



## BHH ASSEMBLY LINE ACTIVITY

### BHH in the classroom - Teacher Adaptations

Unit title and activity #: Industrialization Revolution Unit / Activity 4 Mass Production

Submitted by: Kim Heckart

#### **Description of Activity: Students participate in an assembly line of mass production.**

##### **Day 1**

1. Read Extra Cheese, Please (This is a story that shows students the process of how milk starts on a dairy farm and is taken to a factory to make cheese.)
2. On overhead, show sequence of Henry Ford's first assembly line. Read from Industrialization, where Henry Ford tells why the assembly line was important.

##### **Day 2**

1. Children discuss how craftsmen are different than an assembly line process. Remind the students of how they made their notebooks as a craftsmen and how long it took to make their notebook. (It took our class 38 minutes for everyone to complete their individual notebook.)
2. Discuss how we could make notebooks using an assembly line. Write their suggestions as a list. Examples:
  - Glue on cover (Student A and B)
  - Make a mud puddle. (Students C and D)
  - Glue on pig's body. (Student E) \*button sorter (Student F and G)
  - Glue on pig's nose. (Student H) \*button sorter (Student I and J)
  - Glue on the sun. (Student K) \*button sorter (Student L and M)
  - Sharpie of the eyes. (Student N and O)
  - Draw on the feet. (Student P)
  - Draw on the tail. (Student Q)
  - Draw on the ears. (Student R)
  - Draw on the sun's rays. (Student S)
  - Checker (Student T)
3. Put names of students next to each job to complete the project on the assembly line.



### Day 3

1. Arrange students' desk in a long row. Have students sit in desks according to their job on the assembly line. Button sorters will be at a separate table sorting the buttons they need to take to their area in the assembly line.
2. Students do the assembly line while teacher watches the time. (Ours took approximately 20 minutes.) Record time.
3. When all the notebooks are complete through the assembly line, discuss with students the process.
  - What were some of the problems that happened on the assembly line? How did we solve those problems along the way to make the assembly line work better?
  - How come the craftsmen notepad took longer to make than the assembly line?
  - Comparing the notepads, which one have better quality? Why?
  - Did you like being a craftsmen or working on the assembly line better? Why?
  - Would you like doing the same job everyday all day long as you did on the assembly line? Why or why not?
  - Who do you think can make more money creating their product a craftsmen or a factory that using an assembly line?

### Day 4

1. Class makes a group pictograph using clipart pictures. The pictograph illustrates how products are made by an assembly line mass production.
  - Students glue clipart pictures onto poster board begun in Activity 1.

### Reflection on student learning outcomes:

- ❖ Students have an amazing grasp of the craftsmen vs mass production of an assembly line.
- ❖ Students were so engaged in the assembly line that they weren't even aware of how much they learned.
- ❖ Will you do anything differently next time?
- ❖ Have kids make their own individual pictograph of the mass production activity using our assembly line activity (with digital pictures).



## Standards Alignment

### **The National Center for History in the Schools National Standards for History (1996)**

Standard 8A – Students understand the development of technological innovations, the major scientists and inventors associated with them and their social and economic effects.

Standard 8B – Students understand changes in transportation and their effects.

Standard 8C – Students understand changes in communication and their effects.

### **National Council for the Social Studies Curriculum for Social Studies (1994)**

Standard 2 -- Time, Continuity and Change

Standard 3 -- People, Places, and Environment

Standard 7 -- Production, Distribution, and Consumption

Standard 8 -- Science, Technology, and Society

### **REVIEW OF THIRD GRADE UNIT – INDUSTRIAL REVOLUTION by Dr. M. Gail Hickey, Professor of Education**

The Third Grade History Unit "Industrial Revolution" represents a strategy for introducing young students to an era of United States history marked by rapid advances in technology. While traditionally United States history is not introduced prior to fifth grade, recent research on children's comprehension of social studies concepts and content reveals young children develop historical understandings earlier than expected. Therefore, the unit is based upon appropriate pedagogical foundations. Levstik and Barton (1994) and Downey (1994), for example, found even early elementary grades children are capable of more historical understanding than educators originally thought. Young students' historical knowledge prior to fifth



grade, however, is limited primarily to information about popular culture and everyday life.

The "Industrial Revolution" instructional unit also draws upon curriculum standards identified by national educational organizations. The National Center for History in the Schools National Standards for History (1996) articulates what children kindergarten through fourth grade can know and do. "Family life now and in the recent past; family life in various places long ago", for example, is the history standard related to students' study of how farms changed over time, as is "Major discoveries in science and technology, their social and economic effects, and the scientists and inventors responsible for them". The same document lists history-related skills appropriate for teaching young students, such as "Historical comprehension: draw on data in historical maps; draw on visual and mathematical data represented in graphs; draw on the visual data presented in photographs, paintings, cartoons, and architectural drawings". Each of these content standards and historical skills is a focus of one or more lessons in the third grade unit "Industrial Revolution."

## Lesson Plans

This unit introduces the history of industrialization in the United States in the late 19<sup>th</sup> century. The development of mechanization and assembly line production, reliance on unskilled labor, and corporate financing shifted the U.S. economy from individual craftsman-based production to mass production. This shift took place over centuries, but accelerated rapidly in the late 1800's, both feeding and being fed by an explosion in immigration and the emergence of a large middle class.

Ultimately, these changes created a national-scale economy that required community and government action to curb and regulate abuses of people and the environment, themes that are explored in the 2<sup>nd</sup> grade immigration and environment units and the 4<sup>th</sup> grade progressivism unit. The industrial economy generates wealth and a large middle class, but is also vulnerable to boom and bust cycles, which are explored in the 4<sup>th</sup> grade Great Depression unit. In the 3<sup>rd</sup> grade lessons, we lay the foundation for the 4<sup>th</sup> grade and review themes from 2<sup>nd</sup> grade units.

A simulation activity anchors the unit, with children producing pictures both individually and in an assembly line. Through this exercise children may learn first hand the concepts of individual and mass production and explore the positive and negative aspects of both. Throughout the unit, students examine the “ingredients” of industrialization, including mechanization, formation of corporations and use of unskilled labor. The unit concludes with an exploration of industrialization’s positive effects such as a growing middle class and improved standards of living for many Americans and unhealthy consequences such as urban poverty, environmental degradation and dangerous or demoralizing work conditions.

A video produced by Iowa Public Television, in collaboration with Bringing History Home, introduces children to many concepts in this unit. Directions for ordering this resource are found in the “Contacts” view of the BHH website.

**Definitions** (for teacher background) from *Random House College Dictionary* (1972):

- ❖ Industrialism: An economic organization of society built largely on mechanized industry.
- ❖ Industrial Revolution: The complex of social and economic changes resulting from the **mechanization of productive processes** that began in England about 1760.



## Activity 1: Long, Long Ago – Farming, Communication, Sewing, and Transportation.

### Content Goals:

- ❖ Students learn about long, long ago forms of communication, farming, sewing and transportation. The pre-industrial farming methods should be a review of a content theme also found in BHH 2<sup>nd</sup> grade environmental history.

### Process Goals:

- ❖ Students engage in photo analysis.
- ❖ Students begin constructing a timeline.

### Centerpieces:

- ❖ Simulation activity, photographs.

### Process:

- ❖ Introductory Discussion – Teacher provides an overview of the upcoming unit.
- ❖ Photo analysis – Class begins a timeline of Industrial change over time.
  - This activity will be continued at various stages of the unit. The timeline does not include specific dates -- in its final form it includes *long, long ago* photos of farm, communication, sewing and transportation methods, *long ago* inventions that transformed these processes, and some of the forms the processes take *today*.
  - The teacher begins by projecting transparencies of long, long ago photos on an overhead. Students examine the photos. Teacher frames the investigation by asking if students know what these processes often look like today. How do we get our food? Our clothes? How do we talk to people who are not in the same room with us? How do we travel from place to place? Tools we use? These processes were not the same long, long ago as they are today. (You may wish to remind students of their 2<sup>nd</sup> grade environmental history unit, in which they studied changes in farming and logging over time.)
    - Tractor farming -- was preceded by -- Horse farming
    - Telephones and computer e-mail – were preceded by -- Letter writing
    - Automobiles and airplanes – were preceded by -- Horse-drawn wagons
    - Sewing machines – were preceded by -- Hand sewing



- Class begins a timeline by pasting paper copies of the overhead photos into the first of three sections on a length of butcher paper. This timeline section may be labeled “Life long, long ago.”

**Resources:**

- ❖ Photos made into transparency and paper copies
- ❖ Butcher paper for timeline

## Activity 2: Individual Production by Skilled Craftsmen

**Content Goals:**

- ❖ Students become familiar with the concept of skilled craftsmen, individuals constructing a product from start to finish.

**Process Goals:**

- ❖ Students engage in a simulation activity.
- ❖ Students create a pictograph.

**Centerpiece:**

- ❖ Pictograph clipart

**Content:**

- ❖ What is a skilled craftsman?

**Process:**

- ❖ Simulation Activity
  - Students are encouraged to imagine themselves as craftsmen. They will make notepads to sell.
  - **Please see separate directions for this simulation activity, provided in the Unit Resources view.** Time the children as they each make one notepad. Stop time when the last pad is completed. Don't tell the children they are being timed.
  - After the children make notepads by hand, teacher leads a discussion about the process and outcomes. Sample questions:
    - Are your notepads alike or different?
    - How many notepads did the class make?
    - What was the hardest thing about making the notepads?
    - Can you imagine a faster or easier way to make the notepads?



- ❖ Pictograph: Using clipart pictures, students make a pictograph to illustrate how products are made by hand, by a single craftsman. Teacher may introduce this activity by explaining that the pictograph tells the story of how the children just made their notepads. This is a story about all sorts of people outside the classroom, too, about skilled craftsmen.
  - Together, the class makes a pictograph that illustrates the process of constructing a product as an individual craftsman.
  - These clipart pictures are found in the Unit Resources.
- ❖ Concluding discussion: “individual production” one person doing much of the work alone to make a product. Sample Questions:
  - How many people are in the pictograph?
  - How large an area or space would this person need to work in?

**Products:**

- ❖ Notepads
- ❖ Pictograph

**Resources:**

- ❖ Simulation Activity materials
- ❖ BHH Pictograph art
- ❖ Poster board for the production processes pictograph chart

**Activity 3: Inventions – Industrial Change Over Time Timeline -- Parts 2 and 3.**

**Content Goals:**

- ❖ Students learn special inventions made it possible to produce/do things quicker using machines than by hand.

**Process Goals:**

- ❖ Students continue making a timeline.

**Centerpiece:**

- ❖ Book - [Iron Horses](#) (Kay & McCurdy, 1999).

**Content:**

- ❖ Industrial inventions





**Process:**

- ❖ Teacher reads **Iron Horses** to class.
- ❖ Class examines pictures of inventors and their inventions.
- ❖ This activity adds the second part to the timeline begun in Activity 1. Students paste photos of industrial inventions onto the original timeline, in a new section. “Inventions that Changed our Lives” becomes the second part of the timeline, after the section of long, long ago farming, communication, transportation and sewing methods.
- ❖ Class discusses how the inventions worked and why they enabled people to make/do things more quickly or easily.
- ❖ For the final part of the timeline, “Life in the U.S. Today,” students paste in photos of modern tools such as cars, planes, tractors, computers, and sewing machines.
- ❖ Teacher may conclude with a set-up for the next part of the unit by asking students, “How did people make enough cars and planes and tractors and computers for most people in the country to have access to them?”

**Product:**

- ❖ Timeline, Part 2.

**Resources:**

- ❖ Photos of inventions.
- ❖ Photos of modern tools.

## **Activity 4: Mass Production**

**Content Goals:**

- ❖ Students learn about assembly lines.

**Process Goals:**

- ❖ Students simulate work on an assembly line.
- ❖ Students create a pictograph.
- ❖ Students engage in photo analysis.



### Centerpiece:

- ❖ Assembly line simulation, Photographs, Pictograph clipart, book **Extra cheese, Please!** (Peterson & Uptis, 1994).

### Process:

- ❖ Simulation Activity, Part 2. (See separate directions in Unit Resources)
  - Have the children make notepads on the assembly line for the same amount of time it took individuals to complete their pads in Activity 1.
  - At the end of the time, stop production and discuss the process and outcomes. Sample questions:
    - How many pads did the craftsmen make? How many notepads did the class assembly line make in the same amount of time?
    - What was the hardest part?
    - Are the pads alike or different?
    - What was different about the way you made the pads on an assembly line and the way you made them individually?
    - Did you enjoy one way more than another? Why?
    - Do you think you would rather do your assembly line job day after day or the skilled craftsman's job (produce the entire notepad alone) day after day?
- ❖ Photo Analysis
  - Class examines photos of industrial processes inside factories, real-life assembly lines.
- ❖ Pictograph – Assembly Line Production.
  - Just as they did when they made a pictograph of skilled craftsmen in Activity 2, students use clipart pictures to illustrate how products are made by assembly line mass production. (Clipart in Misc. Resources.)
  - Class constructs pictograph on poster board. Again, teacher may frame this to reinforce the simulation activity and establish the children's understanding that assembly line production is the most prevalent form of production in the wider world.

### Products:

- ❖ Notepads and Pictograph

### Resources:

- ❖ Simulation activity directions and materials
- ❖ Factory photographs
- ❖ BHH Pictograph art and poster board



❖ Extra cheese, Please!

## Activity 5: Corporations – Finding Money to Build Big Businesses

### Content Goals:

- ❖ Students learn there are various types of business ownership.
- ❖ Students learn in the late 19<sup>th</sup> century **corporations** raised money to build and operate large businesses.
- ❖ Students learn corporations gather(ed) money from strangers. These people are owners of the corporations and are called **investors**.
- ❖ Students are introduced to the concept that **stock markets** were/are the places people gather(ed) to buy parts of corporations and become investors.

### Process Goals:

- ❖ Students use pictograph to represent the differences between individual ownership and corporations.

### Centerpiece:

- ❖ Pictograph chart

### Process:

- ❖ (A) What is individual ownership? What is a partnership?
  - Begin a pictograph that illustrates individual ownership and partnerships.
  - The clipart pictures for this activity are in the Miscellaneous Resources view.
  - Students may volunteer to glue on the parts of the pictograph.
- ❖ (B) What is a corporation?
  - Teacher introduces the concept of corporate ownership by asking what sorts of things someone would need to build a factory.
  - If the children don't mention "a lot of money", teacher may introduce this point and ask where the money might come from. This provides an entry into the concept of multiple owners, of corporate ownership of businesses.
  - Class builds corporation into the ownership pictograph. Students may each receive a stick figure to decorate and paste on the chart. The finished chart includes single owners, partnerships and corporations.
  - Optional Discussion --teacher may ask students how the people who started corporations find other people to become owners with them.



- Stock markets are places where people buy pieces of corporations called “shares”. (This information is advanced – we introduce it here primarily to establish some prior awareness of stock markets for the 4<sup>th</sup> grade Depression unit. If you are concerned that it will confuse your students, you may skip this discussion...)
- Define “invest” – to put money into something you hope will give more money back than you put in.

**Product:**

- ❖ Pictograph

**Resources:**

- ❖ BHH pictograph art
- ❖ Cardboard background for chart

**Activity 6: People of the Industrial World 100 Years Ago.**

**Content Goals:**

- ❖ Students learn various people of the late 19<sup>th</sup> century lived in different sorts of housing conditions depending in part on what sort of job they held.
- ❖ Students become familiar with working conditions in 19<sup>th</sup> century industrial factories.
- ❖ Students learn workers on assembly lines did jobs that required little training and did not pay very well.
- ❖ Students learn immigrants; children and women were many of the factory workers.

**Process Goals:**

- ❖ Photo analysis
- ❖ Book discussion

**Centerpiece:**

- ❖ Housing photos, books -- **The Bobbin Girl** (McCully, 1996), optional: **The House in the Mail** (Wells, 2002).

**Content:**

- ❖ How did people in the cities live in the late 19<sup>th</sup> century?



**Process:**

- ❖ Using photographs of various houses and tenements, students investigate how peoples' living conditions varied depending on their work. Photos may be shown on an overhead projector as teacher describes the sorts of workers or owners that might have lived in the various dwellings. Student empathy may be encouraged with questions about the dwellings – would you have liked to live here? Do you think the family that lived here was ever hungry? Etc.
  - Business owners – palaces.
  - Skilled craftsmen, doctors, nurses, teachers, policemen – houses.
  - Unskilled factory workers – tenement apartments.
- ❖ What was life like for unskilled workers?
  - Teacher reads **Bobbin Girl** to class.
  - Class discusses life for unskilled workers.

**Resources:**

- ❖ Photos
- ❖ **Bobbin Girl**
- ❖ Optional: **The House in the Mail**

## Activity 7: Industrialization Growth Patterns

**Content Goals:**

- ❖ Students learn big business centers spread across the United States.

**Process Goals:**

- ❖ Reading charts and maps for historical information.

**Centerpiece:**

- ❖ Book: **Those Building Men** (Johnson & Moser, 2001), maps illustrating US industrial growth in the late 1800's to early 1900's:  
<http://www.bedfordstmartins.com/historymodules/modules/mod19/imap.htm>

**Process:**

- ❖ Read aloud **Those Building Men**.
- ❖ Map exercise: Class examines maps on overhead projector. Some explorations on the Bedford St. Martins site maps include:



- Products manufactured in 20 Largest cities, 1865-1900
  - Immigration by 1910
  - Natural Resources, 1865-1900
  - Railroad development 1870-1890
  - U.S. Topography
- ❖ **Optional:** Class examines their own community's local trends for the same period. You may wish to include local businesses and population at the turn of the 19<sup>th</sup>/20<sup>th</sup> centuries. Basic information of this sort will be available through local museums, archives or history books. Please see M. Gail Hickey's **Bringing History Home** (Pearson Allyn & Bacon, 1998) for an excellent teacher's guide to researching local history for use in the elementary classroom.

**Resources:**

- ❖ **Those Building Men**
- ❖ Transparency copies of maps from <http://www.bedfordstmartins.com/historymodules/modules/mod19/imap.htm>
- ❖ Local information

**Activity 8: Mind Map of Industrialization**

**Content Goals:**

- ❖ Review of the unit.

**Process Goals:**

- ❖ Students compile a review list of terms and themes.
- ❖ Students create mind maps.

**Centerpiece:**

- ❖ All previous lessons.

**Content:**

- ❖ The ingredients of 19<sup>th</sup> century industrial society

**Process:**

- ❖ All together, class brainstorms terms from the unit. Teacher writes the students' words on a list on poster paper or the overhead.



- ❖ In order to help students think categorically, teacher may lead a discussion on categorizing the terms by the lesson plan titles, i.e., “immigrants” could be categorized under unskilled labor and “stock market” could fall under corporations.
- ❖ Students divide their pages into five or six sections, depending on the number of categories teacher delineates, and titles each section with a category.
- ❖ Students choose terms from the brainstorm list, at least one for each category, and draw picture symbols to illustrate them.

**Product:**

- ❖ Mind Map

## Activity 9: The Pros and Cons of Industrialization

**Content Goals:**

- ❖ Students begin to recognize both positives and negatives are found in the history of industrialization.

**Process Goals:**

- ❖ Students make value judgments based on their study of industrial history.

**Centerpiece:**

- ❖ **The Milkman’s Boy** (Hall & Shed, 1997).

**Process:**

- ❖ Students work in pairs to compile a list of the positives and negatives of industrialization.
- ❖ Teacher encourages students to think about their 2<sup>nd</sup> grade environmental and immigration history units – does it have anything to do with what we are studying this year?
- ❖ Students share their lists with the class for discussion.

**Product:**

- ❖ Lists of the good and bad elements of industrialization.

**Resources:**

- ❖ Previous lessons.



❖ The Milkman's Boy