



Exhibit Big Idea:

The car led us to reshape our culture and landscape like no other invention. It has had both positive and negative consequences. The decisions we make, individually and collectively, will define our automotive future. The choice is ours.

Its appeal to K-12 and youth audience:

Driving America empowers young learners to understand their role in the innovation process by examining the history of American transportation. The exhibition uses authentic artifacts and technology that appeals to multiple learning styles.

Exhibit Sections:

Introduction Before Cars Timeline Design & Engineering Henry Ford: Innovator Safety Repair Gasoline Texaco Station Power Options Alternatives to Cars Family Cars Road Trips Roads Theater Car Court Marketing Hot Rods & Custom Cars Auto Racing Style Trucks Great Stories Small Cars Luxury

Alignment with Michigan Grade Level & High School Content Expectations

Social Studies

Beginnings of Automobile Industry

- **3** H3.0.8 Use case studies or stories to describe how the ideas or actions of individuals affected the history of Michigan.
 - Sections: Introduction, Timeline, Henry Ford
- **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?
 - Sections: Henry Ford, Timeline
- 4 H3.0.5 Use visual data and informational text or primary accounts to compare a major Michigan economic activity today with that same or a related activity in the past. (E) Sections: Henry Ford, Timeline, Design & Engineering, film, Create a Car Commercial interactive
- **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. Sections: Henry Ford, Timeline, film

- **4** E1.0.5 Explain how specialization and division of labor increase productivity (e.g., assembly line). (H)
 - Sections: Henry Ford
- **9-12 US History & Geography** 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 of resource availability
 - entrepreneurial decision making by Henry Ford and others
 - domestic and international migrations
 - the development of an industrial work force
 - the impact on Michigan
 - the impact on American society

Sections: Timeline, Henry Ford, Family Cars (Detroit)

Globalization

- **3** E3.0.1 Identify products produced in other countries and consumed by people in Michigan Sections: Timeline
- 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). Sections: Timeline (one case 1990s So Many Choices)
- **9-12 Economics** 2.1.9 American Economy in the World Analyze the changing relationship between the American economy and the global economy including, but not limited to, the increasing complexity of American economic activity (e.g., outsourcing, off-shoring, and supply-chaining) generated by the expansion of the global economy. Sections: Timeline, Gasoline
- 9-12 Economics 3.2.5 The Global Economy and the Marketplace Analyze and describe how the global economy has changed the interaction of buyers and sellers, such as in the automobile industry.
 - Sections: Timeline
- **9-12 US History & Geography** 9.1.1 Economic Changes Using the changing nature of the American automobile industry as a case study, evaluate the changes in the American economy created by new markets, natural resources, technologies, international competition, new sources of production, energy issues, and mass communication. Sections: Timeline, Power Options, Gasoline
- 9-12 World History & Geography 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) Sections: Timeline
- 9-12 World History & Geography CG3 Patterns of Global Interactions Define the process of globalization and evaluate the merit of this concept to describe the contemporary world by analyzing
 - economic interdependence of the world's countries and world trade patterns
 - the exchanges of scientific, technological, and medical innovations
 - cultural diffusion and the different ways cultures/societies respond to "new" cultural ideas and patterns
 - comparative economic advantages and disadvantages of regions, regarding cost of labor, natural resources, location, and tradition
 - distribution of wealth and resources and efforts to narrow the inequitable distribution of resources

Sections: Timeline, Gasoline

<u>Government</u>

- 4 E1.0.8 Explain why public goods (e.g., libraries, roads, parks, the Mackinac Bridge) are not privately owned. (H)
 - Sections: Roads (not strong though)
- 9-12 US History & Geography 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 labor, poverty, infrastructure, and the environment
 - evaluating policy decisions and legislative actions to meet these challenges (e.g., G.I. Bill of Rights (1944), Federal Highways Act (1956), E.P.A. (1970)
 - Sections: Timeline, Roads
- **9-12 Economics** 1.4.2 Government and Consumers Analyze the role of government in protecting consumers and enforcing contracts, (including property rights), and explain how this role influences the incentives (or disincentives) for people to produce and exchange goods and services. Sections: Safety
- 9-12 Economics 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). Sections: Roads
- 9-12 Economics 1.4.4 Functions of Government Explain the various functions of government in a market economy including the provision of public goods and services. Sections: Roads. Before Cars

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Natural Resources and The Environment

- **1** G5.0.1 Describe ways in which people modify (e.g., cutting down trees, building roads) and adapt to the environment (e.g., clothing, housing, transportation). Sections: Roads, Timeline, Before Cars
- **9-12 US History & Geography** 9.1.1 Economic Changes Using the changing nature of the American automobile industry as a case study, evaluate the changes in the American economy created by new markets, natural resources, technologies, international competition, new sources of production, energy issues, and mass communication. Sections: Timeline, Power Options, Gasoline
- **9-12 World History & Geography** CG2 Resources Explain the changes over the past 50 years in the use, distribution, and importance of natural resources (including land, water, energy, food, renewable, non-renewable, and flow resources) on human life, settlement, and interactions by describing and evaluating
 - change in spatial distribution and use of natural resources
 - the differences in ways societies have been using and distributing natural resources
 - social, political, economic, and environmental consequences of the development, distribution, and use of natural resources
 - major changes in networks for the production, distribution, and consumption of natural resources including growth of multinational corporations, and governmental and non-governmental organizations (e.g., OPEC)
 - the impact of humans on the global environment

Sections: Timeline, Gasoline

Migration & Immigration

3-G4.0.2 Describe diverse groups that have come into a region of Michigan and reasons why they came (push/pull factors). (H) Sections: Family Cars (Detroit)

- 4 H3.0.2 Use primary and secondary sources to explain how migration and immigration affected and continues to affect the growth of Michigan. (G) Sections: Family Cars (Detroit), film
- 9-12 World History & Geography 6.1.2 World-wide Migrations and Population Changes Analyze the causes and consequences of shifts in world population and major patterns of long-distance migrations of Europeans during this era (18th century to 1914), including the impact of industrialism and scientific advances on worldwide demographic trends. Sections: Family Cars (Detroit)

History of Technology & Society

- 9-12 US History & Geography 9.1.1 Economic Changes Using the changing nature of the American automobile industry as a case study, evaluate the changes in the American economy created by new markets, natural resources, technologies, international competition, new sources of production, energy issues, and mass communication. Sections: Timeline, Power Options, Gasoline
- 9-12 World History & Geography 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) Sections: Timeline, Safety

Price

4 – E1.0.4 Explain how price affects decisions about purchasing goods and services (substitute goods).

Sections: Timeline, Henry Ford

9-12 Economics - 1.3.2 Law of Demand – Explain the law of demand and analyze the likely change in demand when there are changes in prices of the goods or services, availability of alternative (substitute or complementary) goods or services, or changes in the number of buyers in a market created by such things as change in income or availability of credit. Sections: Timeline, Henry Ford, Power Options

Empowering Individuals

- 2 H2.0.3 Use an example to describe the role of the individual in creating history. Sections: Introduction, Henry Ford, Food, Design & Engineering, Roads, On the Road, Safety, Auto Racing, Power Options
- **3** H3.0.8 Use case studies or stories to describe how the ideas or actions of individuals affected the history of Michigan.
 - Sections: Introduction, Timeline, Henry Ford
- 6 H1.2.5 Identify the role of the individual in history and the significance of one person's ideas.

Entrepreneurship

9-12 Economics - 1.1.2 Entrepreneurship – Identify the risks, returns and other characteristics of entrepreneurship that bear on its attractiveness as a career. Sections: Timeline, Henry Ford, Food, Road Trips

Civil Rights Movement

9-12 US History & Geography - 8.3.1 Civil Rights Movement – Analyze the key events, ideals, documents, and organizations in the struggle for civil rights by African Americans including

• protest movements, organizations, and civil actions (e.g., Montgomery Bus Boycott (1955–1956), freedom rides

Sections: Alternatives to Cars, Food, Before Cars

World War II

9-12 US History & Geography - 7.2.3 Impact of WWII on American Life – Analyze the changes in

- American life brought about by U.S. participation in World War II including
 - mobilization of economic, military, and social resources
 - role of women and minorities in the war effort
 - role of the home front in supporting the war effort (e.g., rationing, work hours, taxes)

Sections: Timeline

Science

Scientific Reflection and Social Implications (9)

- **3** S.RS.03.16 Identify technology used in everyday life.
 - Sections: Timeline, Power Sources, Safety,
- **3** S.RS.03.17 Identify current problems that may be solved through the use of technology. Sections: Power Sources, Timeline, Design & Engineering
- 4 S.RS.04.16 Identify technology used in everyday life. Sections: Timeline, Power Sources, Safety,
- 4 S.RS.04.17 Identify current problems that may be solved through the use of technology. Sections: Power Sources, Timeline, Design & Engineering
- **3** S.RS.03.19 Describe how people have contributed to science throughout history and across cultures.

Sections: Timeline, Design & Engineering, Henry Ford, Safety, Auto Racing, Gasoline, Power Options

4 - S.RS.04.19 Describe how people have contributed to science throughout history and across cultures.

Sections: Timeline, Design & Engineering, Henry Ford, Safety, Auto Racing, Gasoline, Power Options

- 5 S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures. Sections: Timeline, Design & Engineering, Henry Ford, Safety, Auto Racing, Gasoline, Power Options
- 6 S.RS.06.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures. Sections: Timeline, Design & Engineering, Henry Ford, Safety, Auto Racing, Gasoline, Power Options
- 6 S.RS.06.18 Describe what science and technology can and cannot reasonably contribute to society.

Sections: film

7 - S.RS.07.18 Describe what science and technology can and cannot reasonably contribute to society.

Sections: film

- 7 S.RS.07.19 Describe how science and technology have been advanced because of the contributions of many people throughout history and across cultures. Sections: Timeline, Design & Engineering, Henry Ford, Safety, Auto Racing, Gasoline, Power Options
- 9-12 Physics P1.2g Identify scientific tradeoffs in design decisions and choose among alternative solutions. Sections: Help Henry Innovate interactive, Timeline, Concept to Reality interactive,

Power Options, Design & Engineering, K'nex

- 9-12 Physics P1.2j Apply science principles or scientific data to anticipate effects of technological design decisions. Sections: Help Henry Innovate interactive, Timeline, Concept to Reality interactive, Power Options, Design & Engineering, K'nex
- 9-12 Physics P1.2k Analyze how science and society interact from a historical, political, economic, or social perspective. Sections: throughout exhibit

Fuel and the Environment

- **3** E.SE.03.32 Describe how materials taken from the Earth can be used as fuels for heating and transportation.
 - Sections: Gasoline
- **3** E.ES.03.51 Describe ways humans are dependent on the natural environment (forests, water, clean air, Earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).
 - Sections: Gasoline, Roads, Timeline
- **3** E.ES.03.52 Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable, and non-renewable resources). Sections: Timeline, Food, Gasoline, Power Sources
- 7 E.ES.07.42 Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species. Sections: Timeline, Gasoline
- 9-12 Biology E2.4A Describe renewable and nonrenewable sources of energy for human consumption (electricity, fuels), compare their effects on the environment, and include overall costs and benefits. Sections: Power Options, Gasoline, Timeline

Physics of Motion

3 - P.FM.03.37 Demonstrate how the change in motion of an object is related to the strength of the force acting upon the object and to the mass of the object.

Sections: K'nex

5 - P.FM.05.34 Relate the size of change in motion to the strength of unbalanced forces and the mass of the object.

Sections: K'nex

- 5 P.FM.05.42 Describe the motion of an object in terms of distance, time, and direction, as the object moves, and in relationship to other objects. Sections: K'nex
- 6 P.EN.06.11 Identify kinetic energy and potential energy in everyday situations. Sections: K'nex

Illustrations of Scientific Concepts

- **3** S.RS.03.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
 - Sections: Explore Car Safety interactive, Power Options interactive, K'nex
- 4 S.RS.04.11 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
 - Sections: Explore Car Safety interactive, Power Options interactive, K'nex,
- 5 S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.

Sections: Explore Car Safety interactive, Power Options interactive, K'nex

6 - S.RS.06.1 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.

Sections: Explore Car Safety interactive, Power Options interactive, K'nex

7 - S.RS.07.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.

Sections: Explore Car Safety interactive, Power Options interactive, K'nex

English Language Arts

Viewing & Responding

- 3 L.RP.03.02 Select, listen to or view knowledgeably, and respond thoughtfully to both classic and contemporary texts recognized for quality and literary merit. Sections: film. throughout exhibit
- 4 L.RP.04.01 Listen to or view knowledgeably and discuss a variety of genre and compare their responses to those of their peers.

Sections: film, throughout exhibit

5 - L.RP.05.01 Listen to or view knowledgeably and discuss a variety of genre and compare their responses to those of their peers.

Sections: film, throughout exhibit

- 6 L.RP.06.01 Listen to or view knowledgeably a variety of genre to summarize, take notes on key points, and ask clarifying questions. Sections: film, throughout exhibit
- **9-12** 2.1.10 Listen to and view speeches, presentations, and multimedia works to identify and respond thoughtfully to key ideas, significant details, logical organization, fact and opinion, and propaganda.

Sections: film, interactives, throughout exhibit

- **9-12** 2.3.2 Read, view, and/or listen independently to a variety of fiction, nonfiction, and multimedia genres based on student interest and curiosity. Sections: film, interactives, throughout exhibit
- **9-12** 2.3.4 Critically interpret primary and secondary research-related documents (e.g., historical and government documents, newspapers, critical and technical articles, and subject-specific books).
 - Sections: film, interactives, throughout exhibit
- **9-12** 2.3.7 Participate as an active member of a reading, listening, and viewing community, collaboratively selecting materials to read or events to view and enjoy (e.g., book talks, literature circles, film clubs). Sections: film, interactives, throughout exhibit

Vocabulary

- 4 R.WS.04.07 In context, determine the meaning of words and phrases including similes, metaphors, content vocabulary, and literary terms using strategies and resources including context clues, semantic feature analysis, and a thesaurus.
- 5 R.WS.05.07 In context, determine the meaning of words and phrases including symbols, idioms, recently coined words, content vocabulary, and literary terms using strategies and resources including analogies, content glossaries, and electronic resources.
- 6 R.WS.06.07 In context, determine the meaning of words and phrases including regional idioms, literary and technical terms, and content vocabulary using strategies including connotation, denotation, and authentic content-related resources.
- 7 R.WS.07.07 In context, determine the meaning of words and phrases including crosscultural expressions, mathematical expressions, scientific procedures, and literary terms using strategies and authentic content-related resources.
- 8 R.WS.08.07 In context, determine the meaning of words and phrases including content area vocabulary and literary terms using strategies including activating prior knowledge, using text features/structures, and authentic content-related resources.
- **9-12** 2.1.3 Determine the meaning of unfamiliar words, specialized vocabulary, figurative language, idiomatic expressions, and technical meanings of terms through context clues, word roots and affixes, and the use of appropriate resource materials such as print and electronic dictionaries.

Alignment with Common Core State Standards

Reading Standards for Literacy in History/Social Studies 6-12

Key Ideas and Details

Grades 6-8

- 1. Cite specific textual evidence to support analysis of primary and secondary sources.
- 3. Identify key steps in a text's description of a process related to history/social studies (e.g., how a bill becomes law, how interest rates are raised or lowered).

Grades 9-10

- 1. Cite specific textual evidence to support analysis of primary and secondary sources, attending to such features as the date and origin of the information.
- 3. Analyze in detail a series of events described in a text; determine whether earlier events caused later ones or simply preceded them.

Grades 11-12

1. Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.

Craft and Structure

Grades 6-8

- 4. Determine the meaning of words and phrases as they are used in a text, including vocabulary specific to domains related to history/social studies.
- 5. Describe how a text presents information (e.g., sequentially, comparatively, causally).

Grades 9-10

- 4. Determine the meaning of words and phrases as they are used in a text, including vocabulary describing political, social, or economic aspects of history/social studies.
- 5. Analyze how a text uses structure to emphasize key points or advance an explanation or analysis.

Integration of Knowledge and Ideas

Grades 6-8

- 7. Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
- 9. Analyze the relationship between a primary and secondary source on the same topic.

Grades 9-10

7. Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text.

Alignment with National Social Studies Content Standards: Themes

I Culture

II Time, continuity, and change III People, places, and environments IV Individual development and identity V Individuals, groups, and institutions VI Power, authority, and governance VII Production, distribution, and consumption VIII Science, technology, and society IX Global connections X Civic ideals and practices

Alignment with National History Content Standards K-4

Topic 1: Living and Working Together in Families and Communities, Now and Long Ago Topic 2: The History of the Students' Own State or Region

Topic 3: The History of the United States: Democratic Principles and Values and the Peoples from Many Cultures Who Contributed to Its Cultural, Economic and Political Heritage Topic 4: The History of Peoples of Many Cultures around the World

Alignment with National United States History Content Standards 5-12: Eras

Era 6: The development of the industrial United States (1870 to 1900)

Era 7: The emergence of modern America (1890 to 1930)

Era 8: The Great Depression and World War II (1929 to 1945)

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

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

Alignment with National Science Content Standards

Science and technology Science in personal and social perspectives History and nature of science Physical science

Alignment with National English Language Arts Content Standards

- 1. Students read a wide range of print and non-print texts to build an understanding of texts, of themselves, and of the cultures of the United States and the world; to acquire new information; to respond to the needs and demands of society and the workplace; and for personal fulfillment. Among these texts are fiction and nonfiction, classic and contemporary works.
- 8. Students use a variety of technological and information resources (e.g., libraries, databases, computer networks, video) to gather and synthesize information and to create and communicate knowledge.

Alignment with 21st Century Skills LEARNING AND INNOVATION SKILLS

CREATIVITY AND INNOVATION

Think Creatively

 Elaborate, refine, analyze and evaluate their own ideas in order to improve and maximize creative efforts

Work Creatively with Others

 View failure as an opportunity to learn; understand that creativity and innovation is a longterm, cyclical process of small successes and frequent mistakes

CRITICAL THINKING AND PROBLEM SOLVING

Reason Effectively

• Use various types of reasoning (inductive, deductive, etc.) as appropriate to the situation Use Systems Thinking

 Analyze how parts of a whole interact with each other to produce overall outcomes in complex systems

Make Judgments and Decisions

- Effectively analyze and evaluate evidence, arguments, claims and beliefs
- Analyze and evaluate major alternative points of view
- Synthesize and make connections between information and arguments
- Interpret information and draw conclusions based on the best analysis

• Reflect critically on learning experiences and processes

Solve Problems

• Solve different kinds of non-familiar problems in both conventional and innovative ways

 Identify and ask significant questions that clarify various points of view and lead to better solutions

COMMUNICATION AND COLLABORATION

Communicate Clearly

• Utilize multiple media and technologies, and know how to judge their effectiveness a priori as well as assess their impact

INFORMATION, MEDIA AND TECHNOLOGY SKILLS

INFORMATION LITERACY

Access and Evaluate Information

- Access information efficiently (time) and effectively (sources)
- Evaluate information critically and competently

Use and Manage Information

- Use information accurately and creatively for the issue or problem at hand
- Manage the flow of information from a wide variety of sources

ICT (Information, Communications and Technology) LITERACY

Apply Technology Effectively

- Use technology as a tool to research, organize, evaluate and communicate information
- Use digital technologies (computers, PDAs, media players, GPS, etc.), communication/networking tools and social networks appropriately to access, manage, integrate, evaluate and create information to successfully function in a knowledge economy

LIFE AND CAREER SKILLS

INITIATIVE AND SELF-DIRECTION

Be Self-directed Learners

- Go beyond basic mastery of skills and/or curriculum to explore and expand one's own learning and opportunities to gain expertise
- Demonstrate commitment to learning as a lifelong process
- Reflect critically on past experiences in order to inform future progress

SOCIAL AND CROSS-CULTURAL SKILLS

Interact Effectively with Others

• Conduct themselves in a respectable, professional manner

Alignment with Girl Scouts Transforming Leadership Outcomes

Discover

- D2 Girls develop positive values.
- D4 Girls seek challenges in the world.
- D5 Girls develop critical thinking.

Connect

C5 Girls feel connected to their communities, locally and globally.

Take Action

T1 Girls can identify community needs.

Alignment with Cub Scouts Core Values

- 3. Cooperation: Being helpful and working together with others toward a common goal
- 4. Courage: Being brave and doing what is right regardless of our fears, the difficulties, or the consequences.
- 8. Perseverance: Sticking with something and not giving up, even if it is difficult.
- 10. Resourcefulness: Using human and other resources to their fullest.
- 12. Responsibility: Fulfilling our duty to God, country, other people, and ourselves.

Online Resources

<u>DigiKits</u>

You Can Be an Innovator Like Henry Ford (Grades 3-5) http://www.thehenryford.org/education/ResourceBankDetail.aspx?resourceID=14

Impact of the Model T - Then and Now (Grades 9-12) http://www.thehenryford.org/education/ResourceBankDetail.aspx?resourceID=42

Early 20th-Century Migration (Grades 3-5) http://www.thehenryford.org/education/ResourceBankDetail.aspx?resourceID=43

Moving to Michigan: Immigration, Migration and Transportation (Grades 9-12) http://www.thehenryford.org/education/ResourceBankDetail.aspx?resourceID=44

Transportation Systems (Grades 8-12) http://www.thehenryford.org/education/ResourceBankDetail.aspx?resourceID=16

Science, Life Skills and Innovation in American Auto Racing (Grades 3-8) http://www.thehenryford.org/education/ResourceBankDetail.aspx?resourceID=45

Physics, Technology and Engineering in Auto Racing (Grades 9-12) http://www.thehenryford.org/education/ResourceBankDetail.aspx?resourceID=46

Online Collections

http://collections.thehenryford.org/index.aspx

ExhibitBuilder

http://collections.thehenryford.org/ExhibitHome.aspx

From the Curators Reports

Henry Ford and Innovation http://thehenryford.org/education/ResourceBankDetail.aspx?resourceID=86

Racing in America http://thehenryford.org/education/ResourceBankDetail.aspx?resourceID=84

Transportation: Past, Present and Future http://thehenryford.org/education/ResourceBankDetail.aspx?resourceID=85