

**National Endowment for the Humanities
Landmarks of American History and Culture
Workshops for School Teachers:
America's Industrial Revolution at The Henry Ford**



Sample K-12 lesson plans from participant of 2010
America's Industrial Revolution at The Henry Ford





Henry Ford Museum* ■ Greenfield Village* ■ IMAX* Theatre ■ Ford Rouge Factory Tour* ■ Benson Ford Research Center*

The story of **America's Industrial Revolution** is an epic tale, full of heroes and heroines, villains and vagabonds, accomplishments and failures, sweated toil and elegant mechanisms, grand visions and unintended consequences. How did the United States evolve from a group of 18th century agricultural colonies clustered along the eastern seaboard into the world's greatest industrial power? Why did this nation become the seedbed of so many important 19th century inventions and the birthplace of assembly-line mass production in the early 20th century? Who contributed? Who benefited? Who was left behind?

At The Henry Ford in Dearborn, Michigan, school teachers from across the country explored this story with university scholars and museum curators during two week-long teacher workshops supported by the National Endowment for the Humanities.

Workshop participants spent mornings discussing their passion for American history with distinguished university professors, mid-days on field trips to more than a dozen historic farms, mills and laboratories, and afternoons planning activities for their students. They developed methods for incorporating various senses and learning styles into new lesson plans that bring **America's Industrial Revolution** out of the books and into living history. This booklet contains samples of those lesson plans.

In Education,

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2010 NEH Project Staff

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Lesson plans created by participants of the 2010 NEH Landmarks of American History Workshop for School Teachers, America's Industrial Revolution, at **The Henry Ford**.

2010 Participants for America's Industrial Revolution at The Henry Ford

June Workshop Participants



"The BFRC was a well-spring of fantastic artifacts and documents. The photographs and data collections on the homes in the village are remarkable."

July Workshop Participants



"Everything you offer, seeing, hearing, etc., all this can be brought back to the classroom."

"They are all well-constructed, user-friendly. They make history make sense. History is not always presented in such an intuitive way."

Lesson Plans for Middle School Grades

1. America's Innovators and Inventors: How Will You Impact the World? Grade 8 U.S. History
Anita Bihun
2. The Carousel in the 19th and 20th Century American History: The Henry Ford Museum and Greenfield Village Herschell-Spillman Carousel Grade 6
Linda Q. Green
3. How Has the President's Limo Changed? Grades 6-8
Carol McGrew
4. Inventions Change Life in America 1760-1860, Grade 8
Marilyn Muston
5. Populism and Oz, Grade 8
Philip Schwedler
6. How Industrial Differences Impacted the North and South During the Civil War, Grade 8
Michael Weathers
7. Living on a Farm, Grades 6-8
Jennifer Bates
8. Eating in the Neighborhood: How Does Technology Affect What We Eat? Grades 6-8
Bonny Bowen
9. Energy and Inventors Integrated Science and Language Arts Lesson, Grade 6
Beverly Hill
10. All This Work for a Corn Muffin? Grade 6
Laura Naveaux
11. Change, Progress, and Unintended Consequences- America's Industrial Revolution, Grade 8
Jason Sheldon
12. An Industrial Society, Grade 8
Harold Small



America's Greatest History Attraction®

Middle School Lesson Plan 1

Anita Bihun, St. Edward School, Nashville, TN

Title of the Lesson: America's Innovators and Inventors: How Will You Impact the World?

Grade Level: 8TH Grade U.S. History

Overview: Using **The Henry Ford** *OnInnovation* interviews, students will work with a partner to view three interviews. They will then summarize the information using a compare and contrast chart. Students will choose a person to interview in the field they are either interested in pursuing or one they wish to learn more about.

Central Question: What makes some people love what they do and do what they love in life? How does that idea change the impact a person's life work has on them, their community, and their product?

Learning Objectives: Identify inventors and inventions from the time periods being studied as well as present day. Describe the impact these inventions had on industrial growth and societal change. Research inventors and inventions using interviews from **The Henry Ford** *OnInnovation* website. Create a compare/contrast table of three inventors/innovators. Create a list of questions for a personal interview. Write a reflection on assignment

Assessment Tools: Compare/Contrast Chart completed; Written Interview Questions; Reflection

Key Concepts: Who is remembered in history and for what contribution? How much did the person's passion vs. the product demand have in making the product/concept a success? Were there obstacles the person had to overcome along the way? What barriers did the person break (race, sex, education, etc.)? How do you see the present day innovators experiences compared to the inventors of the American Industrial Revolution (Edison, Ford, Rockefeller, Carnegie, Bell)?

Evidence Sources: **The Henry Ford** Website *OnInnovation* <http://www.oninnovation.com/innovators.aspx>

Textbook chapter on the American Industrial Revolution (late 19th century to early 20th century.)

Time Frame: Two school days plus homework time to write interview questions and a reflection.

Instructional Sequence:

Day One:

Introduction to Lesson: Ask students these questions: What inventions do you think are the most important today? Which inventions do you think were important 100 years ago? What inventions do you think will be needed 100 years from now? Give time for discussion and list items on whiteboard. Time permitting, create a compare/contrast chart of the three groups above.

Have students pick a partner and either use laptop computers or go to computer lab. Direct students to **The Henry Ford OnInnovation** online interviews of innovators. Each partnered pair should watch three interviews while completing the compare and contrast chart.

After partners have completed chart, they should begin brainstorming whom they would want to interview. (Teacher can decide if this would be a person that the student could actually be in contact with or if it could be a far-reaching candidate (Bill Gates, an astronaut, etc.) Student then compiles a list of ten questions they would ask the interviewee. Homework for tonight is to complete questions.

Day Two:

Student partners discuss their discoveries of the three people whose interviews they watched and charted. Compare any overlapping group's discoveries.

Teacher led discussion with student input about the charts:

What "drove" these individuals? Why did they succeed while others may have failed at the same thing?

What personality or character traits helped them? Do you think it had more to do with the times or the person that they were a success? How much do you have to know about yourself to be a success? Students then share with the class who they would like to interview and why? Teacher makes a chart of people/occupations. Finally, students write a reflection on the lesson.

Student Project Ideas: Students then share with the class who they would like to interview and why? Teacher makes a chart of people/occupations. Finally, students write a reflection on the lesson.

Curriculum Links: This lesson plan is developed for the Diocese of Nashville 8th Grade U.S. History and Language Arts Curriculums. Each state has a standard involving the Industrial Revolution and Interviewing Writing Skills.

810.46: Identifies people who influenced the United States history, e.g. leaders, inventors

724.11: Interviews to gather information.

Compare and Contrast Chart of Three Innovators

Partners' Names: _____

Innovator's Name:			
What did he/she do or invent that made he/she the subject of the interview?			
Was there already a product or idea like his/hers on the market?			
How was his/her idea or way of doing work new or different?			
What obstacles did he/she run into?			
Has the product, idea, or breakthrough lasted?			
What was it about this person's personality, talents, or drive that made them successful?			
Do you have any interest in doing something similar? If so, what?			
Do they remind you of anyone we have studied?			
Do you think this person will be in a history book 100 years from now?			

Reflection on the Innovators of America Interviews

Name: _____

1. Who were the three innovators from the website you watched? _____

2. Of the three above, which one interested you the most and why? _____

3. Why do you think he/she was successful? _____

4. Do you think ability and education more or less important than attitude? _____

5. Whom did you pick to interview? _____

6. Why did you pick this person? _____

7. Of the ten questions you wrote, what is the one most important question you would ask? _____

8. Did you like watching the interviews on the website? _____

9. What did you learn about yourself from this lesson? _____

10. Who do you think the most important innovator or inventor in America has been? _____



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Middle School Lesson Plan 2

Linda Q. Green, Punahou School, Honolulu, HI

Title of the Lesson: The Carousel in 19th and 20th Century American History
The Henry Ford Museum and *Greenfield Village* Herschell-Spillman Carousel

Grade Level: 6

Overview: We will explore ways the Carousel contributed to American life during the 19th and 20th centuries. We will research the Herschell-Spillman Company, the construction of a carousel, and its distribution in the United States. The carousel at **The Henry Ford** will be our model, example, and focus. We will conclude by creating our own menagerie carousel model using a variety of animals including those native to our location and experience.

Central Question: How did the carousel contribute to the life of an American during the 19th and 20th centuries? Why is it important in our lives today?

Learning Objectives: Learn the place the carousel played in the life of an American in the 19th, 20th and 21st centuries: design, creation, engineering, display, amusement, etc.

Assessment Tools: Student will speak, write, draw, and create responses to prompts concerning the carousel in American history.

Key Concepts: 1) The Industrial Revolution and its contribution to the creation of the carousel. 2) The new middle class and the amusements sought during leisure time. 3) The roles that African Americans took during this time. 4) The role the carousel plays in the 21st century

Evidence Sources: Bibliography of References: from The Henry Ford Charles, Barbara Fahs, "Suwanee Park's Herschell-Spillman Carousel," The Henry Ford Museum and Greenfield Village Herald, Volume 13, Number 1, 1984, pages 3-9.
Dinger, Charlotte, Art of the Caroiusel, Green Village, N.J., Carousel Art, Inc. 1983.
Frale, Tobin, The Carousel Animal, Berkeley, CA, Zephyr Press, 1983.
Fried, Frederick, A Pictorial History of the Carousel New York, A. S. Barnes and Company, 1964.
Manns, William and Shank, Peggy, Painted Ponies: American Carousel Art, Millwood, N.J., Zon International Publishing Company, 1986.

Time Frame: Four hours of class time.

Instructional Sequence: Introduce the images of carousels and carousel animals in a Power Point slide show of images. Featured will be the Herschell-Spillman carousel at The Henry Ford.

Talk about the American Industrial Revolution and the time of Reconstruction in the United States. Topics addressed are: the steam engine, electricity and its impact, the effect of leisure time, class and race differences in riders and attendants at the carousel, the impact of transportation on access to the carousel, and the migration of the population to cities.

Attention is now focused on carefully looking at the parts of the carousel and learning the vocabulary: the “jumpers”, the “prancers,” the “standers,” the panels, the centerpole, etc.

Students will then choose a figure that they want to make. Menagerie animals that they see in the carousel examples are some options. Other animals that they do not see which are local to our state, like a dolphin, whale, Nene goose, l’iwi bird, ‘Alala bird, etc. are good choices, too.

Each student researches images of the animal that they want to make. Preliminary drawings are made and colors chosen.

Materials needed:

12”x18” tagboard paper, cut in to 6 inch squares

pencils and erasers

Derwent watercolor pencils (to be used dry)

Scissors

Fishing line

Bamboo skewers

Final drawings are made on tag board, colors are applied, and they are cut out and hung with fishing line to make a class menagerie carousel.

Student Project Ideas: At home the student will think about which animal to make, at school the research on the images of the animal will be done. In class the images will serve as a basis of the drawing, to be made in the correct size and proportion.

Anticipated Challenges: Students may revert to stereotypical images of animals instead of looking at a real animal and interpreting it as a carousel animal; time constraints, some students work more slowly than others, making sure the proportion of their animal suits the class set that will be displayed together.

Curriculum Links:

Humanities and Social Studies Classes, American History, Industrial Revolution, Reconstruction;

Science Class: weights/levers/gravity and animal physiology; Math Class: proportion/ratio;

Art Class, drawing, painting, proportion, observing, cutting, constructing;

Music Class, period pieces of music played while the carousel moved;

Physical Education Class, designing an animal structure that will serve as a seat for a rider safely;

Health Class, caring for our mental health by using recreation;

Robotics Class, 21st century design of a ride for children and adults;

Drama Class, write and act out a story of two children going for a ride on the Carousel.



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Middle School Lesson Plan 3

Carol McGrew, Gibson Middle School, Las Vegas, NV

Title of the Lesson: How Has the President's Limo Changed?

Grade Level: 6-8

Overview: Students will research and describe elements of Presidential limousines. They will then create a new Presidential limousine including various elements necessary for safety, communication and comfort.

Central Question: How has the President's limousine changed since they were first used?

Evidence Sources: Information on Presidential limousines that have been retired.

Websites:

<http://www.hfmgy.org/museum/limousines.aspx>. – photos of the Presidential limos on display at

The Henry Ford.

<http://www.conceptcarz.com/vehicle/z16469/Cadillac-Presidential-Limousine.aspx> – describes various limos used by Presidents

<http://www.digitalalchemy.tv/2009/01/obama-presidential-limo-photos.html> – describes Obama's newest limo

Video:

<http://www.youtube.com/watch?v=eVR8rl59epo> – video from *Henry Ford Museum* about the JFK limo.

Time Frame: 2-3 days

Instructional Sequence: Worksheets are attached to these plans that can be used for each of the following:

1. Discuss the various features of Presidential Limos. Have students note various elements used to address the following:
 - a. communication devices
 - b. safety devices
 - c. place for Secret Service
 - d. luxuries
 - e. how the President can work while on the road
2. Students compare three different cars and answer the following questions
 - a. Write a summary of how the cars are similar. What features do they have in common? What features seem to be standard on all Presidential limos?
 - b. Write a summary of how the cars have changed with each model. What items were eliminated in newer models? Why do you think they were eliminated? What items were added to newer models? What purposes do these features serve?

3. Students design their own Presidential limo.

a. Think about the features that the Presidential limos have in common. Think about the features that have been eliminated and added to newer models.

b. Design a new Presidential limo. Describe the various elements on your limo and attach a drawing.

Curriculum Links: Nevada Standard:

C14.[6-8].10 Describe the duties of the President

What is Inside a Presidential Limo?

Research a Presidential Limo and answer the following questions:

What communication devices are on board?

What safety devices are there to protect the President?

Where does the Secret Service stand?

What luxuries are on board?

How can the President work while on the road?

Comparing Presidential Limos

Compare three different limos and answer the following questions:

How are all three cars similar?

What features do they have in common?

What features seem to be standard on all Presidential limos?

How have the cars changed with each model?

What items were eliminated in newer models?

Why do you think they were eliminated?

What items were added to newer models?

What purposes do these features serve?

Create Your Own Presidential Limo

Think about the features that the Presidential limos have in common. Think about the features that have been eliminated and added to newer models.

Design a new Presidential limo for today's President.

What communication devices are on board?

What safety devices are there to protect the President?

Where does the Secret Service stand?

What luxuries are on board?

How can the President work while on the road?

Attach a drawing of your new Presidential Limo.



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Middle School Lesson Plan 4

Marilyn Muston, Manheim Central Middle School, Manheim, PA

Title of the Lesson: Inventions Change Life in America 1760-1860

Grade Level: 8

Central Question: How did inventions change living conditions and unity of the U.S.?

Learning Objectives: Introduce unit on Industrial Revolution in the U.S.
Innovation is a slow process with many inventions to make small changes.
Inventions are labor-saving tools to improve living conditions and unity for U.S.

Assessment Tools: Students will use the 1-23 Recording Chart with a partner that will be collected for a grade.

Check for Understanding: Total class discussion of the cause or need for the invention and how the invention changed living conditions in the U.S. and caused future innovations to create unity in the U.S.

Evidence Sources: 23 artifact photos from **The Henry Ford**

Time Frame: One 55 minute class period

Instructional Sequence: Weird object activity

2 students push their desks together to analyze the pictures

Each student will get a recording chart

Partner students will get a picture of an invention (Weird Object)

Partners use pictures and the captions to complete the chart

Complete the chart information on each invention. Completed chart will be collected

Use chart to begin discussion of how one invention was necessary for future inventions

Use the chart to discuss how the inventions were necessary for changing living conditions and unity of the United States

Relate to modern inventions like the cell phone and MP3 players, cars, airplanes, TV

Curriculum Links: National Educational Standards

NSS-USH.5-12.4 Expansion and Reform (1801-1861),

US History Standards for Grades 5 - 12

Era: 4: Expansion and Reform [1800-1861]

NL-ENG.K-12.2 Understanding the Human Experience

NL-ENG.K-12.11 Participating in Society

NL-ENG K-12.12 Applying Language Skills

Recording Chart for Pictures 1-23.

Invention	Who invented it?	Year Invented	What caused the invention?	How did the invention change life in the US?

Copy 3 charts for each student to use for each picture in the PowerPoint.
Make one copy for the Promethean Board to use for a full class discussion of the objects.



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Middle School Lesson Plan 5

Philip Schwedler, Freeland Middle School, Freeland, MI

Title of the Lesson: Populism and Oz

Grade Level: 8

Overview: Students will link L. Frank Baum's book *Wonderful Wizard of Oz* to key historical events taking place in the United States in the late 19th Century. In doing so, they will create a poster-size map of the United States. The map will include a "yellow brick road" running North, South, East, and West. Students will cut out a key event or person and place it on the geographically correct spot on the map. Additionally, students will also cut out a character or symbol from the *Wonderful Wizard of Oz* and place it next to the key historical event it represents. In addition, students will draw and color the characters or symbols next to the description. The map should be both colorful and informative.

Central Question: How did the Plains farmers get politically active to solve the problems of low crop prices due to overproduction, high railroad shipment fees, relationship with bankers, and the rising price of new farm equipment?

Learning Objectives: Students will gain a firm understanding of the Populist movement. Students will understand the "Free Silver" movement. Students will connect the problems of the Plains farmers with those of the Eastern industrial workers. Students will judge the role of federal government intervention in big businesses such as the railroads.

Assessment Tools: Verbal/visual presentations of the content and poster board. Standardized and common assessments

Key Concepts: Industrialism, Populists, free silver, state control of railroads, gold standard, William Jennings Bryan, William McKinley.

Evidence Sources: Primary: "Cross of Gold Speech"-William Jennings Bryan, *The Wizard of Oz: Parable on Populism*-Henry M. Littlefield Secondary: Textbook

Time Frame: 4 days.

Instructional Sequence: Draw a blank map of the United States on a large piece of poster board. Cut out the key concepts/people and the symbols characters from the book. Draw the Yellow Brick Road running North, South, East and West. Place each item (concept or person) on the appropriate section of the map. Use the "Yellow Brick Road" as the path where each item can be found. Draw a picture of a character from Baum's novel next to the item that it represents. Present completed map to the class.

Student Project Ideas: Throughout this year-long lesson, students will be assigned group research projects that involve internet and media center research. This research will be based on the crops the class is growing and the tools being developed to aid in American farming. For example, one

group may be assigned to research the concept of crop rotation while another group learns about the evolution of the plow.

The final project is an evaluation of the year of farming and an essay written individually by each student highlighting what they learned and whether they would enjoy living on an American farm.

Anticipated Challenges: Understanding certain sections from primary resources.

Curriculum Links: 8 – U6.1.1

territory, including the size of the U.S. and land use

changing demographic structure of rural and urban America systems for transportation and their impact on the economy and society

government policies promoting economic development (land grants, banking, and the Homestead Act)

economic change, including industrialization, increased global competition, and their impact on

conditions of farmers and industrial workers

the policies toward American Indians

Connections between the Wonderful Wizard of Oz and Events Taking Place in America in the 19th Century:

Dorothy-Uncle Sam

Scarecrow-Plains Farmer

Tin Woodman-Eastern Industrial Worker

Cowardly Lion-William Jennings Bryan

Wizard of Oz-William McKinley

Winged Monkeys-Plains Indians

Yellow Brick Road-Gold Standard

Dorothy's Silver Shoes-Silver Standard

Wicked Witch of the West-Railroad Barons

Wicked Witch of the East-Banker Barons



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Middle School Lesson Plan 6

Michael Weathers, Lincoln Middle School, Ypsilanti, MI

Title of the Lesson: How industrial differences impacted the North and South during the Civil War

Grade Level: 8

Overview: Students will have learned about the social and economic differences between the North and South and about key events that led up to the Civil War such as the Compromise of 1850, the Dred Scott case, the presidential election of 1860, and early battles of the Civil War. Students will have also learned about industrial and transportation advances, primarily in the North, in the 19th century prior to the Civil War.

Central Question: How did industrialization and advances in transportation in the North compared to those of the South impact each side during the Civil War.

Learning Objectives: Students will be able to recognize how industrialization and advances in transportation in the North compared to those of the South impacted each side during the Civil War. Students will be able to describe using cause and effect how advantages or disadvantages in one area such as population or transportation advances could impact the results of the Civil War. Students will be able to develop an argument for how a combination of different factors could provide either the North or the South with a significant advantage during the Civil War. Students will be able to research an assigned topic in greater depth. Students will be able to work collaboratively with classmates to combine and organize research and present their results to the rest of the class. Students will be able to choose key points from each presenting group and write them on a provided sheet.

Assessment Tools: All of the listeners of the presentations must fill in the attached sheet with the information provided by each group and then write a paragraph on how all of the combined information impacted the Civil War.

Time Frame: Two class periods.

Instructional Sequence: Students will be split into six different groups to provide information on different categories that impacted the Civil War and will be given time to do research. The six groups will be population (by gender, free vs. enslaved, and population densities), draft policies of the North and South, transportation routes and trends by railroad and by water, Northern and Southern industries, finance of the war, and battle sites of the Civil War. Each group will have about 5 members and will need to research their topic in the media center using their textbook, the Internet, library books, and periodicals to gain facts about the North and the South on their topic during this time period. Each group will have one full class period to gather research and organize their data into a 2-5 minute presentation with the requirement that each member must have a speaking part, and state which side, North or South, had the advantage in their opinion. All presentations will take place the following day. From the presentations the students should learn that the North had major advantages over the South in both overall and free population, which allowed less restrictive draft laws

and allowed for a balanced population between soldiers and those providing equipment and food in the North. The North had greater diversification of products through the formation of factories and greater technological advances combined with greater advances in transportation which allowed the North a greater means of moving more diverse products. This allowed the North a greater means of financing the war, caused hyperinflation in the South, and allowed the North the means of cutting off the Southern military from its supplies. Also because the Civil War was fought in the South, it was the South that suffered the territorial damage including the destruction of many farms and crops. Time will be allotted after the presentations for any missing key information to be provided.

Curriculum Links:

Michigan Grade 8 Social Studies Standards and Benchmarks:

8 – U4.2.1 Comparing 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:

- agriculture, including changes in productivity, technology, supply and demand, and price (E1.3,1.4) (*National Geography Standard 14, p. 171*)
- industry, including entrepreneurial development of new industries, such as textiles (E1.1)
- the labor force including labor incentives and changes in labor forces (E1.2)
- 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*)
- immigration and the growth of nativism (*National Geography Standard 9, p. 160*)
- race relations
- class relations

8 – U5.2.2 Make an argument to explain the reasons why the North won the Civil War by considering:

- critical events and battles in the war
- the political and military leadership of the North and South
- the respective advantages and disadvantages, including geographic, demographic, economic and technological (E1.4) (*National Geography Standard 15, p. 173*)

8 – U5.2.5 Construct generalizations about how the war affected combatants, civilians (including the role of women), the physical environment, and the future of warfare, including technological developments. (*National Geography Standard 14, p. 171*)



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Middle School Lesson Plan 7

Jennifer Bates, FL

Title of the Lesson: Living on a Farm

Grade Level: 6-8

Overview: At the beginning of the year the students learn about lives of early Americans and British colonists. They gain a textbook understanding of how difficult daily life was for the colonists, but in order to give them a greater appreciation for early American living, they will till, plant, maintain, and harvest crops of their own.

Central Question: Would you want to live on a farm in the early 1800's? 1900's? 2010?

Learning Objectives: Students will gain a hands-on understanding of and appreciation for tools and technology developed during the American Industrial Revolution and beyond. Students will identify positive and negative effects of the American Industrial Revolution.

Assessment Tools: Primarily students will be assessed weekly by short and extended written responses in their weekly journals. At the conclusion of the project students will write a reflection essay.

Key Concepts: Students will understand how life in America changed (and continues to change) with the development of tools and technological advances.

Time Frame: One school year.

Instructional Sequence: This is a year-long process. The garden will evolve as we pass through history in class. Students will plant crops and use tools available based on the time period being studied.

Student Project Ideas: Throughout this year-long lesson, students will be assigned group research projects that involve internet and media center research. This research will be based on the crops the class is growing and the tools being developed to aid in American farming. For example, one group may be assigned to research the concept of crop rotation while another group learns about the evolution of the plow.

The final project is an evaluation of the year of farming and an essay written individually by each student highlighting what they learned and whether they would enjoy living on an American farm.

Anticipated Challenges: The hard work invested by the students will give them an understanding of the effort involved in feeding a family and making a living while living on a farm. The students will be able to see the impact the development of tools and technology had on farming. Additionally, they will acquire a deeper understanding of how much daily thought and energy went into feeding a family and making a living in rural America.

Curriculum Links: Sunshine State Standards:

SS.A.4.3.1 Understands factors involved in the development of industries in the United States.

SS.A.4.3.2 Knows the role of physical and cultural geography in shaping events in the United States.

SS.B.2.3.1 Knows example of migration and cultural diffusion in United States history.

SS.B.2.3.4 Understands ways the landscape and society change as a consequence of shifting from a dispersed to a concentrated settlement form.

LA.B.1.3.2.8.7 Employs creative writing strategies appropriate to the purpose of the paper.



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Middle School Lesson Plan 8

Bonny Bowen, Plainwell Middle School, Plainwell, MI

Title of the Lesson: Eating in the Neighborhood: How Does Technology Affect What We Eat?

Grade Level: 6-8

Overview: Students will compare/contrast a modern recipe with a historic recipe. Students will note how the Industrial Revolution changed the tasks of the home, including cooking foods for the family. Students will evaluate the benefits and changes to food preparation as a result of innovations during the Industrial Revolution.

Central Question: How has the Industrial Revolution changed what we eat?

Learning Objectives: Students will be able to understand how technology changes the foods we eat, how we prepare them, and how we use our daily time.

Assessment Tools: Completed T-chart showing similarities and differences between the historic and modern recipe. Completed constructed response to the question: What do you notice? How did/does technology change our diets and daily lives?

Key Concepts: Technology affects our daily lives, including the home. Technology changes how we prepare our foods and what foods we eat. Technology will continue to change the foods we eat and how they are prepared.

Time Frame: 3-4 days

Instructional Sequence: Distribute 2 recipes: one historic and one modern recipe. Instruct students to read both recipes and compare/contrast the 2 recipes: What is similar? What is different? Encourage sharing of ideas.

Share definition of Industrial Revolution in England and in USA. Share pictures of innovations in America during the Industrial Revolution focused on business, agriculture, communication, and transportation. Then focus on innovations that changed the HOME. Share timeline of American inventions during the 1800s on the document camera.

Distribute Project Learning informational sheet. Read and discuss together.

Students will pair up to complete this research project. We will go to the computer lab for research. Sp. Ed students may use the recipes I shared with the class. Students will complete research in two days. Students will complete the T-chart comparing/contrasting the 2 recipes: historic and modern. Students will orally share what they noticed about the recipes of the 1800s compared/contrasted to modern recipes.

Pending administration approval, I would like to have a sharing of the 1800s recipes with the modern version to celebrate our learning.

Student Project Ideas: Project Learning will include researching historic recipes (1800s) with contemporary recipes. Students will select a common recipe from each era (ex: sandwiches or soups or chicken dinners or salads) and compare ingredients, taste, and cost. Optional: Students will use the recipes and make the dish to share with fellow students.

Anticipated Challenges: Finding comparable recipes.

Note: These are great recipes for modeling during the anticipatory set or to share with students who are unable to use the computers/do research.

<p style="text-align: center;">Tomato Sauce</p> <p style="text-align: center;">Transcribed verbatim from <i>Peterson's Magazine</i></p> <p style="text-align: center;">Philadelphia, Pennsylvania, January, 1867</p> <p>Cut into quarters two quarts of tomatoes, and sprinkle them over with salt; let them remain until the next day, when the juice should be squeezed from them, and boiled with a quarter pound of shallots, some whole peppers, and bruised ginger; boil the mixture slowly for half an hour, and strain it; pulp the tomatoes through a strainer, add them to the liquid, and boil again gently for another half hour.</p>	<p style="text-align: center;">Almond Soup</p> <p style="text-align: center;">Transcribed verbatim from <i>Peterson's Magazine</i></p> <p style="text-align: center;">Philadelphia, Pennsylvania, January, 1859</p> <p>Take a neck of veal, and the scrag end of a leg of mutton, chop them in small pieces, put them in a large pan; cut in a turnip with a blade or two of mace, and five quarts of water; set it over the fire, and let it boil gently till it is reduced to two quarts, then strain it through a hair sieve into a clear pot, and put in six ounces of almonds, blanched and beat fine; half a pint of thick cream, and as much pepper as you please. Have ready three small rolls, the size of a tea-cup (if larger, they will not look well, and will drink up too much of the soup. Blanch a few almonds, cut them lengthwise, stick them all over the rolls, and put the roll in your soup tureen; then pour the soup upon the roll.</p>
<p style="text-align: center;">Macaroni, Farmers' Style</p> <p style="text-align: center;">Transcribed verbatim from <i>The American Agriculturist</i></p> <p style="text-align: center;">January, 1879</p> <p>Boil half a pound of macaroni as above, and while you are draining it from the cold water, stir together over the fire one ounce each of butter and flour, and as soon as they bubble, gradually pour into the sauce they make, a pint of boiling water, beating it with a fork or egg whip until it is smooth; season it with a level teaspoonful of salt and a level saltspoonful of pepper, and put the macaroni in it to eat; then cut an onion into small shreds, and brown it over the fire in very little fat; when both are done, dish the macaroni, and pour the onion out of the frying pan upon it. It is excellent; and ten cents will cover the cost of it all.</p>	<p style="text-align: center;">Oat-Meal Flummery</p> <p style="text-align: center;">Transcribed verbatim from <i>Peterson's Magazine</i></p> <p style="text-align: center;">Philadelphia, Pennsylvania, April, 1859</p> <p>Take a pint of bruised groats, and put three pints of water to them, early in the morning, and let it stand till noon; then add the same quantity of water as before, stir it well, and let it stand till four o'clock.; then run it through a sieve; boil it; keep stirring it all the while, and put in a spoonful of water now and then as it boils. When it begins to thicken, drop a little on a plate; when it leaves the plate it is complete. Put it in glasses, and when cold turn it out</p>

Name_____

SS/Hour_____

Date_____

Compare/Contrast 1800s Recipe with Modern Recipe:
Attach a copy of both recipes to this graphic organizer.

Name of Recipe		
Source		
Where would you find the ingredients?		
Tools Needed		
Cost of Recipe		
Similarities of Recipes		
Differences in Recipes		
What do you notice? How has technology changed what we eat and how it is prepared?		

Stretch Your Brain: Connect this lesson with Fast Food America.

1. What innovations or uses of technology allow Americans to get a meal FAST?
2. Is this a positive or negative consequence of the advancement of technology?
3. Support your answer. Extra points (like Super Sizing your grade with no extra cost!) for your well-written opinion here.





America's Greatest History Attraction®

Middle School Lesson Plan 9

Beverly Hill, Creekside School, Dexter, MI

Title of the Lesson: Energy and Inventors Integrated Science and Language Arts Lesson

Grade Level: 6

Overview: This lesson will be used at the beginning of the energy unit to introduce the concepts of kinetic and potential energy and to make observations associated with these concepts. Students will then research inventors and present a simple experiment and a report about the inventor using a form of computer technology such as PowerPoint, video or any group choice to show the process that the inventor used resulting in their discovery.

Central Question: What is energy? What kinds of energy can be observed? What process did the inventor use in their experimentation?

Assessment Tools: Rubric

Evidence Sources: Teacher will present a simple experiment - making the "best" airplane. Students will conduct this experiment in class and record results on a chart. Class discussion will center on variables, kinetic and potential energy. Each group will construct a chart with at least three recordings with individual and group averages. Teacher will then present a PowerPoint presentation with photos taken at *Henry Ford Museum* and with materials obtained from the many resources available about the Wright Brothers. This presentation will show how simple experiments resulted in their flying machine.

Time Frame: Two weeks

Instructional Sequence:

Day One - Describe who scientists are and what they do and the nature of science. Talk about the human qualities of scientists. Review terms - variables, kinetic and potential energy. Read and discuss a unit in Science Plus book - Science and Technology.

Day Two - Continue discussions and introduce making a model airplane. Give students a straw and directions (two pieces of paper attached 1.5 cm by 9 cm and 2 cm by 12 cm). Groups will be divided into groups of four to make charts for their science folder. Paper should include hypotheses, variables, points of potential and kinetic energy. Chart should be made neatly (example on white board) showing at least three measurements from each member and individual and group averages.

Day Three - Experiment - supply tape measures. Experiment outdoors but if poor weather, in hall or science lab.

Day Four - Discuss experiment. Discuss neatness and detail in their experiment. Charts will be placed

in their science folder and graded at the end of the week.

Day Five - Teacher will make a PowerPoint presentation and provide information on the Wright Brothers. The Wright Brothers developed a curiosity early in life by looking at birds and kites and by having a scientific awareness. Teacher presents a simple experiment and a PowerPoint presentation on an inventor. Teacher passes out rubric to explain that each group will pick an inventor and do a simple experiment and research presented using some form of computer technology - PowerPoint, video, web page, written report or other creative sources - about their inventor. (Note that there will be no duplication of inventors in each class.)

Day Six - Research Computers for all students will be supplied. Video cameras will also be supplied if students are producing a video. Books will also be available that teacher has checked out from the media lab.

Day Seven - Review rubric and set timeline of presentation due on day ten.

Day Eight and Nine - Research - assist groups with research and experiments

Day Ten - Presentations

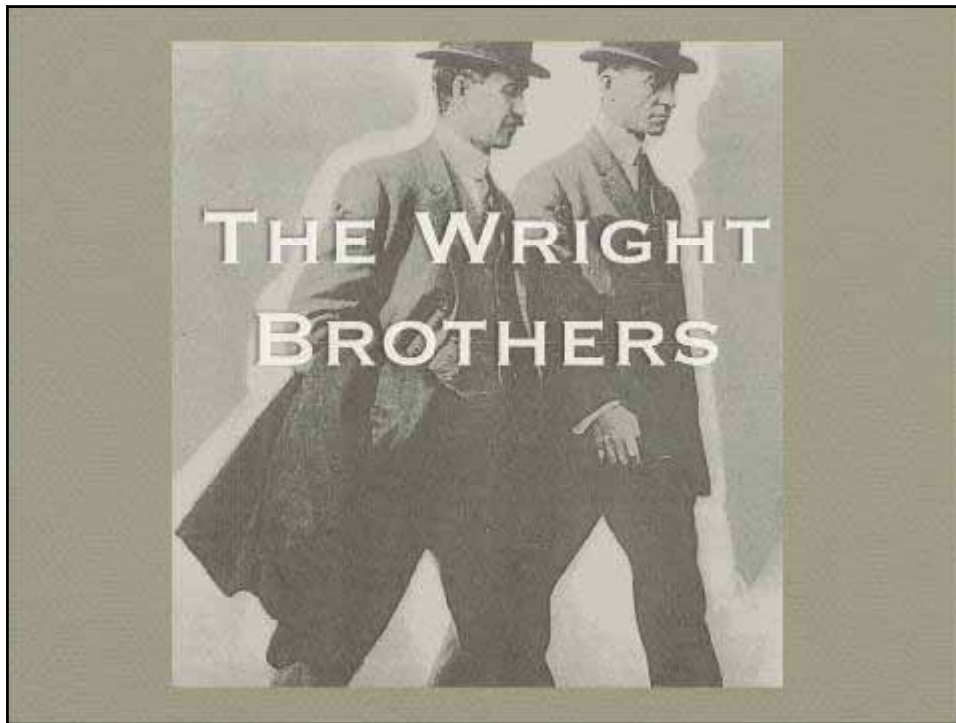
Student Project Ideas Since this is a group project most of the assignment will be in class but the classroom will be open before school and one or two nights after school if groups need extra time.

Anticipated Challenges: One challenge for sixth grade students will be working in groups. Teacher should make every effort to form groups that will work together and work toward a final presentation. Also, a list of inventors for which resources are available so that it will not be a challenge to find information.

Curriculum Links: PE.N. M1 - Objects and substances in motion have kinetic energy.
S.IPM.1 - Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.
S.IPO6.11 - Generate scientific questions based on observations, investigations and research.
S.IPO6.12 - Design and conduct scientific investigations.
W.GN.06.03 - Formulate research questions using multiple resources and perspectives that allow them to organize, analyze and explore problems and pose solutions that culminate in a final presented project.
W.PR. 06.01 - Set a purpose, consider audience, and replicate author styles and patterns when using an informational text.
R.IT. 06.02 - Analyze text patterns, including descriptives, chronological sequences and problem/solution.
RCM.06.4 - Apply significant knowledge from grade level science, social studies and mathematics text.

Energy and Inventors Rubric

Score Levels	Demonstration	Research	Oral Presentation	Group Work	Score
4 (25 pts)	Design shows that group analyzed the problem with data (variables, kinetic and potential energy) recorded in an orderly manner that accurately reflects the results of the experiment. All components have been addressed beyond expectations.	The report is extremely clear and focused. The group presents terrific ideas and has carefully chosen unusual and interesting details. The audience finds this very interesting and everyone is very focused on the report.	Excellent eye contact, voice projection, pleasing tone and engaging style. All of the group members are involved in the presentation.	Excellent teamwork, good behavior, worked together to meet all deadlines and project requirements.	
3 (20 pts)	Design shows that the group grasped the basic idea of scientific process with data that probably represents the results of the experiment. All components of the experiment have been addressed.	The report is clear and focused. The group uses many great ideas and uses many details that match the topic most of the time.	Adequate eye contact, voice projection, time and style. All of the group members are involved in the presentation.	Some teamwork, little misbehavior, met most deadlines and project requirements.	
2 (15 pts)	Design shows the basic idea of scientific process but data was recorded in a disorganized manner or only with teacher assistance. All components have been addressed but very little elaboration is present.	Writing is sometimes clear and focused. Some of the details match the topic. More details are needed.	Little eye contact, poor voice projection, tone and style. Most of the group members are involved in the presentation.	Poor teamwork, some misbehavior, sometimes late for deadlines and project requirements.	
1 (10 pts)	Design shows group conducted an experiment when given considerable help by the teacher. Data was recorded in an incomplete manner or only after considerable help from the teacher. All components have been addressed but no elaboration is present.	Only a few parts of the groups writing are clear and focused. The report does not have enough details or they don't match the topic.	No eye contact, voice too low to be heard, poor tone and style. Few members of the group are involved in the presentation.	No teamwork, poor classroom behavior, failed to meet deadlines, and project requirements.	



Orville and Wilbur Wright were born in Dayton Ohio. They were the first to open the long deserted lanes of the air to mankind. Their father encouraged interest in scientific principles by giving them toys which would stimulate their curiosity. One of these toys was a helicopter model which would rise and flutter in the air.



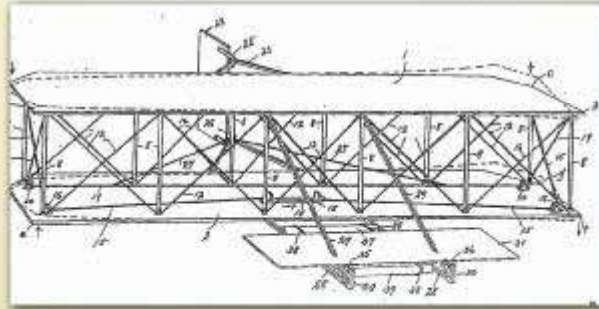
THE WRIGHT BROTHERS HOME IN
GREENFIELD VILLAGE

In 1892, Orville and Wilbur opened a bicycle shop,
The Wright Cycle Shop.



WILBER AND ORVILLE'S BICYCLE SHOP

While continuing to run their bicycle business, Wilbur and Orville studied the problems of mechanical and human flight. The Wright Brothers read everything they could about bird flight and became convinced that human flight was possible.



On May 30, 1899, Wilbur Wright wrote to the Smithsonian Institution inquiring about any publication on aviation subjects. The Wright Brothers read everything that the Smithsonian Institution sent them.

They decided to conduct experiments on their own.

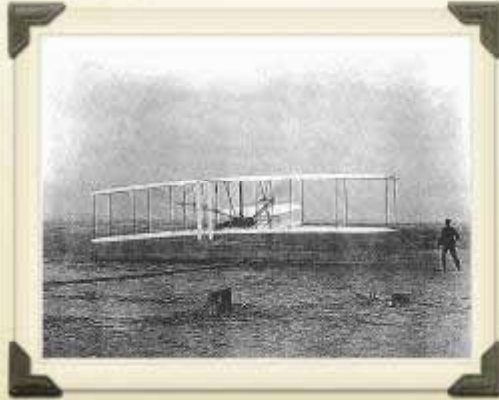


That same year, the Wright Brothers built a biplane kite to test their “wing - warping” method of controlling a flying machine. This experiment encouraged the Wright Brothers to proceed with constructing a flying machine with a pilot.



The “Flyer” lifted off from level ground at 10:35 a.m. on December 17, 1903. Orville piloted the plane which weighed six hundred and five pounds. The first heavier-than-air flight traveled one hundred twenty feet in twelve seconds. The two brothers took turns during the test flights.

As part of the systematic practice of photographing every prototype and testing of their various flying machines, the Wright brothers persuaded an attendant from a nearby station to snap a photograph in full flight.



After making two longer flights that day, they sent a telegram to their father, instructing him to “inform the press!”



“The airplane stays up because it doesn’t have
time to fall.”

Orville Wright



CONQUEST OF THE AIR
PICTURES FROM THE HENRY FORD
MUSEUM



America's Greatest History Attraction®

Middle School Lesson Plan 10

Laura Naveaux, Wagar Middle School, Carleton, MI

Title of the Lesson: All This Work for a Corn Muffin?

Grade Level: 6

Overview: Students will understand the process humans used to convert corn into cornmeal and then corn bread. They will experiment with grinding corn and see later developments humans made in the process of grinding grain.

Learning Objectives: Students will appreciate the effort humans exerted to create edible products from plants.

Students will understand innovations and technologies were created and adapted throughout history to solve human problems.

Students will analyze the effects a mill had on surrounding settlements.

Assessment Tools: Students will be working in groups to grind grain and will be observed for participation. They will complete graded reflective questions on the day's activity.

Key Concepts: Tools and skills have been learned and adapted throughout human history to improve production, and to save time and resources.

Human knowledge has been gained throughout human history.

Knowledge of technologies can be lost over time as the technologies become obsolete.

Technology can have positive and negative effects on settlements due to access/proximity or the lack of access/proximity to it.

Evidence Sources: This lesson will include experimentation. Photos of Loranger Gristmill, **The Henry Ford**, will also be used.

Time Frame: One class period

Instructional Sequence: Students will be given a mini corn muffin. Teacher will say:

"Aren't these wonderful? I made them for you from a Jiffy cornbread mix (Hold up box). "Have you made them before?" (Hands go up). "If you haven't, it's easy" (read directions aloud). The ingredients are wheat flour, cornmeal, sugar, shortening and salt. I had to add an egg. So it wouldn't be hard to make from scratch, either, right?" (Show recipe on overhead). "I think I could do that easily enough." "But, what about if I had to REALLY make it from scratch?" (hold up an ear of dried corn). You are going to see what it took for people to make just one ingredient, cornmeal, which was necessary for this simple food. The process you will use was also used to make flour."

Instructional Input:

Distribute small amount of dried corn kernels to students.

Provide them with hard objects such as wood bowl and a rock. Demonstrate grinding process.

Give students five minutes to work in a group grinding corn. After 5 minutes, measure the amount of corn that has been ground. There should be less than a cup. Give students 5 more minutes and re-measure.

Explain that this process was time-consuming and created small amounts of cornmeal. Over time, humans developed tools and techniques for grinding large amounts of grain.

Show photos of Loranger Gristmill and its grinding stones.

Explain grinding process and discuss power for the mill, the transportation of grain and storage it required. Also elicit questions and responses regarding the effect it would have had on settlements near and far.

Students will write responses to the following reflective questions:

-Reflecting on when you were grinding corn by hand, how much effort do you believe it took for a family to grind enough grain for a day's food?

-What are the advantages and disadvantages of using a mill grinding stone?

-How did the advances in grinding technology change the lives of people?

-What positive and negative effects did a mill create?

Curriculum Links: Michigan Grade Level Content Expectations:

6-W.1.2.3 Explain the impact of the Agricultural Revolution (stable food supply, surplus, population growth, trade, division of labor, development of settlements).

6-G2.2.2 Explain that communities are affected positively or negatively by changes in technology.

6.-H1.2.1 Explain how historians use a variety of sources to explore the past.

1. Recipe from AllRecipes.com

Basic Corn Muffins:

Ingredients

- 1 cup cornmeal
- 1 cup all-purpose flour
- 1/3 cup white sugar
- 2 teaspoons baking powder
- 1/2 teaspoon salt
- 1 egg, beaten
- 1/4 cup canola oil
- 1 cup milk

Directions

1. Preheat oven to 400 degrees F (200 degrees C). Grease muffin pan or line with paper muffin liners.
2. In a large bowl, mix together corn meal, flour, sugar, baking powder and salt. Add egg, oil and milk; stir gently to combine. Spoon batter into prepared muffin cups.

2. Photos of Loranger Gristmill, **The Henry Ford**:





America's Greatest History Attraction®

Middle School Lesson Plan 11

Jason Sheldon, Brandon Middle School, Ortonville, MI

Title of the Lesson: Change, Progress, and Unintended Consequences – America's Industrial Revolution

Grade Level: 8

Overview: Students will analyze changes in textile manufacturing, agriculture, communication, transportation, and daily life, from the early 19th century to today. Students will use this information to determine the positives and negatives of innovation. In the final assessment piece students will confront an unintended consequence of a modern form of technology in a real world setting.

Central Question: Is change always for the better? Are there unintended consequences to progress?

Learning Objectives: Students will be able to identify inventions that shifted the nature of textile manufacturing, agriculture, communication, transportation, and daily life from the early 19th century to today.

Students will understand the links between the types of technology used in the above categories and why the technology changed.

Students will think critically about the words "progress", "change", and "consequence" and how these words are related.

Students will identify a modern consequence of technology and work to change it in the final assessment piece.

Assessment Tools: Class Discussion

Journal Entries

Invention Timelines

Final Assessment Piece

Key Concepts: Changes and inventions in the areas of textile manufacturing, agriculture, communication, transportation and daily life will be addressed. The focus will be on what drove change and how change led to unintended consequences and further change.

Evidence Sources: Parent Interview

Class Discussion

Small Group Research and Assembly of Timeline

Notes on Group Presentations

Time Frame: 5 Class Periods

Instructional Sequence:

Day #1 - Class will begin with a discussion of the “Technology Today vs. Yesterday” interviews that were assigned at the end of class on the prior day. As a class, lists of various types of technology used by middle school students now and by middle school students in the past will be created and analyzed. Class will close with students responding to a journal entry in response to the following question: “Why do things change? Is change always for the better?”.

Day #2 - Class will begin with a teacher led discussion of the journal entry from the end of day one. The focus of the discussion will be on the idea that change and progress are synonymous. Next, students will be divided into small groups and will be assigned a list of inventions from one of the categories mentioned above. For example, the agriculture group would be given a list of items such as the scythe, the reaper, the combine, etc. Students must then research these items using the internet and their textbooks and place them on a timeline along with the inventor(s) and a brief explanation of how the invention represented an improvement from the prior item (How did the reaper make life easier for farmers when compared to the scythe?)

Day #3 - Each of the five groups will present their timeline to the class with students taking notes on the areas of technological improvement that their group did not research.

Day #4 - Class will begin with students responding to the following in their journals: “What is a consequence? What are some consequences of the technological improvements discussed in class yesterday?” Next, the class will discuss their journal entries with the teacher presenting the idea that some consequences can be unintended. Following this discussion, the teacher will display the lists from day one focusing on the various types of technology used by middle school students now and by middle school students in the past and ask students if there have been any unintended consequences associated with these improvements. At the close of class the final assessment piece will be assigned.

Day #5 - Class time will be allotted to students to work on the final assessment piece.

Student Project Ideas: The final assessment piece will give students an opportunity to address an unintended consequence of innovation in any of the five categories studied in the lesson. For example, students can write a letter or e-mail as a concerned citizen to a clothing manufacturer who imports its textiles.

Anticipated Challenges: Lack of knowledge of early 19th century innovations and how those innovations evolved into items that are used today.

Vocabulary deficiencies in regards to words such as progress, unintended, and consequence. Understanding that the word revolution means change and that America’s Industrial Revolution continues today.

(All of these potential problem areas are addressed throughout the lesson, particularly in the journaling and class discussion portions of the lesson.)

Curriculum Links: GLCE’s - 8-U4.2.1Comparing 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 agriculture, including changes in productivity, technology, supply and demand, and price (EI.3, I.4)

industry including entrepreneurial development of new industries, such as textiles (EI.1)

the labor force including labor incentives and changes in labor forces (EI.2)

transportation including changes in transportation (steamboats and canal barges) and impact on economic markets and prices (EI.2, I.3)

Technology Today vs. Yesterday

1. On the back of this sheet, list at least five technologies that you rely upon along with the reasons why these devices are so important to you. (10 points)
2. Interview an adult in your life and ask him or her to list the technologies that they relied upon when they were in the eighth grade. Include the year that this person was in eighth grade and why the devices were important to them. (10 points)
3. Compare the two lists. What similarities did you find? Differences? (5 points)
4. Have the adult you interviewed print and sign his or her name at the bottom of the page. (5 points)

The Unintended Consequences of America's Industrial Revolution

Throughout this lesson, we have analyzed how changes in textile manufacturing, agriculture, communication, transportation, and daily life have had both positive and negative consequences upon society. Now you will be asked to analyze how current technologies have impacted one of the five categories mentioned above.

First, you should select a category and think about how modern technology has impacted that category.

For example, how has the automobile changed transportation?

Next, make a list of the positive and negative consequences that this technology has had upon society.

Positive – Individuals have unlimited mobility with their cars.

Negative – Automobiles have led to a dependency upon fossil fuels.

Next, focusing upon your list of negative consequences, choose one item and formulate a plan of action to promote change.

In order to reduce our dependency upon fossil fuels as they relate to automobiles, I believe that major cities and their surrounding areas should provide adequate public transportation options such as subway systems.

Finally, follow through on your plan of action.

For the above example, one option would be to send a letter or an e-mail to your representative asking why there is a lack of public transportation options and demanding a change.

POTENTIAL UNINTENDED NEGATIVE CONSEQUENCES

TEXTILE MANUFACTURING –

MANUFACTURING OF CLOTHING OUTSIDE OF THE U.S.

OUTSOURCING OF JOBS

AGRICULTURE –

MSG / HIGH FRUCTOSE CORN SYRUP

RELIANCE ON MARKET SYSTEM FOR FOOD PRICES AND AVAILABILITY

COMMUNICATION –

LACK OF FACE TO FACE COMMUNICATION

TEXTING WHILE DRIVING

ONLINE DANGERS – PREDATORS, IDENTITY THEFT

1,000 FRIENDS ON FACEBOOK BUT DON'T KNOW YOUR NEIGHBOR

TRANSPORTATION –

AIR POLLUTION/GLOBAL WARMING

RELIANCE UPON FOSSIL FUELS

REDUCED PROXIMITY TO FAMILY

DAILY LIFE –

REDUCTION OF “FAMILY TIME” - BONDING, DINNER AT THE TABLE

POTENTIAL DAMAGE TO RELATIONSHIPS INCLUDING MARRIAGES



America's Greatest History Attraction®

Middle School Lesson Plan 12

Harold Small, Intermediate School 364/Gateway, Brooklyn, NY

Title of the Lesson: An Industrial Society

Grade Level: 8

Overview: In groups students will be given an object to identify and explain its purpose. Some examples will include hub cap, bicycle air or inflation pin, a folding hanger, some garden/farm implements and simple mechanical tools.

Central Question: How did the Industrialization Change the face of American life?

Learning Objectives: Students will be able to explain the impact the Second Industrial Revolution had upon America as it developed into an Industrial Nation.

Assessment Tools: Students will take an electronic quiz or written quiz via the Brain Pop Educational Web site. Some students may watch the video at the Brain Pop site before they take the quiz. Other students will complete one of the three short Password Vocabulary assessments [see attached]. While other students may complete the Core Knowledge Assessment or the teacher created Crossword Puzzle on the Industrial Revolution in America.

Evidence Sources: Some examples of documents will include reading excerpts from the American Nation by Prentice Hall on Thomas Edison p.547 and passages from "Time For Kids Readers" on The Genius of Menlo Park.

Time Frame: 1-and-a-half 55 minute class periods.

Instructional Sequence: In cooperative groups students will read and analyze five documents that will cover either how the use of technology impacted the United States or how innovations by individuals affected the industrial development of the United States. Documents will include primary and secondary sources such as graphs, charts, photographs, speeches, letters, reading passages, newspaper articles, maps, songs and other source materials.

Task: Each cooperative group will focus on answering questions on each of the documents on one subject or innovator. Some examples of subjects are, Steam Power, Railroads, Agriculture, Manufacturing, Transportation and Communication. Examples of innovators would include Thomas Edison, Henry Ford, Elijah McCoy, Jan Matzeliger, Granville T. Woods, Andrew Carnegie, John D. Rockefeller, Joseph Glidden, and Cyrus McCormick.

Cooperative Roles: Leader or Checker, Material Manager, Recorder, Checker, Reader(s) and Presenter.

Cooperative Skill: Listening

Some examples of documents will include reading excerpts from the American Nation by Prentice Hall on Thomas Edison p.547 and passages from "Time For Kids Readers" on The Genius of Menlo Park. These two reading will be assigned to specific cooperative groups in an effort to differentiate instruction within the activity.

For example some of the questions on Document 1 would be:

1. What is a Wizard?
2. Why did Thomas Edison establish a laboratory in Menlo Park, New Jersey?
3. Describe the results that occurred at Menlo, Park?
4. Explain three differences between the laboratory at Menlo Park, New Jersey and the laboratory at West Orange New Jersey?

Document 2 would require analysis of a graph or chart involving patents? Some questions would include:

1. What is a patent? How do the number of patents granted by the United States government compare between 1800, 1860 and 1890?
2. How does the number of patents granted to Thomas Alva Edison compare to the total number of patents issued in 1800?
3. Why do you think the number of patents granted by the government of the United States increased from 1890 to 1920?

Student Project Ideas: Write an essay comparing a technological innovator of the 19th Century with a technological innovator of the 20th or 21st Century. In your essay describe at least three qualities that made these individuals successful.

9Social Studies Standards: SS1 United States History, SS2 World History, SS3 Geography, SS4, Economics, SS5 Government

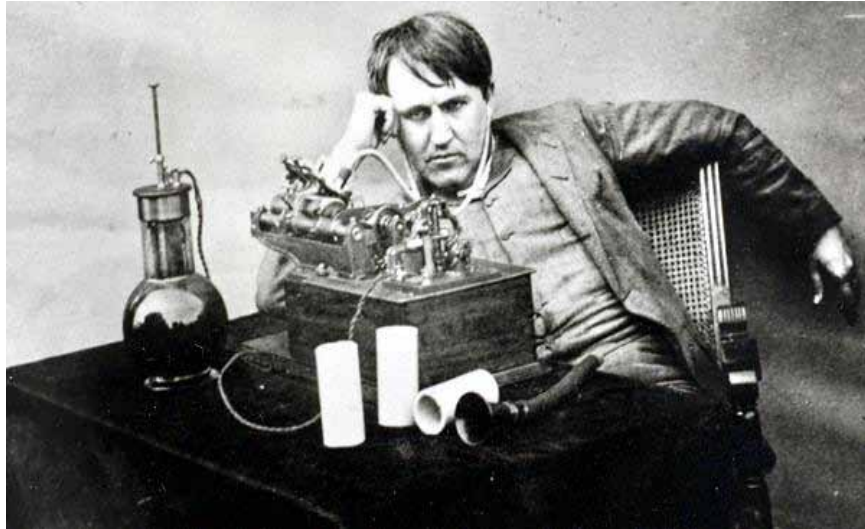
English Language Arts Standards: E1 Reading, E2 Writing, E3 Speaking, Listening and Viewing and E3 Small Group Meeting

The Industrial Age

America's Second Industrial Revolution

Thomas Alva Edison

“Genius is one percent inspiration, ninety-nine percent perspiration.”



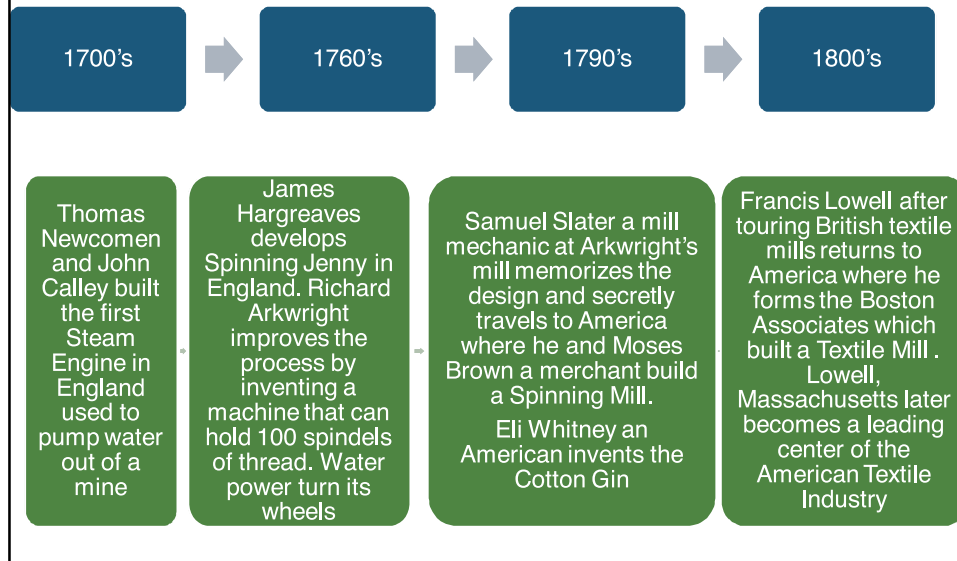
Industrial Revolution

- What does the word **revolution** mean?
- Where geographically in the United States did the Industrial Revolution occur?
- How did the change in technology have an effect upon America?
- Who were some of the individuals responsible for the innovations during the Second Industrial Revolution?

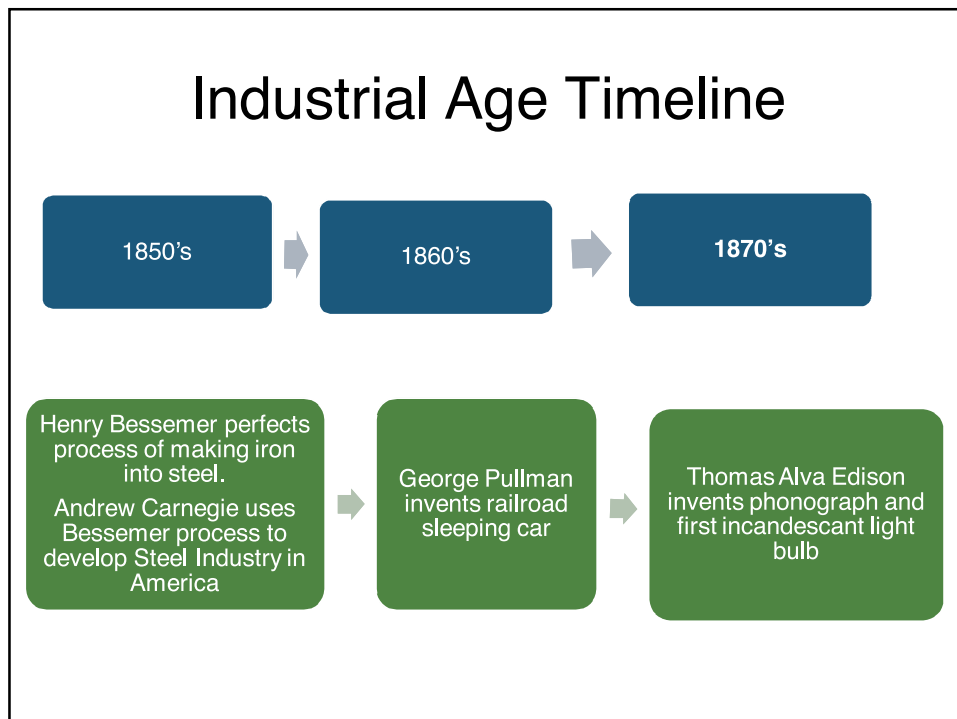
Second Industrial Revolution

- What did it look like?
- What did it sound like?
- What did it feel like?
- What did it smell like?

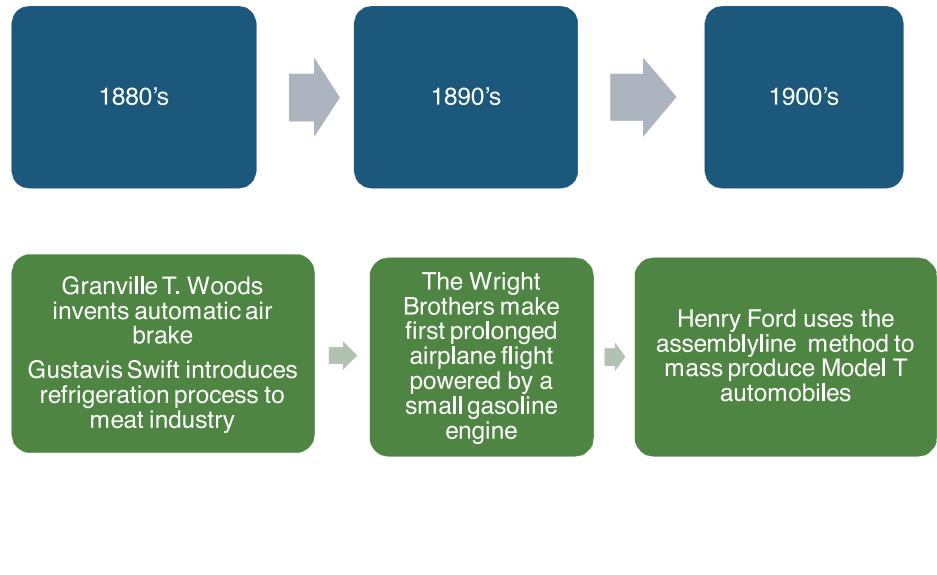
Industrial Age Timeline



Industrial Age Timeline



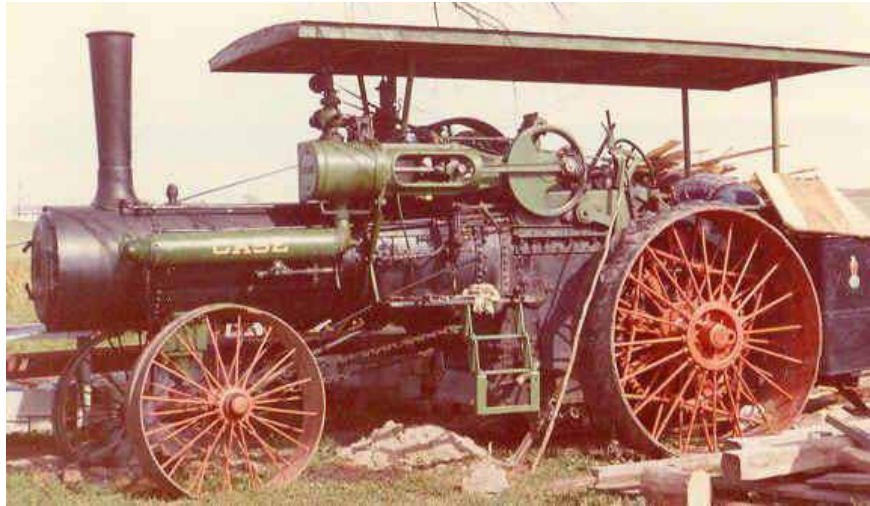
Industrial Age Timeline



Industrialization in America

- Need for greater efficiency in agriculture causes creation of farm technology
- Industrialization occurs over time and not all at once
- Manifest Destiny and Territorial Expansion necessitates the development of industrial tools to adapt and cope with the environment
- Economics and innovative ideas lead to further revolution in industry

Technological Inventions



Industrial Changes

- Transportation



Transportation



Agriculture



Communication



Manufacturing



Innovators

- Thomas Edison
- Henry Ford
- Eli Whitney
- Samuel Morse
- Cyrus McCormick
- Andrew Carnegie
- John D. Rockefeller
- Joseph Glidden
- Elijah McCoy
- Granville T. Woods