Develop an action plan to address or inform others about the issue.

8 P4.2.2

Engage in activities intended to contribute to solving a national or international problem studied.

8 P4.2.3

Participate in projects to help or inform others (e.g., service learning projects).

Continued...

English Language Arts

W.GN.08.03

Formulate research questions that demonstrate critical evaluation of multiple resources, perspectives and arguments/counter-arguments that culminate in a presented final project using the writing process.

S.DS.08.04

Plan, outline and deliver an informational presentation using precise and vivid language in the active voice, organizing logically to convey the message, applying persuasive on-verbal techniques and making use of rhetorical strategies to support the purpose of the presentation and to positively impact the intended audience.

Michigan High School Content Expectations

World History and Geography (WHG)

WHG 6.1.3

Increasing Global Interconnections – Describe increasing global interconnections between societies, through the emergence and spread of ideas, innovations and commodities, including the

- global spread of major innovations, technologies and commodities via new global networks. (*National Geography Standard 11, p. 206*)

WHG 7.1.1

Increasing Government and Political Power – Explain the expanding role of state power in managing transportation systems, including its impact of the daily lives of their citizens. (See 7.3.2)
(*National Geography Standard 13, p. 210*)

WHG 7.1.4

Global Technology – Describe significant technological innovations and scientific breakthroughs in transportation, communication, medicine and warfare, and analyze how they both benefited and imperiled humanity.
(*National Geography Standard 11, p. 206*)

United States History and Geography (USHG)

F2.1

Describe the major trends and transformations in American life prior to 1877, including

- changes in commerce, transportation and communication. (*National Geography Standard 11, p. 206*)

USHG 6.1.3

Urbanization – Analyze the changing urban and rural landscape by examining

- the location and expansion of major urban centers. (*National Geography Standard 12, p. 208*)
- the development of cities divided by race, ethnicity and class. (*National Geography Standard 10, p. 203*)

USHG 6.1.5

A Case Study of American Industrialism – Using the automobile industry as a case study, analyze the causes and consequences of this major industrial transformation by explaining

- the impact on American society.

Continued...

USHG 8.2.2

Policy Concerning Domestic Issues – Analyze major domestic issues in the post-World War II era and the policies designed to meet the challenges by

- describing issues challenging Americans such as infrastructure and the environment.
(*National Geography Standards 9 and 14; pp. 201 and 212*)
- evaluating policy decisions and legislative actions to meet these challenges (e.g., Federal Highways Act, 1956; E.P.A., 1970)
(*National Geography Standards 12 and 14; pp. 208 and 212*)

USHG 9.3.1

Compose a persuasive essay on a public policy issue, and justify the position with a reasoned argument based upon historical antecedents and precedents, and core democratic values or constitutional principles.

- national economic policy.
- energy policy.
(*National Geography Standard 17, p. 216*)

Civics (C)

C 2.2.3

Use past and present policies to analyze conflicts that arise in society due to competing constitutional principles or fundamental values (e.g., the common good).

C 2.2.5

Use examples to investigate why people may agree on constitutional principles and fundamental values in the abstract, yet disagree over their meaning when they are applied to specific situations.

C 6.1.1

Identify and research various viewpoints on significant public policy issues.

C 6.1.2

Locate, analyze and use various forms of evidence, information and sources about a significant public policy issue, including primary and secondary sources, legal documents, non-text-based information and other forms of political communication.

C 6.1.4

Address a public issue by suggesting alternative solutions or courses of action, evaluating the consequences of each and proposing an action to address the issue or resolve the problem.

C 6.1.5

Make a persuasive, reasoned argument on a public issue and support using evidence (e.g., historical and contemporary examples), constitutional principles and fundamental values of American constitutional democracy; explain the stance or position.

Economics (E)

E 1.4.3

Government Revenue and Services – Analyze the ways in which local and state governments generate revenue (e.g., sales taxes) and use that revenue for public services (e.g., highways).

E 1.4.4

Functions of Government – Explain the various functions of government in a market economy including the provision of public goods and services.

Continued...

English Language Arts

CE 1.3.1

Compose written, spoken and/or multimedia compositions in a range of genres (e.g., personal narrative, biography, poem, fiction, drama, creative nonfiction, summary, literary analysis essay, research report or work-related text): pieces that serve a variety of purposes (e.g., expressive, informative, creative and persuasive) and that use a variety of organizational patterns (e.g., autobiography, free verse, dialogue, comparison/contrast, definition or cause and effect).

CE 1.3.7

Participate collaboratively and productively in groups (e.g., response groups, discussion groups) — fulfilling roles and responsibilities, posing relevant questions, giving and following instructions, acknowledging and building on ideas and contributions of others to answer questions or to solve problems and offering dissent courteously.

CE 1.4.1

Identify, explore and refine topics and questions appropriate for research.

CE 1.4.2

Develop a system for gathering, organizing, paraphrasing and summarizing information; select, evaluate, synthesize and use multiple primary and secondary (print and electronic) resources.

CE 1.4.3

Develop and refine a position, claim, thesis or hypothesis that will be explored and supported by analyzing different perspectives, resolving inconsistencies and writing about those differences in a structure appropriate for the audience (e.g., argumentative essay that avoids inconsistencies in logic and develops a single thesis).

CE 1.4.5

Develop organizational structures appropriate to the purpose and message, and use transitions that produce a sequential or logical flow of ideas.

CE 1.4.6

Use appropriate conventions of textual citation in different contexts (e.g., different academic disciplines and workplace writing situations).

CE 1.4.7

Recognize the role of research, including student research, as a contribution to collective knowledge, selecting an appropriate method or genre through which research findings will be shared and evaluated, keeping in mind the needs of the prospective audience (e.g., presentations, online sharing, written products such as a research report, a research brief, a multi-genre report, I-Search, literary analysis, news article).

CE 1.5.1

Use writing, speaking and visual expression to develop powerful, creative and critical messages.

CE 1.5.4

Use technology tools (e.g., word processing, presentation and multimedia software) to produce polished written and multimedia work (e.g., literary and expository works, proposals, business presentations, advertisements).

Continued...

Essential Questions

- 9 How do I relate to my family, my community and society?
- 9 What influence do class, religion, language and culture have on my relationships and my decisions?
- 9 What can I contribute as an individual?
- 9 What is my responsibility to society?
- 9 How do I see my beliefs reflected in government policies and by politicians?
- 10 What power do I have as an individual to make a positive change?
- 11 How can forward thinking help me make better decisions?
- 11 What are the trade-offs for technological advances?
- 12 How can I effectively articulate my opinions and perspectives?
- 12 What can I do to avoid repeating mistakes made in history?
- 12 How can I create the world I want to live in?

National Standards in History

for Grades 5-12

Era 4: Expansion and Reform (1801-1861)

Standard 2

How the industrial revolution, increasing immigration, the rapid expansion of slavery and the westward movement changed the lives of Americans and led toward regional tensions.

Standard 2A

The student understands how the factory system and the transportation and market revolutions shaped regional patterns of economic development.

Therefore, the student is able to

- Explain how the major technological developments that revolutionized land and water transportation arose and analyze how they transformed the economy, created international markets and affected the environment. [Analyze cause-and-effect relationships] (5-12)
- Explain how economic policies related to expansion, including northern dominance of locomotive transportation, served different regional interests and contributed to growing political and sectional differences. [Compare and contrast differing sets of ideas] (9-12)

Era 5: Civil War and Reconstruction (1850-1877)

Standard 2

The course and character of the Civil War and its effects on the American people.

Standard 2A

The student understands how the resources of the Union and Confederacy affected the course of the war. Therefore, the student is able to

- Identify the innovations in military technology and explain their impact on humans, property and the final outcome of the war. [Utilize visual and mathematical data] (5-12)

Era 6: The Development of the Industrial United States (1870-1900)

Standard 1

How the rise of corporations, heavy industry and mechanized farming transformed the American people.

Standard 1A

The student understands the connections among industrialization, the advent of the modern corporation and material well-being.

Therefore, the student is able to

- Examine how industrialization made consumer goods more available, increased the standard of living for most Americans and redistributed wealth. [Utilize quantitative data] (9-12)

Continued...

Standard 1D

The student understands the effects of rapid industrialization on the environment and the emergence of the first conservation movement.

Therefore, the student is able to

- Explain how rapid industrialization, extractive mining techniques and the “gridiron” pattern of urban growth affected the scenic beauty and health of city and countryside. [Analyze multiple causation] (7-12)

Era 7: The Emergence of Modern America (1890-1930)

Standard 3

How the United States changed from the end of World War I to the eve of the Great Depression.

Standard 3B

The student understands how a modern capitalist economy emerged in the 1920s.

Therefore, the student is able to

- Explain how principles of scientific management and technological innovations, including assembly lines, rapid transit, household appliances and radio continued to transform production, work and daily life. [Examine the influence of ideas] (5-12)

- Analyze the new business downtowns, the development of suburbs and the role of transportation in changing urban life. [Explain historical continuity and change] (9-12)

Era 9: Postwar United States (1945 to early 1970s)

Standard 1

The economic boom and social transformation of postwar United States.

Standard 1B

The student understands how the social changes of the postwar period affected various Americans.

Therefore, the student is able to

- Explain the expansion of suburbanization and analyze how the “crabgrass frontier” affected American society. [Explain historical continuity and change] (9-12)

Era 10: Contemporary United States (1968 to the present)

Standard 2

Economic, social and cultural developments in contemporary United States.

Standard 2B

The student understands the new immigration and demographic shifts.

Therefore, the student is able to

- Explore the continuing population flow from cities to suburbs, the internal migrations from the Rustbelt to the Sunbelt, and the social and political effects of these changes. [Analyze cause-and-effect relationships] (7-12)

National Standards for English Language Arts

- 4 Students adjust their use of spoken, written and visual language (e.g., conventions, style, vocabulary) to communicate effectively with a variety of audiences and for different purposes.
- 5 Students employ a wide range of strategies as they write and use different writing process elements appropriately to communicate with different audiences for a variety of purposes.
- 7 Students conduct research on issues and interests by generating ideas and questions, and by posing problems. They gather, evaluate and synthesize data from a variety of sources (e.g., print and non-print texts, artifacts, people) to communicate their discoveries in ways that suit their purpose and audience.

Lesson 1 Transportation of Goods and Consumption

Content Expectations and Standards

Michigan Grade Level Content Expectations

Social Studies

8 U4.2.1

Comparing the Northeast and the South – Compare and contrast the social and economic systems of the Northeast and the South with respect to geography and climate and the development of

- transportation, including changes in transportation (steamboats and canal barges) and impact on economic markets and prices. (E1.2,1.3) (*National Geography Standard 3, p. 148*)

8 U5.2.2

Make an argument to explain the reasons why the North won the Civil War by considering the

- respective advantages and disadvantages, including geographic, demographic, economic and technological. (E1.4) (*National Geography Standard 15, p. 173*)

8 U6.1.1

America at Century's End – Compare and contrast the United States in 1800 with the United States in 1898, focusing on similarities and differences in

- systems of transportation (canals and railroads, including the Transcontinental Railroad) and their impact on the economy and society. (E1.4, 3.2) (*National Geography Standard 11, p. 164*)

Michigan High School Content Expectations

World History and Geographys (MI WHG)

WHG 6.1.3

Increasing Global Interconnections Describe increasing global interconnections between societies, through the emergence and spread of ideas, innovations and commodities, including the

- global spread of major innovations, technologies and commodities via new global networks. (*National Geography Standard 11, p. 206*)

WHG 7.1.4

Global Technology – Describe significant technological innovations and scientific breakthroughs in transportation, communication, medicine and warfare, and analyze how they both benefited and imperiled humanity. (*National Geography Standard 11, p. 206*)

United States History and Geography (MI USHG)

F2.1

Describe the major trends and transformations in American life prior to 1877, including

- changes in commerce, transportation and communication. (*National Geography Standard 11, p. 206*)

USHG 8.2.2

Policy Concerning Domestic Issues Analyze major domestic issues in the post-World War II era and the policies designed to meet the challenges by

- describing issues challenging Americans such as infrastructure and the environment. (*National Geography Standards 9 and 14; pp. 201 and 212*)
- evaluating policy decisions and legislative actions to meet these challenges (e.g., Federal Highways Act, 1956; E.P.A., 1970) (*National Geography Standards 12 and 14; pp. 208 and 212*)

Lesson 2 Transportation for People and American Attitudes

Content Expectations and Standards

Michigan Grade Level Content Expectations

English Language Arts

W.GN.08.03

Formulate research questions that demonstrate critical evaluation of multiple resources, perspectives and arguments/counter-arguments that culminate in a presented final project using the writing process.

S.DS.08.04

Plan, outline and deliver an informational presentation using precise and vivid language in the active voice, organizing logically to convey the message, applying persuasive non-verbal techniques; and making use of rhetorical strategies to support the purpose of the presentation and to positively impact the intended audience.

Michigan High School Content Expectations

World History and Geography (WHG)

WHG 7.1.4

Global Technology – Describe significant technological innovations and scientific breakthroughs in transportation, communication, medicine and warfare, and analyze how they both benefited and imperiled humanity. (*National Geography Standard 11, p. 206*)

United States History and Geography (USHG)

F2.1

Describe the major trends and transformations in American life prior to 1877, including

- changes in commerce, transportation and communication. (*National Geography Standard 11, p. 206*)

USHG 6.1.3

Urbanization – Analyze the changing urban and rural landscape by examining

- the location and expansion of major urban centers. (*National Geography Standard 12, p. 208*)
- the development of cities divided by race, ethnicity and class. (*National Geography Standard 10, p. 203*)

USHG 6.1.5

A Case Study of American Industrialism – Using the automobile industry as a case study, analyze the causes and consequences of this major industrial transformation by explaining

- the impact on American society.

USHG 8.2.2

Policy Concerning Domestic Issues Analyze major domestic issues in the post-World War II era and the policies designed to meet the challenges by

- describing issues challenging Americans such as infrastructure and the environment. (*National Geography Standards 9 and 14; pp. 201 and 212*)

Continued...

Lesson 2 Continued

English Language Arts

CE 1.3.1

Compose written, spoken and/or multimedia compositions in a range of genres (e.g., personal narrative, biography, poem, fiction, drama, creative nonfiction, summary, literary analysis essay, research report or work-related text): pieces that serve a variety of purposes (e.g., expressive, informative, creative and persuasive) and that use a variety of organizational patterns (e.g., autobiography, free verse, dialogue, comparison/contrast, definition, or cause and effect).

CE 1.5.1

Use writing, speaking and visual expression to develop powerful, creative and critical messages.

CE 1.5.4

Use technology tools (e.g., word processing, presentation and multimedia software) to produce polished written and multimedia work (e.g., literary and expository works, proposals, business presentations, advertisements).

Lesson 3 Funding Public Goods

Content Expectations and Standards

Michigan Grade Level Content Expectations

Social Studies

8 P3.1.1

Identify, research, analyze, discuss and defend a position on a national public policy issue.

- Identify a national public policy issue.
- Clearly state the issue as a question of public policy orally or in written form.
- Use inquiry methods to trace the origins of the issue and to acquire data about the issue.
- Generate and evaluate alternative resolutions to the public issue and analyze various perspectives (causes, consequences, positive and negative impact) on the issue.
- Identify and apply core democratic values or constitutional principles.
- Share and discuss findings of research and issue analysis in group discussions and debates.
- Compose a persuasive essay justifying the position with a reasoned argument.
- Develop an action plan to address or inform others about the issue.

8 P4.2.2

Engage in activities intended to contribute to solving a national or international problem studied.

8 P4.2.3

Participate in projects to help or inform others (e.g., service learning projects).

English Language Arts

W.GN.08.03

Formulate research questions that demonstrate critical evaluation of multiple resources, perspectives and arguments/counter-arguments that culminate in a presented final project using the writing process.

Continued...

Lesson 3 Continued

Michigan High School Content Expectations

World History and Geography (WHG)

WHG 7.1.1

Increasing Government and Political Power – Explain the expanding role of state power in managing transportation systems, including its impact of the daily lives of their citizens. (See 7.3.2) (*National Geography Standard 13, p. 210*)

United States History and Geography (USHG)

USHG 8.2.2

Policy Concerning Domestic Issues Analyze major domestic issues in the Post-World War II era and the policies designed to meet the challenges by

- describing issues challenging Americans such as infrastructure and the environment. (*National Geography Standards 9 and 14; pp. 201 and 212*)

USHG 9.3.1

Compose a persuasive essay on a public policy issue, and justify the position with a reasoned argument based upon historical antecedents and precedents, and core democratic values or constitutional principles.

- national economic policy.
- energy policy. (*National Geography Standard 17, p. 216*)

Civics (C)

C 2.2.3

Use past and present policies to analyze conflicts that arise in society due to competing constitutional principles or fundamental values (e.g., the common good).

C 2.2.5

Use examples to investigate why people may agree on constitutional principles and fundamental values in the abstract, yet disagree over their meaning when they are applied to specific situations.

C 6.1.1

Identify and research various viewpoints on significant public policy issues.

C 6.1.2

Locate, analyze and use various forms of evidence, information and sources about a significant public policy issue, including primary and secondary sources, legal documents, non-text-based information and other forms of political communication.

C 6.1.4

Address a public issue by suggesting alternative solutions or courses of action, evaluating the consequences of each and proposing an action to address the issue or resolve the problem.

C 6.1.5

Make a persuasive, reasoned argument on a public issue and support using evidence (e.g., historical and contemporary examples), constitutional principles and fundamental values of American constitutional democracy; explain the stance or position.

Continued...

Lesson 3 Continued

Economics (E)

E 1.4.3

Government Revenue and Services – Analyze the ways in which local and state governments generate revenue (e.g., sales taxes) and use that revenue for public services (e.g., highways).

E 1.4.4

Functions of Government – Explain the various functions of government in a market economy including the provision of public goods and services.

English Language Arts

CE 1.3.1

Compose written, spoken and/or multimedia compositions in a range of genres: pieces that serve a variety of purposes (e.g., persuasive) and that use a variety of organizational patterns.

CE 1.3.7

Participate collaboratively and productively in groups (e.g., response groups, discussion groups) —fulfilling roles and responsibilities, posing relevant questions, giving and following instructions, acknowledging and building on ideas and contributions of others to answer questions or to solve problems and offering dissent courteously.

CE 1.4.1

Identify, explore and refine topics and questions appropriate for research.

CE 1.4.2

Develop a system for gathering, organizing, paraphrasing and summarizing information; select, evaluate, synthesize and use multiple primary and secondary (print and electronic) resources.

CE 1.4.3

Develop and refine a position, claim, thesis or hypothesis that will be explored and supported by analyzing different perspectives, resolving inconsistencies and writing about those differences in a structure appropriate for the audience (e.g., argumentative essay that avoids inconsistencies in logic and develops a single thesis).

CE 1.4.5

Develop organizational structures appropriate to the purpose and message, and use transitions that produce a sequential or logical flow of ideas.

CE 1.4.6

Use appropriate conventions of textual citation in different contexts (e.g., different academic disciplines and workplace writing situations).

CE 1.4.7

Recognize the role of research, including student research, as a contribution to collective knowledge, selecting an appropriate method or genre through which research findings will be shared and evaluated, keeping in mind the needs of the prospective audience (e.g., presentations, online sharing, written products such as a research report, a research brief, a multi-genre report, I-Search, literary analysis, news article).

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 curriculums 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 Hunter 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 Scavenger Hunts

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

Additional Sites to Visit in Greenfield Village

- Detroit, Toledo & Milwaukee Roundhouse
 - Railroad Turntable
 - Smiths Creek Depot
 - J. R. Jones General Store
 - Eagle Tavern
 - Ford Motor Company
 - Henry Ford Theater
 - Bagley Avenue Workshop
 - Wright Cycle Shop
 - Suwanee Riverboat
 - Ride a Model T*
 - Ride the Weiser Railroad Steam Locomotive*
 - Ride a Horse-Drawn Omnibus*
 - Ride a Historic Bus*
- * Additional fee required.

Henry Ford Museum

History Hunters Scavenger Hunts

- Investigating the Model T

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*.)

Continued...

Field Trip Learning Enhancement Suggestions Continued

Henry Ford Museum Continued

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

Additional Sites to Visit

in *Henry Ford Museum*

- *Driving America*
- *Heroes of the Sky*
- Railroads Collection
- Horse-Drawn Vehicles Collection
- Presidential Vehicles Collection

Ford Rouge Factory Tour

History Hunters Scavenger Hunts

- [Investigating Manufacturing](#)

The Ford Rouge Complex: A Case Study in Industrialization Curriculum Connector

This is a new curriculum-aligned tool for teachers to use with students during and after their *Ford Rouge Factory Tour* visit that 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.

Additional Sites to Visit

at *Ford Rouge Factory Tour*

- Legacy Theater
- Art of Manufacturing Theater
- Legacy Gallery
- Final Assembly Plant

Other Places to Visit

to Learn More about
Transportation Systems

The Petersen Automotive Museum

6060 Wilshire Blvd.

Los Angeles, CA 90036

petersen.org

National Museum of American History

National Mall

14th Street and Constitution

Avenue, N.W.

Washington, D.C.

americanhistory.si.edu

National Railroad Museum

2285 S. Broadway

Green Bay, WI 54304

nationalrrmuseum.org

unit plan | grades 8-12

Transportation Systems

Unit Plan Overview

Overarching Question

How do cultural attitudes affect day-to-day life, both intentionally and unintentionally?

Key Concepts

- Freight
- Inexhaustible natural resources
- Democracy of consumption
- Plank road
- National Road
- Canal
- Steam power
- Transcontinental Railroad
- Trucking
- Air
- Intermodal containers
- Democracy of land ownership
- Population distribution, spatial patterns and density
- Suburbanization
- De-urbanization
- Haste
- Individual freedom
- Public transportation
- Mass transportation
- Urban public transportation
- Personal transportation
- Risk

Key Concepts Continued

- Energy issues
- Environment
- Public goods
- Free-rider problem
- Infrastructure
- Franchise
- Monopoly
- Toll
- Direct government ownership
- Constitutionality of federal funding for internal improvements
- Cumberland Road (National Road)
- Good Roads Movement
- Gasoline tax
- Interstate Highway System
- Amtrak

Lessons and Main Ideas

Lesson 1

Transportation of Goods and Consumption

- As technology made it possible to transport goods more quickly and cheaply, American attitudes about consumption changed, and consumption patterns changed.

Lesson 2

Transportation for People and American Attitudes

- Americans' car culture is the result of long-established American attitudes and years of innovations in transportation.

Lesson 3 Funding Public Goods

- Most transportation systems partially utilize public goods. There are multiple ways of funding public goods, such as roads. Each way has both benefits and trade-offs.

Continued...

Unit Plan Overview Continued

	Minimum (no project)	Maximum (with project)
Lesson 1	1 period (no project)	3.5 periods
Lesson 2	1	6
Lesson 3	1	4
Unit Project	1 (homework assignment)	3 (in-class assignment)
Total	4 periods	16.5 periods

Duration

Each Transportation Systems lesson plan may be taught as a stand-alone lesson, or a class can complete the entire unit. Each lesson includes an optional project. Unit projects can be completed as a homework assignment or an in-class assignment.

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

Lesson 1 Transportation of Goods and Consumption

- Conestoga Wagon, circa 1840 ID# THF17493
- Lithograph, “View of the Junction of the Northern and Western Canals,” 1825 ID# THF68299
- Wood Engraving, “View of the Public Landing at Louisville, Kentucky,” 1850-1855 ID# THF68301
- Steam Locomotive “Sam Hill,” 1858 ID# THF18578

- Railroad Refrigerator Car, 1924, Used by Fruit Growers Express ID# THF68309
- Horse-Drawn Dray, circa 1890 ID# THF69339
- Crane Unloading Cargo from Railroad Cars into a Mack Model AC Dump Truck, 1927 ID# THF68323
- “Highways of the Sky,” Advertisement Promoting Commercial Air Travel on Ford Tri-Motor Airplanes, 1928 ID# THF68349
- Ford 707E C-Series Truck, Made in 1974, Used by Roadway Express ID# THF67948

Lesson 2 Transportation for People, and American Attitudes

- Harbor Freeway in Los Angeles, California, 1956 ID# THF68307
- Detroit Electric Coupe, 1922 (front view ID# THF69240) (side view ID# THF69247) (dashboard view ID# THF69250)
- Riker Electric Automobile, circa 1896 (front view ID# THF69226) (back view ID# THF69229) (dashboard view ID# THF69236)
- Horse-Drawn Streetcar, circa 1890 ID# THF77234

Continued...

Unit Plan Overview Continued

Lesson 2 Continued

- Tesla Car at SpaceX Facility, El Segundo, California, 2008 ID# THF55832
- Stanford Ovshinsky's Hydrogen-Powered Hybrid Car, 2009 ID# THF66140
- Stanford Ovshinsky at United Solar Ovonic Facility, Auburn Hills, Michigan, 2009 ID# THF66232
- Advertising Postcard for Pan American Airlines, circa 1970, "The Plane with All the Room in the World" ID# THF68314
- Mack Model CL Buses Loading Passengers at a Downtown Intersection, Toledo, Ohio, 1935 ID# THF68324
- Man Seated in a Buggy, circa 1890 ID# THF68330
- Solar-Powered Car "Phoenix," 1984 ID# THF69279
- Concord Coach Made by Abbot, Downing & Company in 1891 ID# THF70567
- Van Cleve Bicycle, Made by the Wright Brothers, circa 1896 ID# THF70569
- Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573
- Bangor & Aroostook Railroad Passenger Coach Replica ID# THF67889

- Wreckage of a Chrysler Airflow Car at the Accident Scene, 1934 ID# THF72060

Lesson 3 Funding Public Goods

- Sign Noting Toll Rates for the Detroit and Birmingham Plank Road ID# THF69356
- Poster, "Proclamation of the Route of the Lincoln Highway," 1913 ID# THF68308
- "The Old Pike: A History of The National Road and Incidents, Accidents, and Anecdotes Thereon," 1894 ID# THF68331

Materials

- Sign: How do cultural attitudes affect day-to-day life, both intentionally and unintentionally?
- Lesson 1 Slide Show: Transportation of Goods and Consumption: A Crash Course in the History of Freight
- Student Activity Sheet 1: Project – Transportation, Availability of Goods and Consumption
- Answer Key 1: Project: Transportation, Availability of Goods and Consumption
- Student Activity Sheet 2A: American Attitudes Survey
- Answer Key 2A: American Attitudes Survey

- Student Activity Sheet 2B: Project – Transportation of the Future

- Student Activity Sheet 3: Graphic Organizer for Public Discourse and Decision Making
- Rubric 3: Persuasive Essay
- Wooden mixing spoon
- Local phone books
- Box of tissues
- Student Activity Sheet 4: Review/Assessment Questions and Answers
- Answer Key 4: Review/Assessment Questions and Answers
- Computer with access to the Internet, digital projector and screen (preferred) OR printed handouts of digitized artifacts' images and descriptions
- Computers with access to the Internet for student use (optional)

HOW do
cultural attitudes affect
day-to-day life
intentionally and
unintentionally



Lesson 1 Transportation of Goods and Consumption

Main Idea

- As technology made it possible to transport goods more quickly and cheaply, American attitudes about consumption and consumption patterns changed.

Key Concepts

- Freight
- Inexhaustible natural resources
- Democracy of consumption
- Plank road
- National Road
- Canal
- Steam power
- Transcontinental Railroad
- Trucking
- Air
- Intermodal containers

Digitized Artifacts

from the Collections of **The Henry Ford**

Lesson 1

Transportation of Goods and Consumption

- Conestoga Wagon, circa 1840 ID# THF17493
- Lithograph, “View of the Junction of the Northern and Western Canals,” 1825 ID# THF68299
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- “Highways of the Sky,” Advertisement Promoting Commercial Air Travel on Ford Tri-Motor Airplanes, 1928 ID# THF68349
- Ford 707E C-Series Truck, Made in 1974, Used by Roadway Express ID# THF67948

Materials

- Lesson 1 Slide Show: Transportation of Goods and Consumption: A Crash Course in the History of Freight
- Student Activity Sheet 1: Project: Transportation, Availability of Goods and Consumption
- Answer Key 1: Project: Transportation, Availability of Goods and Consumption
- Wooden mixing spoon
- Computer with access to the Internet, digital projector and screen (preferred) OR printed handouts of digitized artifacts’ images and descriptions
- Computers with access to the Internet for student use (optional)
- Local phone books

Continued...

Lesson 1 Transportation of Goods and Consumption Continued

Duration 1 full period (45 minutes) or 3.5 periods with optional project

- Parts 1 and 2: 45 minutes
- Part 3 (optional):
 - if assigned as homework: introduction, 15 minutes; follow-up discussion, 20 minutes
 - if in-class project: research, 45 minutes to 1.5 hours; follow-up discussion, 20 minutes

Instructional Sequence

1 Engagement/Relevance

Show students a wooden mixing spoon, explaining that this is an object they probably have in their homes that was also used in homes in 1800. What do they think are the differences between how it came from the maker to their house today versus how it would have come from the maker to their house in 1800?

2 Transportation of Goods and Consumption: A Crash Course in the History of Freight

Present the [Lesson 1 Slide Show: Transportation of Goods and Consumption: A Crash Course in the History of Freight](#) to your students. Use the notes embedded in the slide show to elaborate on the text and images used.

3 Optional Project: Transportation, Availability of Goods and Consumption

To introduce this project, propose to students: How would the absence of highways, steamships, or railroads affect your consumption of goods?

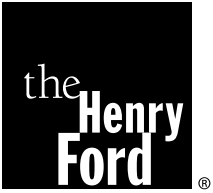
As a class, have students brainstorm a list of the goods they consume or use on a regular basis – for example, food, clothing and furniture.

For the short project, have students work individually or with partners. Have them research the types of goods they could obtain within a day's overland horse travel (20 miles) of their homes in order to fulfill the daily needs from the list that the class has brainstormed. Students should look for producers of goods, like farms, factories or workshops, not retailers. Tools that may be useful in this task include local phone books, local business organizations, such as the Chamber of Commerce or websites such as localharvest.org listing local farmers, producers, manufacturers, etc. Students will need 1-2 class periods to conduct their research unless they are able to complete this assignment at home. Have students record their research on Student Activity Sheet 1 Project: Transportation, Availability of Goods and Consumption.

After they have completed the activity, have students report on the producers they found to help them meet their daily needs and discuss answers using Answer Key 1.

Assessment

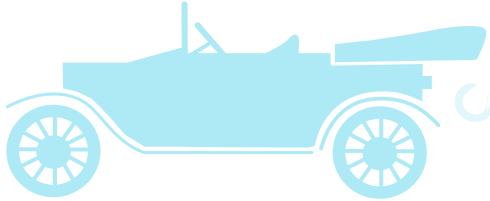
Assess students' effort on Student Activity Sheet 1: Project: Transportation, Availability of Goods and Consumption.



Name _____

project:

Transportation, Availability of Goods and Consumption



Need	Producer and Location	Distance From Home



1. Which needs did you have the hardest time meeting by using only producers within 20 miles of home? Why?

Horizontal lines for writing the answer to question 1.

2. How do you think this has changed over time? How do you meet those needs now?

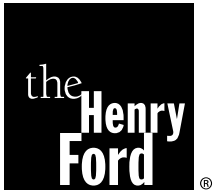
Horizontal lines for writing the answer to question 2.

3. How does transportation affect the availability of goods?

Horizontal lines for writing the answer to question 3.

4. How do you think modern transportation options have influenced the locations of producers? Also, how do you think producers or manufacturers have affected the establishment of transportation networks?

Horizontal lines for writing the answer to question 4.



project:

Transportation, Availability of Goods and Consumption

1. Which needs did you have the hardest time meeting by using only producers within 20 miles of home? Why?

Answers will vary. In urban areas, locating food producers may be harder than in rural areas. Factories and workshops may be scarce in both urban and rural areas.

2. How do you think this has changed over time? How do you meet those needs now?

When our transportation networks were not as extensive, goods had to be produced closer to the markets and consumers. With our improved transportation networks, it is easy to ship goods from one area of the country or world to another.

Now, we meet those needs by purchasing food and other goods produced far away at local retailers or even online.

3. How does transportation affect the availability of goods?

If transportation is available, goods are available. If transportation is not available, goods are not available.

4. How do you think modern transportation options have influenced the locations of producers? Also, how do you think producers or manufacturers have affected the establishment of transportation networks?

Without extensive transportation networks, goods were produced closer to the consumer. The establishment of transportation networks has influenced where producers and manufacturers locate their businesses, and businesses have influenced the location of transportation networks. Ford Motor Company built railroad lines to service its Highland Park and Rouge plants by moving raw materials to the production lines.

Lesson 2 Transportation for People and American Attitudes

Main Idea

- Americans’ car culture is the result of long-established American attitudes and years of innovations in transportation.

Key Concepts

- Democracy of land ownership
- Population distribution, spatial patterns and density
- Suburbanization
- De-urbanization
- Haste
- Democracy of consumption
- Individual freedom
- Public transportation
- Mass transportation
- Urban public transportation
- Personal transportation
- Risk
- Inexhaustible natural resources
- Energy issues
- Environment

Digitized Artifacts

from the Collections of **The Henry Ford**

Lesson 2

Transportation for People, and American Attitudes

- Harbor Freeway in Los Angeles, California, 1956 ID# THF68307

- Detroit Electric Coupe, 1922 (front view ID# THF69240) (side view ID# THF69247) (dashboard view ID# THF69250)
- Riker Electric Automobile, circa 1896 (front view ID# THF69226) (back view ID# THF69229) (dashboard view ID# THF69236)
- Horse-Drawn Streetcar, circa 1890 ID# THF77234
- Tesla Car at SpaceX Facility, El Segundo, California, 2008 ID# THF55832
- Stanford Ovshinsky’s Hydrogen-Powered Hybrid Car, 2009 ID# THF66140
- Stanford Ovshinsky at United Solar Ovonic Facility, Auburn Hills, Michigan, 2009 ID# THF66232
- Advertising Postcard for Pan American Airlines, circa 1970, “The Plane with All the Room in the World” ID# THF68314
- Mack Model CL Buses Loading Passengers at a Downtown Intersection, Toledo, Ohio, 1935 ID# THF68324
- Man Seated in a Buggy, circa 1890 ID# THF68330
- Solar-Powered Car “Phoenix,” 1984 ID# THF69279
- Concord Coach Made by Abbot, Downing & Company in 1891 ID# THF70567
- Van Cleve Bicycle, Made by the Wright Brothers, circa 1896 ID# THF70569
- Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford ID# THF70573
- Bangor & Aroostook Railroad Passenger Coach Replica ID# THF67889
- Wreckage of a Chrysler Airflow Car at the Accident Scene, 1934 ID# THF72060

Continued...

Lesson 2 Transportation for People and American Attitudes Continued

Materials

- Student Activity Sheet 2A:
American Attitudes Survey
- Answer Key 2A:
American Attitudes Survey
- Student Activity Sheet 2B:
Project – Transportation of the Future
- Computer with access to the Internet, digital projector and screen (preferred) OR printed handouts of digitized artifacts’ images and descriptions

Duration 1-2 periods (45 minutes each) to 6 full periods

- Parts 1 and 2: 1 or 2 periods (45 minutes each)
- Part 3 (optional):
 - if assigned as homework: introduction, 20 minutes; presentations, 45 minutes.
 - if in-class assignment: work time, 45 minutes to 2.25 hours; presentations, 45 minutes.

Instructional Sequence

1 Engagement/Relevance

Tell students that today you will be discussing how American attitudes have influenced our society’s evolution into a car-dependent society.

Distribute Student Activity Sheet 2A:

American Attitudes Survey to students, and ask them to complete it. Tell them to leave the spaces for “American Attitude” blank for now; you will complete it together later.

2 American Attitudes and Transportation Artifacts

As a class, review student responses to each of the questions in the American Attitudes Survey. To assist in facilitating the review and discussion about the American Attitudes Survey, use

- annotated Answer Key 2A: American Attitudes Survey
- the digitized artifacts indicated on Answer Key 2A
- [From the Curators – Transportation: Past, Present and Future](#) chapters:
 - What is American about American Transportation?
 - Modes of Transportation: Personal & Public
 - Auto Issues Today: Energy, Environment & Vehicle Choice; Pollution Regulation & Technology Advances; Powering the 21st Century Vehicle; What’s Old is New Again: Electric Cars; Networked Thinking: Personal Mobility, Mass Transit & Energy Grids

Continued...

Lesson 2 Transportation for People and American Attitudes Continued

Instructional Sequence Continued

Ask students to:

- share their personal answers to their survey
- share their “most Americans” answers and compare their answers with those of **The Henry Ford’s** curators

Take notes on your discussion on Student Activity Sheet 2A; explain more about this “American attitude” and related concepts.

Show artifacts that are evidence of this – access the digitized artifacts from the collections of **The Henry Ford** or click on the hyperlinks in the Answer Key.

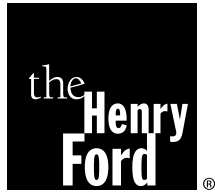
3 Optional Project: American Attitudes and the Transportation of the Future

Ask students if they think American attitudes regarding personal and mass transportation are changing. Ask students to predict what they think will be the answers to the American Attitudes Survey in twenty years.

Distribute Student Activity Sheet 2B: Project – Transportation of the Future, and have students embark on a project to imagine the transportation of the future. You may have students work alone, in pairs, or in groups. Their final product will be a written paper or a presentation with visuals, addressing each of the questions on the Activity Sheet.

Assessment

Assess students’ effort on 2B:
Project – Transportation of the Future.



Name _____

For each question, circle both your choice and your prediction of what most Americans would choose.

1. I prefer to live in...

my answer

- a an apartment in a city – I like being around many other people.
- b a farmhouse on 100 acres of land – I like open spaces.
- c a house with a front and back yard – I want my own little piece of land, but I also want convenient shopping and services.

most Americans' answer

- a an apartment in a city – I like being around many other people.
- b a farmhouse on 100 acres of land – I like open spaces.
- c a house with a front and back yard – I want my own little piece of land, but I also want convenient shopping and services.

American attitude:



2. Most other people around me have a vehicle. Having my own vehicle, too, is _____ important to me.

my answer

- a** very – I think it's impossible to live without one.
- b** somewhat – I would like to have my own car.
- c** not at all – I am perfectly happy without a car.

most Americans' answer

- a** very – I think it's impossible to live without one.
- b** somewhat – I would like to have my own car.
- c** not at all – I am perfectly happy without a car.

American attitude:

3. How important is it to you to go where you want, when you want?

my answer

- a** not at all – I am willing to go out of my way or wait thirty minutes if necessary.
- b** somewhat – But I would walk a couple extra blocks or wait ten minutes if necessary.
- c** very – I will only go by my own schedule.

most Americans' answer

- a** not at all – I am willing to go out of my way or wait thirty minutes if necessary.
- b** somewhat – But I would walk a couple extra blocks or wait ten minutes if necessary.
- c** very – I will only go by my own schedule.

American attitude:



4. How concerned are you about your safety when in a vehicle?

my answer

- a** hardly – I trust government regulations, automakers and other drivers.
- b** somewhat – I wear my seat belt in cars.
- c** very – I would be willing to pay more for new safety devices and to be physically uncomfortable while using them.

most Americans' answer

- a** hardly – I trust government regulations, automakers and other drivers.
- b** somewhat – I wear my seat belt in cars.
- c** very – I would be willing to pay more for new safety devices and to be physically uncomfortable while using them.

American attitude:

5. How concerned are you about how vehicles are fueled?

my answer

- a** hardly – Don't know how the fuel type, or where or how it's obtained, affects me.
- b** somewhat – I would be willing to have oil drilling near my community.
- c** very – I would pay twice as much for an alternative-energy vehicle.

most Americans' answer

- a** hardly – Don't know how the fuel type, or where or how it's obtained, affects me.
- b** somewhat – I would be willing to have oil drilling near my community.
- c** very – I would pay twice as much for an alternative-energy vehicle.

American attitude:



6. How concerned are you about pollution coming from vehicles?

my answer

- a hardly – I have not changed my transportation habits.
- b somewhat – I carpool or take public transportation if it is convenient.
- c very – I bike or walk, no matter the weather.

most Americans' answer

- a hardly – I have not changed my transportation habits.
- b somewhat – I carpool or take public transportation if it is convenient.
- c very – I bike or walk, no matter the weather.

American attitude:



American Attitudes Survey

Introduction

Suggest to students that the tangible things we use daily represent these ideas. Show students the digitized artifact [Ford Model T Touring Car, 1914, Given to John Burroughs by Henry Ford](#) ID# THF70573 and share the background information that accompanies the artifact.

Then, ask students to help you define the following words. They might also give an example of an American attitude, a trade-off, etc. in regard to cars.

- American attitudes
- trade-offs
- risks
- benefits
- unintended consequences

Continue by asking students to

- share their personal answers to the survey
- share their “most Americans” answers and compare their answers with those of **The Henry Ford’s** curators as you discuss American attitudes and other important concepts
- look at artifacts from the collections of **The Henry Ford** that represent those ideas
- take notes on the discussion using Student Activity Sheet 2A

1. Most Americans prefer to live in...

- a a house with a front and back yard – they want their own little piece of land but convenient shopping and services.

American attitude

Democracy of land ownership

Introduce other concepts

Population distribution, spatial patterns and density, suburbanization, de-urbanization

Introduce American attitude

Haste

Show artifacts representing these attitudes and concepts

[Harbor Freeway in Los Angeles, California, 1956](#) ID# THF68307

[Horse-Drawn Streetcar, circa 1890](#)
ID# THF77234

2. Most people in America seem to have a vehicle. Having their own vehicle, too, is _____ important to most Americans.

- a very – they think it’s impossible to live without one.

American attitude

Democracy of consumption

Show artifacts representing these attitudes and concepts

Man Seated in a Buggy, circa 1890

ID# THF68330

Van Cleve Bicycle, Made by the Wright Brothers, circa 1896 ID# THF70569

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

3. How important is it to most Americans to go where they want, when they want?

- a not at all – They are willing to go out of the way or wait thirty minutes if necessary.
- b somewhat – But they would walk a couple extra blocks or wait ten minutes if necessary.
- c very – They only go by their own schedule.

Answer would depend on person’s geographic location, access to personal and mass transportation and socioeconomic status.

American attitude

Individual freedom

Introduce other concepts

Public transportation

Show artifacts representing these attitudes and concepts

Concord Coach Made by Abbot, Downing & Company in 1891 ID# THF70567

Introduce other concepts

Mass transportation

Show artifacts representing these attitudes and concepts

Advertising Postcard for Pan American Airlines, circa 1970, “The Plane with All the Room in the World” ID# THF68314

Bangor & Aroostook Railroad Passenger Coach Replica ID# THF67889

Introduce other concepts

Urban public transportation

Show artifacts representing these attitudes and concepts

Horse-Drawn Streetcar, circa 1890

ID# THF77234

Model CL Buses Loading Passengers at a Downtown Intersection, Toledo, Ohio, 1935

ID# THF68324

Introduce other concepts

Personal transportation

Show artifacts representing these attitudes and concepts

Man Seated in a Buggy, circa 1890

ID# THF68330

Van Cleve Bicycle, Made by the Wright Brothers, circa 1896 ID# THF70569

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

4. How concerned are most Americans about their safety when in a vehicle?

a hardly – They trust government regulations, automakers and other drivers.

b somewhat – They wear seat belts in cars.

Either answer is appropriate; it depends on the person's personal preferences.

American attitude

Risk

Show artifacts representing these attitudes and concepts

Wreckage of a Chrysler Airflow Car at the Accident Scene, 1934 ID# THF72060

5. How concerned are most Americans about how vehicles are fueled?

a hardly – Don't know how the fuel type or where or how it's obtained affects them.

American attitude

Inexhaustible natural resources

Introduce other concepts

Energy issues

Show artifacts representing these attitudes and concepts

Solar-Powered Car "Phoenix," 1984

ID# THF69279

Stanford Ovshinsky's Hydrogen-Powered Hybrid Car, 2009 ID# THF66140

Stanford Ovshinsky at United Solar Ovonic Facility, Auburn Hills, Michigan, 2009 ID# THF66232

Tesla Car at SpaceX Facility, El Segundo, California, 2008 ID# THF55832

Detroit Electric Coupe, 1922

(front view ID# THF69240)

(side view ID# THF69247)

(dashboard view ID# THF69250)

Riker Electric Automobile, circa 1896

(front view ID# THF69226)

(back view ID# THF69229)

(dashboard view ID# THF69236)

6. How concerned are you about pollution coming from vehicles?

a hardly – They have not changed transportation habits.

b somewhat – They carpool or take public transportation if it is convenient.

American attitude

Inexhaustible natural resources

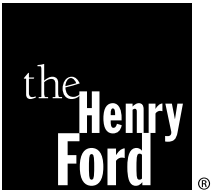
Introduce other concepts

Environment

Show artifacts representing these attitudes and concepts

Harbor Freeway in Los Angeles, California, 1956

ID# THF68307



Name _____

project: Transportation of the Future

Develop a new transportation system to move people around. You will present your idea in either a paper or a presentation with visuals. As you develop your transportation system, make sure you have considered the following:

1. Is your new system for personal or mass transit? Why did you make this choice?
2. From where to where does your transportation system travel? For your presentation, show this on a map. Why did you make this choice?
3. How is your transportation system fueled?
4. How does your transportation system affect the environment?
5. How does your transportation system affect those without access to personal transportation?
6. What American attitudes might pose challenges for implementing this type of transportation system?

Lesson 3 Funding Public Goods

Main Idea

Most transportation systems partially utilize public goods. There are multiple ways of funding public goods such as roads. Each way has both benefits and trade-offs.

Key Concepts

- Public goods
- Free-rider problem
- Infrastructure
- Franchise
- Monopoly
- Toll
- Direct government ownership
- Constitutionality of federal funding for internal improvements
- Cumberland Road (National Road)
- Good Roads Movement
- Gasoline tax
- Interstate Highway System
- Amtrak

Digitized Artifacts

from the Collections of **The Henry Ford**

Lesson 3

Funding Public Goods

- Sign Noting Toll Rates for the Detroit and Birmingham Plank Road ID# THF69356
- Poster, "Proclamation of the Route of the Lincoln Highway," 1913 ID# THF68308
- "The Old Pike: A History of The National Road and Incidents, Accidents, and Anecdotes Thereon," 1894 ID# THF68331

Materials

- Student Activity Sheet 3: Graphic Organizer for Public Discourse and Decision Making
- Rubric 3: Persuasive Essay
- Box of tissues
- Computer with access to the Internet, digital projector and screen (preferred) OR printed handouts of digitized artifacts' images and descriptions.

Duration 1-4 periods (45 minutes each)

- Parts 1 and 2: 45 minutes
- Part 3 (optional): total 2.5 hours (research, 45 minutes to 1.5 hours; discussion/debate, 30 minutes; homework persuasive essay and action plans, 30 minutes)

Continued...

Lesson 3 Funding Public Goods Continued

Instructional Sequence

1. Engagement/Relevance – Public Goods

To interest and instruct students about the concept of a public good, perform the vignette that follows:

Choose three students to be “in on it,” while the other students will not know that the vignette is part of the lesson for the day. In advance of the class, give the students a box of tissues to use as a prop. Two of the students should bring the box of tissues into class and place it in a public area. Ask them about the tissues. They should reply that they decided to buy tissues to place in each of their classrooms so a tissue would always be nearby if they needed it. The third student, the free rider, should pretend to sneeze and take a tissue from the box. The first two students should be angry that the free rider is using something he or she did not pay for; they should complain to you about it.

Tell the class that they have just witnessed a classic free-rider problem with a public good. The third student found a way to “free ride” on someone else’s investment -- the tissues. Ask the first two students if they would continue to bring tissues if the free-riding continued. They will likely say no.

With the class, define **public good** and **free-rider problem**. See the Glossary in the Teacher Guide for definitions.

2. Transportation Projects: A Public Good

Tell students that the transportation infrastructure gives us many great examples of the problem of public goods, the changing American attitudes toward them and how they can be addressed. Refer to “Government Role in the Development of American Transportation” in [From the Curators – Transportation: Past, Present and Future](#) for more information. Use the images below from [The Henry Ford’s](#) digitized collections to support your discussion on the selected topics and concepts.

Topics and Concepts

- Transportation infrastructure
- [Artifact Sign Noting Toll Rates for the Detroit and Birmingham Plank Road ID# THF69356](#)
 - Government granting franchises and monopolies to private companies
 - Turnpike
 - Toll
 - Monopoly
 - Franchise
- [Artifact “The Old Pike: A History of The National Road and Incidents, Accidents, and Anecdotes Thereon,” 1894 ID# THF68331](#)
 - Direct government ownership
 - Constitutionality of federal funding for internal improvements
 - Cumberland Road (also known as the National Road)
- Funding urban streets
- Abutters

Continued...

Lesson 3 Funding Public Goods Continued

- Artifact Poster, “Proclamation of the Route of the Lincoln Highway,” 1913 ID# THF68308
 - Good Roads Movement
 - Lincoln Highway
- Gasoline tax
- Use of public roads as a human right
- Interstate Highway System
- Amtrak

3. Optional: Public Discourse and Decision Making

As a class, explore the options for funding a public good, such as a local transportation project. This could be a road improvement, a new road, light rail transit, a bus system or other transportation project that is a public good. If possible, make the topic of the debate an actual project that is going on or being considered in your area.

Use Student Activity Sheet 3: Graphic Organizer for Public Discourse and Decision Making to lead students through the process of defining and clearly stating the issue, researching the issue, generating and evaluating alternative resolutions, and applying core democratic values and constitutional principles. Alternative resolutions should consider the free-rider problem and American attitudes about funding public goods.

Facilitate the sharing of students’ research in group discussions (whole class or small group) or debates.

Next, have students compose persuasive essays that choose a position and justify it with a reasoned argument. Their essays should utilize the historical information they learned about the funding of transportation systems. Use Rubric 3 as a starting point for assessment, and adapt it to fit your class’s needs.

Finally, as individuals or as a class, have students develop an action plan to address or inform others about the issue. This could entail writing a letter to a local newspaper editor or government official, convening a town hall meeting, creating an informational display or a piece of art that increases awareness about the issue, or any other creative ideas that educate citizens.

Assessment

Assess students’ Student Activity Sheet 3: Graphic Organizer for Public Discourse and Decision Making for thoughtful consideration of the issue, resolutions, and applicable core democratic values and constitutional principles.

Assess their persuasive essays using Rubric 3, adapted to fit your needs.

Assess students’ action plans by asking the students’ peers or other community members if the proposed action would reach and educate them.

Name _____

graphic organizer for Public Discourse and Decision Making



What is the issue?															
Origins of the issue?								Data?							
Alternative resolutions?								Possible impacts on different groups?							



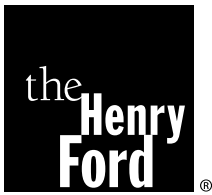
Core democratic values that apply:

Constitutional principles that apply:

Share and discuss your research!

Points to include in persuasive essay:

How I will address or inform others about this issue:



Name _____

persuasive Essay

	Position	Support	Origins	Facts	Data	Core Democratic Values and Constitutional Principles	Alternatives
4	Clearly and eloquently states the position.	The position is supported with well-organized arguments.	Draws on the origins of the issue to support the position.	Effectively uses factual information to support the position.	Effectively uses data to support the position and correctly quotes the source.	Uses multiple CDVs or constitutional principles to support the position.	Acknowledges alternative resolutions and refutes them convincingly.
3	Clearly states the position.	Clearly supports the position.	Explains the origins of the issue.	Uses factual information to support the position.	Uses data to support the position and quotes the source.	Uses a CDV or constitutional principle to support the position.	Acknowledges alternative resolutions and refutes them.
2	States the position with some clarity.	Gives some support for the position.	Mentions the origins of the issue.	Uses information to support the position, but facts may be confused.	Uses some data to support the position but does not quote the source.	Attempts to use a CDV or a constitutional principle, but the choice does not really support the position.	Acknowledges alternative resolutions but does not refute them.
1	The position is unclear.	Little or no support given for the position.	Origins of the issue are not discussed.	Supporting facts, if used, are mostly or totally inaccurate.	Data, if used, are mostly or totally inaccurate.	No use of CDVs or constitutional principles.	Does not acknowledge alternative resolutions.
Student Score							

supplemental resources | for grades 8-12

Transportation Systems

Culminating Projects

Consider introducing the culminating projects at the outset of the Transportation Systems unit 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 cultural attitudes affect day-to-day life, both intentionally and unintentionally?”

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

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 learned through this unit. The topic of your exhibition should be, “How do cultural attitudes affect day-to-day life, both intentionally and unintentionally?” It should tie in to current news on transportation systems. There are a number of angles to take with this project, so focus on what aspect of the topic matters most for you, and be creative! Use **The Henry Ford’s** Transportation in American Life website to access the ExhibitBuilder activity – or [click here](#).

Class Off-line Project

Social Research

Collect data that future historians will find useful in studying how cultural attitudes affect day-to-day life. Using the American Attitudes Survey from Lesson 2 as a model, develop a survey with questions about attitudes, consumption of goods, use of personal and mass transportation, and funding public goods, such as transporta-

tion systems. Target specific audiences to study, such as teenagers, parents, etc., and distribute the survey. Compile the results, and work as a group to draw conclusions about American attitudes about transportation-related issues today. Students can write individual conclusion papers for assessment. Check with your school, library or local museum or historical society about donating a copy of the research for future historians’ use.

Transportation Systems

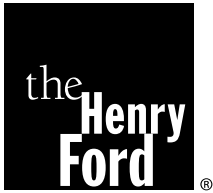
Extension Activities

Community Transportation History

Have students research the history of transportation in your community. Was the establishment and location of the community due to transportation in any way (is the community located along a river, at a major cross-roads, etc.)? How were routes for the first roads chosen (are they along a Native American trail or convenient to the railroad, etc.)? How has the community changed as types of transportation and transportation networks have changed (businesses have moved from downtown to malls; the railroad depot is no longer the center of town; parking lots and garages have been built, etc.)? Contact your local library, museum or historical society for assistance.

Government and Roads

Have students attend a meeting of the county road commission and then report back to the class some of the issues that were discussed. Invite a guest speaker from your city’s department of public works to visit your class and talk about the work involved in constructing and maintaining roads.



Name _____

Ford

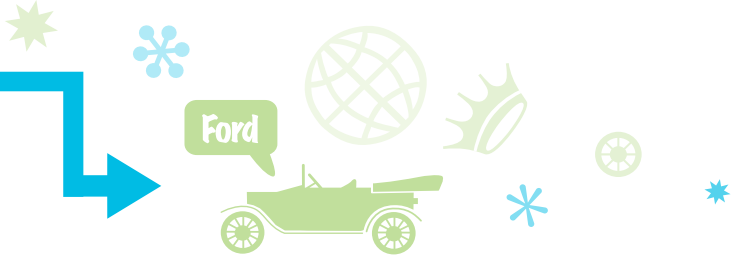
Transportation Systems review/assessment questions

1. What transportation systems were used by Americans in 1800? In 1898?

2. How did transportation systems affect the Civil War?

3. How might a public good, such as a transportation project, be funded? Explain the various arguments about and perspectives on the options.

4. How has government's role in transportation changed since 1800, and what has been the impact on people's daily lives?

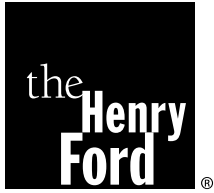


5. What transportation systems connect societies all over the globe?

7. How have automobiles affected the environment?

6. How have transportation systems changed urban and rural areas?

8. How did America's infrastructure change after WWII? Why?



Transportation Systems review/assessment questions

1. What transportation systems were used by Americans in 1800?

Natural waterways (rivers, oceans and lakes) were most important for moving goods and people long-distances; roads were also used.

In 1898?

By 1898, railroads had changed long distance freight and travel. Streetcars were used in cities. Roads were still important, and city streets had undergone some improvements due to the popularity of the bicycle.

Note: In the 1810s to 1840s, man-made canals were also an important way to move goods and people.

(8 – U6.1.1, USHG F2.1)

2. How did transportation systems affect the Civil War?

The North's more advanced railroad system was an economic and military advantage that contributed to its victory. (8 – U4.2.1, 8 – U5.2.2)

3. How might a public good, such as a transportation project, be funded? Explain the various arguments about and perspectives on the options.

Options: tolls (users actually pay to use the road, bridge, etc.); gasoline taxes (those using the roads and bridges are doing so with cars fueled by gasoline – although this may change if fuel options change); abutment taxes (although abutters may not want roads improved because traffic would increase or speed up); fares/tickets (appropriate for mass transit); franchise creation and running of the project (but if the company does not make money, the project will be abandoned and people will be without transportation). Many possible answers exist.

(8 – P3.1.1, 8 – P4.2.2, E 1.4.3, E 1.4.4)

Continued...

4. How has government's role in transportation changed since 1800, and what has been the impact on people's daily lives?

Government's role in transportation has grown much bigger in the last 200 years. In the early 1800s, people were responsible for maintaining the road near their house or were assessed abutment taxes. The federal government debated whether it even had the authority to build and fund transportation infrastructure. At this time, transporting goods and people was difficult, due mostly to a lack of technology but also in part to the lack of government oversight. Today, we benefit from the Interstate Highway System which facilitates travel of goods and people quickly and more safely.

(WHG 7.1.1, USHG 6.1.5, C 2.2.3, C 2.2.5, E 1.4.4)

5. What transportation systems connect societies all over the globe?

Airplanes, ships, roads and railroads allow movement of people and goods worldwide. Container shipping is important for global trade between societies.

(WHG 6.1.3, WHG 7.1.4)

6. How have transportation systems changed urban and rural areas?

Streetcars were the first mode of transportation to encourage suburbanization. Suburbanization was accelerated with the increase in the number of roads, highways and interstates that were improved or built. Suburban areas grew, and rural areas shrank to absorb people who left the cities.

(USHG 6.1.3, USHG 6.1.5)

7. How have automobiles affected the environment?

Automobile manufacturing involves the extraction of natural resources and the use of nonrenewable resources. The use of automobiles requires extracting and refining natural resources (primarily oil) into fuel (gasoline), releases pollutants as the fuel is used and produces byproducts (used motor oil, etc.).

Old automobiles must be disposed of, often in a dump. (USHG 8.2.2)

8. How did America's infrastructure change after WWII? Why?

The 1956 Federal-Aid Highway Act facilitated building the Interstate Highway System, which was considered necessary for national defense but also helped commerce.

(USHG 6.1.5, USHG 8.2.2)

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The Henry Ford sincerely thanks the following individuals who guided the development of the 'Transportation in America' online Educator DigiKits.

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