

Lesson B

Industrialization of Agriculture

[Lesson Duration: 50 minutes]

National Education
Standards Alignment

Social Studies



Lesson Overview

Agriculture has dramatically transformed over the last century. Using a timeline and short readings, students will explore key milestones in the history of agriculture, with a focus on industrialization and the reasons behind it.



Learning Objectives

- Examine what percentage of human history has included agriculture.
- Explain how new industrial agriculture is, given the long history of agriculture.
- Describe how and why agriculture was industrialized, and its impacts.



Essential Questions

- How and why did agriculture become industrialized?
- Do the benefits of industrial agriculture outweigh the harms?
- What lessons from the history of agriculture might guide the future of our **food system**?



Materials

- Tape
- Flipchart paper and markers
- Student handout
- Presentation slides
- Agriculture Timeline Cards
- Agriculture Timeline Teacher Guide
- *Industrialization of Agriculture* primer



Resources

- *History of Agriculture* primer (www.foodsystemprimer.org/food-production/history-of-agriculture/)
- *Industrialization of Agriculture* primer (www.foodsystemprimer.org/food-production/industrialization-of-agriculture/)

Warm-up: Farms, Then and Now

Social Studies [5 minutes]

Display the **Farms, Then and Now slide**. Ask students to compare these images of typical 19th and 21st Century farms in the United States and list similarities and differences. Ask volunteers to share their observations. Note that the 21st Century farm is larger, more mechanized, and more specialized—a result of the industrialization of agriculture. Explain that the industrialization of agriculture radically transformed how most of the world's food is produced.

Main Activity: Agriculture Timeline

Social Studies [20 minutes]

This activity places the industrialization of agriculture in historical context.

Draw a timeline on the board, spanning 200,000 BCE to the present, with marks every 10,000 years. If the board is not long enough, use sticky notes to mark the timeline along the length of the classroom. Select five volunteers, and hand each one an **Agriculture Timeline Card**. Have them **tape** their card to the timeline using their best guess of when their event happened. Ask them to explain why they placed their cards where they did. As a class, discuss: *Do any of the cards need to be moved?*

Display the **Agriculture Timeline slides**. Using the **Agriculture Timeline Teacher Guide**, explain the significance of each event. Ask a volunteer to rearrange the cards as necessary. Discuss: *What is most surprising to you about the timeline? What does the timeline tell you about how long agriculture and industrial agriculture have been around?*

Main Activity: Trends in Industrial Agriculture Social Studies [20 minutes]

Divide the class into five groups and explain that they will explore five major trends associated with the industrialization of agriculture.

Distribute copies of the **Industrialization of Agriculture primer**. Assign each group one trend—specialization, mechanization, the rise in chemical and pharmaceutical use, consolidation, or market concentration. Have each group read the relevant primer section and prepare a presentation about their trend. Provide them with **flipchart paper** and **markers** for use in their presentation. Before groups present, distribute the **Trends in Industrialization Handout**. While their classmates are presenting, instruct students to fill in their handouts.

Presentations should address the following:

- How would you describe your trend?
- Why did your trend occur? (rationale)
- How has your trend impacted agriculture or other parts of the food system?
Provide supporting evidence.

Discuss: *What are the pros and cons of industrial agriculture? Do the benefits outweigh the harms?* Lessons 1–6 provide additional evidence to help students answer these questions.

Wrap-up: Reflecting on the Future of Our Food System [5 minutes]

Have students write a response to the prompt: *What lessons can we learn from the history of agriculture that might help guide the future of our food system?*
Optional: Have students share their responses.



Share Your Knowledge: How has agriculture changed over the last century? What changes were most surprising? Ask students to tweet their reflections and tag **#foodhistory** and **#foodspan** to join the conversation.

Extensions:

Agricultural Technology Research Project (Science, ELA)

To deepen their understanding of the role of technology (for better or worse) in the food system, students will research an agricultural innovation such as the plow, the steam engine, the Haber-Bosch process, or herbicide-resistant corn. Using papers, posters, oral presentations, or videos, students should address the following: *How was this technology invented? What problem(s) did it aim to solve? What were the intended and unintended effects for health, society, and the environment?*

Company History Research Project (Social Studies, ELA)

To learn more about market concentration in the food system, students will research the history of an influential food company such as Monsanto, Cargill, Tyson, or Dean Foods. Using papers, posters, oral presentations, or videos, students should address the following: *How has the company changed over time? What products does this company sell? What percentage of the market for these products does this company control? How does this level of control affect the food system?*

Diving Deeper: Changes in Diet (Health, FACS, ELA)

Students will research historical shifts in diets: *How have changes in the food system affected what people eat? How would students' diets differ if they lived 50 years ago? 500 years ago? 50,000 years ago?* Students could create a menu featuring meals that were typical during different periods of human history. Students may also research, cook, and present a series of recipes aligned with different historical periods. Encourage students to share their findings on social media and tag #foodspan and #foodhistory. In keeping with the lesson's history theme, students can post on Thursdays and tag #throwbackthursday or #tbt.

Food System Film (Social Studies, Health)

Students will watch a documentary about the food system, such as *Food, Inc.* (www.imdb.com/title/tt1286537/) or *King Corn* (www.kingcorn.net/), and write a reflection on how agriculture has changed.