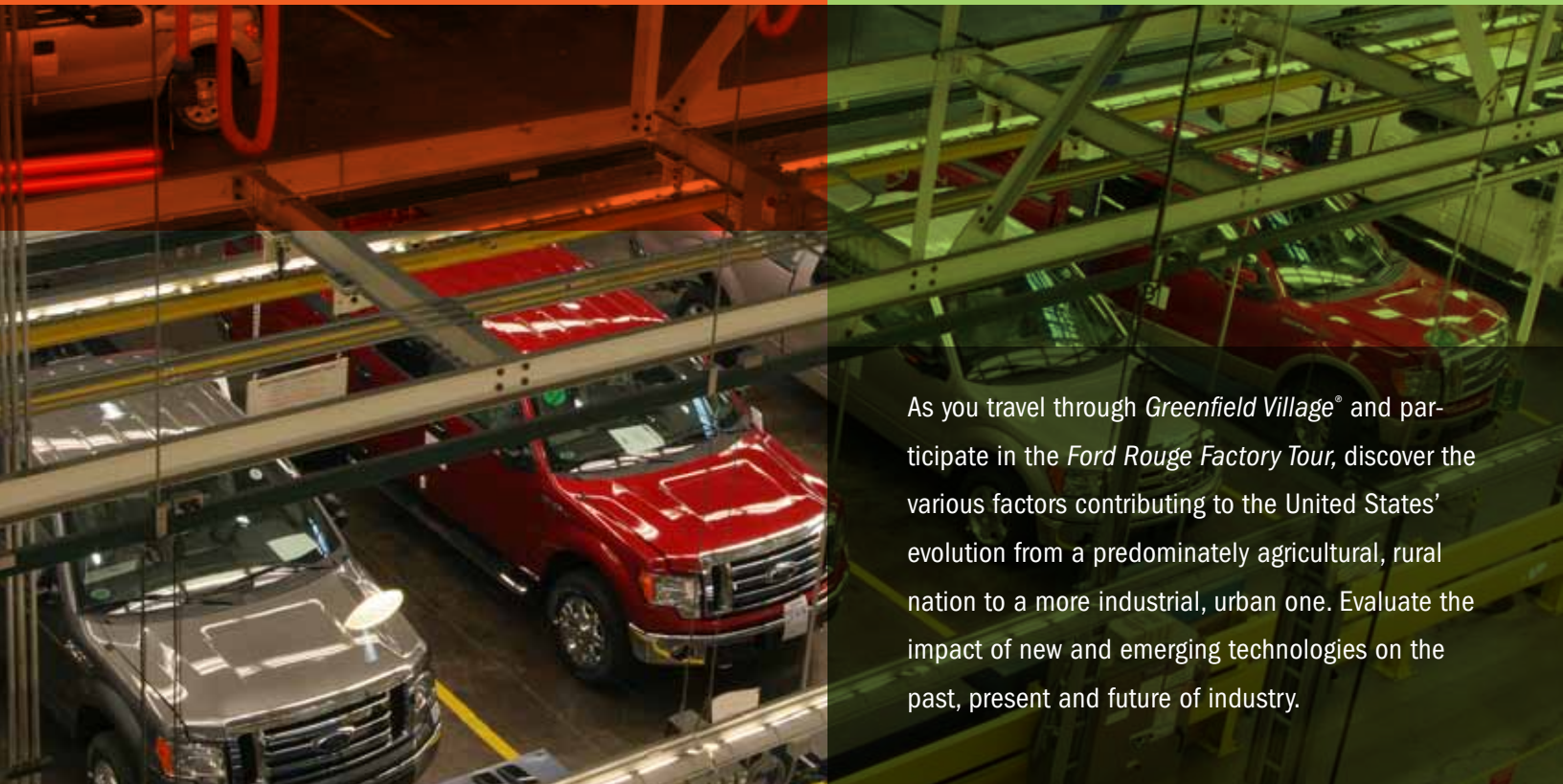


grades  
7-12



## America's Industrial Revolution past, present and future



As you travel through *Greenfield Village*® and participate in the *Ford Rouge Factory Tour*, discover the various factors contributing to the United States' evolution from a predominately agricultural, rural nation to a more industrial, urban one. Evaluate the impact of new and emerging technologies on the past, present and future of industry.

Greenfield Village and Ford Rouge Factory Tour | self-guided itinerary

# Greenfield Village

## Home to Factory Production

An important aspect of the Industrial Revolution was the replacement of traditional handcraft processes with machine and factory processes. Tasks that had previously been completed by family members in the home and factories were now performed by workers in mills and factories.

**sites to visit:** (see Greenfield Village map)

### 1 Daggett Farmhouse (1760)

- Describe the following cloth-production tasks that take place in the Daggett Home:

Carding: \_\_\_\_\_

\_\_\_\_\_

Spinning: \_\_\_\_\_

\_\_\_\_\_

- How much time and skill were required to complete each of these tasks?

\_\_\_\_\_

### 2 Gunsolly Carding Mill (1850-1890)

- List two ways that technological advances and new sources of power changed both the task of carding and textile production.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### drawing conclusions:

- What factors do you think led to the change from home to factory production?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- How did it change the lives of men, women and children within the home?

\_\_\_\_\_

\_\_\_\_\_

probe ►► into the 21st century

Check the manufacturing labels on your own clothing. Where and how does clothing production occur today? What do you think have been the positive and negative consequences of new production, transportation and distribution networks for clothing?



## Agriculture: Regional Differences, Technological Changes

Though new agricultural techniques and implements were available prior to the Civil War, many Southern plantation owners did not mechanize agricultural production, as their dependence on enslaved labor already made their crops profitable. New agricultural equipment and practices continue to impact our environment, economy and daily lives.

**sites to visit:** (see Greenfield Village map)

- 3 Susquehanna Plantation (1860)
- 4 Firestone Farm (1885)

- Compare and contrast Susquehanna Plantation and Firestone Farm

|                                   | Susquehanna Plantation | Firestone Farm |
|-----------------------------------|------------------------|----------------|
| Location/Region                   | _____                  | _____          |
| Crops grown?                      | _____                  | _____          |
| Cultivated and harvested by whom? | _____                  | _____          |
| Tools or technologies used?       | _____                  | _____          |

### drawing conclusions:

- How did regional differences and industrialization impact economic choices at Susquehanna Plantation and Firestone Farm?

---



---



---

probe into the 21st century

Where, how and by whom is the food you consume today produced or processed? How has commercial farming been transformed since the 1800s in the South, Midwest, Northeast and West?

## Greenfield Village Continued

### Transportation: Steam Power and the Railroads

The railroad epitomized technological and commercial development during the 19th century. Railroads opened the West to settlement, trade and natural resource development. New sources of power in the 20th century enabled trains to travel further and faster in the movement and distribution of goods and people.



**site to visit:** (see Greenfield Village map)

**5** Detroit, Toledo & Milwaukee Roundhouse (1884)

- What were the advantages of using steam locomotives for moving people and goods in the 1800s and early 1900s?

---

---

---

What were the disadvantages?

---

---

---

- What was the purpose of a roundhouse?

---

---

---

---

What types of work were performed at roundhouses?

---

---

---

### drawing conclusions:

- How did new rail transportation networks help establish the United States as an industrial power?

---

---

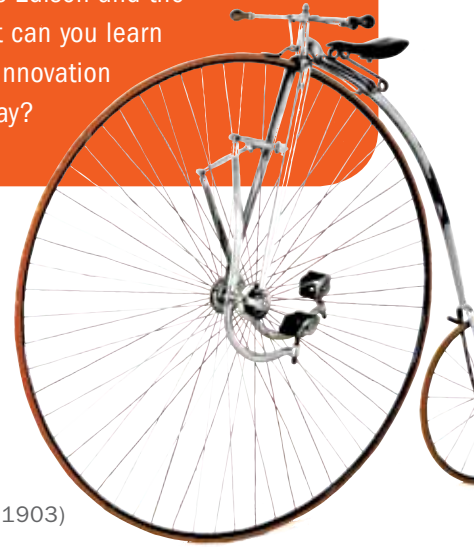
---

---

probe  into the 21st century

What types of fuel or power sources are used today in transportation? What are the negative and positive consequences of relying on these fuels or sources?

Creativity and innovation are considered essential skills for the 21st century. From the experience of Thomas Edison and the Wright Brothers, what can you learn about creativity and innovation that you can use today?



## Invention and Entrepreneurship

Invention and innovation fueled the Industrial Revolution through the development and improvement of a variety of new processes, devices, tools, machines and systems. Entrepreneurial individuals, groups and businesses fostered a culture of American ingenuity, creativity and innovation that continues to impact the way we live, work and play.

**sites to visit:** (see Greenfield Village map)

### 6 Menlo Park Laboratory (1879)

- How did Thomas Edison acquire the knowledge and skills to develop his many “minor and major inventions” while at Menlo Park Laboratory?

---

---

---

---

- Identify two of these inventions or innovations, and tell how they have each changed over time.

---

---

---

---

### 7 Wright Cycle Shop (1903)

- How did the Wright Brothers acquire the knowledge and skills to invent an airplane?

---

---

---

- How has their invention changed over time?

---

---

---

### drawing conclusions:

- What skills, qualities and research processes did Thomas Edison and the Wright Brothers possess that led to their technological breakthroughs? How have their inventions and innovations transformed our nation and world?

---

---

---





# Ford Rouge Factory Tour

America's Industrial Revolution Itinerary

## The Transformation of the Industrial Complex

In 2003, the construction of the Dearborn Truck Plant transformed an historic, industrial environment to a modern, environmentally friendly facility.

**sites to visit:** (see Ford Rouge Factory Tour map)

### 1 Legacy Theater

Watch a film made from rare, historic footage, that tells the story of Henry Ford and the Ford Rouge complex.

- What other industries inspired Henry Ford to adapt the assembly line for the mass production of automobiles?

---



---



---

- What did Henry Ford hope to accomplish by building the Rouge?

---



---



---

- Describe working conditions on an assembly line in the 1920s.

---



---



---

### 2 Art of Manufacturing Theatre

Enjoy a multi-sensory theater experience chronicling the modern manufacturing process.

- Compare and contrast early auto manufacturing as seen in the Legacy Theater with modern manufacturing as seen in the Art of Manufacturing Theater.

What is the same?

---



---

What is different?

---



---

### drawing conclusions:

- Why are Henry Ford and the Ford Rouge Complex important to Michigan and United States history?

---



---

probe  into the 21st century

What do you think are the reasons companies choose to reinvent their factories or workplaces?  
What do you think are the reasons companies choose not to reinvent their factories or workplaces?

What do you think is the future of green design in products, services, factories, schools and homes? Why? What do you think will be its impact on the American and global economies?

## Industries and Mass Production

The greatest symbol of American mass production is Henry Ford's Model T. Technological advances in manufacturing processes and materials dramatically increased the flow and production of goods. Factories churned out a dazzling array of affordable goods for a growing middle class of consumers.

**site to visit:** (see Ford Rouge Factory Tour map)

### Observation Deck

Visit the observation deck for a birds-eye view of the factory's modern environmental innovations that manage water, soil and daylight.

- Complete the chart below:

| What is the innovation?             | How does it help the environment, the workplace or the worker |
|-------------------------------------|---|
| Innovations for water management    |   |
| Innovations for soil management     |   |
| Innovations for daylight management |   |

- What additional innovations could you imagine that would help the environment, the workplace or the worker?

---



---



---



---



## Ford Rouge Factory Tour Continued

### The Assembly Line: Working Smarter, Not Harder

The Dearborn Truck Plant is one of the world's most advanced and flexible manufacturing facilities. It possesses an integrated, computer-controlled production system that is capable of producing a variety of truck models and switching quickly and economically between them. One of the guiding principles of the new plant is worker safety and comfort in order to improve worker health and productivity.

**site to visit:** (see Ford Rouge Factory Tour map)

#### 4 Assembly Plant

Walk above the final assembly line of the Dearborn Truck Plant, where the Ford F-150 is made.

- Examine the signs and videos along the walkway. How is the Rouge Complex using technology to increase line workers' productivity, safety and comfort while on the job?

---

---

---

---

---

- Ask a presenter to explain "lean manufacturing" and "just-in-time." How do these concepts relate to demand, price and supply?

---

---

---

---



### drawing conclusions:

- What ideas and innovations do you think have had the greatest impact on the 21st-century factory and its workers?

---

---

---

---

---

probe ►► | into the 21st century

Factories like the Dearborn Truck Plant have developed and adopted a variety of industrial practices that reduce waste and improve worker safety and comfort. What additional improvements can you imagine for the worker or the workplace?





4



5



2

a



c

7

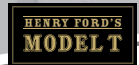
d

6



Benson Ford Research Center

Josephine Ford Plaza



7

6



3

b

1

### Greenfield Village



General Tickets & Membership



Gift Shop



Restrooms



Information



Public Telephone



Mold-A-Rama Souvenirs



Special Needs Rentals



Emergency Issues  
please contact any staff member

### sites to visit:

Home to Factory Production

1 Daggett Farmhouse

2 Gunsolly Carding Mill

Agriculture: Regional Differences, Technological Changes

3 Susquehanna Plantation

4 Firestone Farm

Transportation: Steam Power and the Railroads

5 Detroit, Toledo & Milwaukee Roundhouse

Invention and Entrepreneurship

6 Menlo Park Laboratory

7 Wright Cycle Shop

### If you have the time, visit

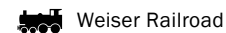
Home to Factory Production

a Weaving Shop

b Cotswold Forge

c Armington and Sims Machine Shop

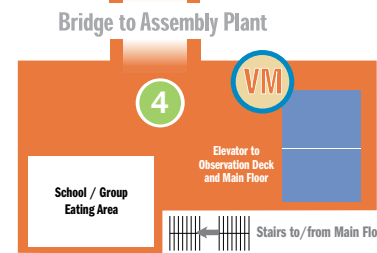
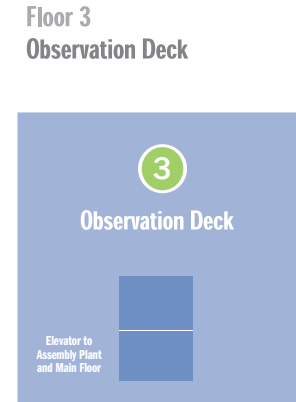
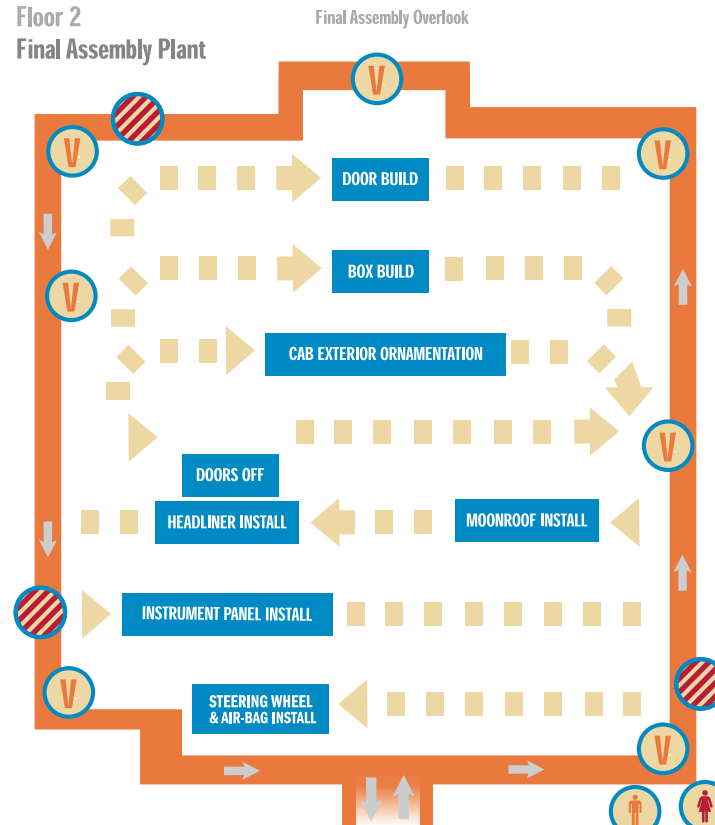
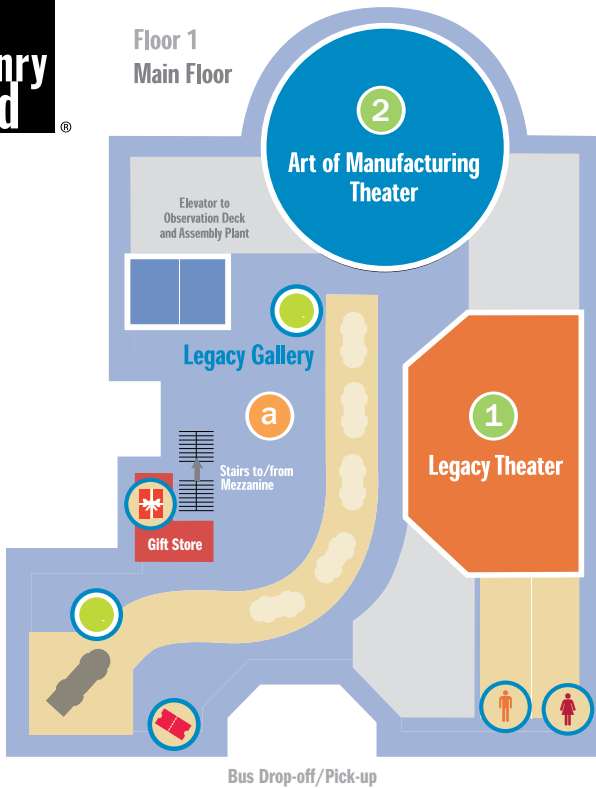
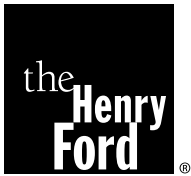
Transportation: Steam Power and the Railroads



Weiser Railroad

Inventing and Entrepreneurship

d Wright Home



### Ford Rouge Factory Tour

- General Tickets and Membership
- Women's Restroom
- Men's Restroom
- Factory Store
- Viewing Platform
- Emergency Exit
- Vending Machine
- Create-a-Memory Rubbing Station

### sites to visit:

- The Transformation of the Industrial Complex
  - 1 Legacy Theater
  - 2 Art of Manufacturing Theater
- The Green Revolution
  - 3 Observation Deck
- The Assembly Line: Working Smarter, Not Harder
  - 4 Assembly Plant

### If you have the time, visit

- The Transformation of the Industrial Complex
  - a Legacy Gallery

## reflective

### Post-Visit Thought-Starter

On today's assembly line, machines and people with many different skills work together to produce the F-150. Compare and contrast the jobs and machines you saw in Greenfield Village with those on the Ford Rouge Factory Tour. How have these changes transformed the economy, affected the environment and impacted our daily lives?