Industrial Automotive

The assembly line, 1913: division of labor, the moving line, and what it meant for workers

Grades 9–12 adaptable for 6–8 and AP	**50–55 min** one class period	**World & U.S. History** Economics	**Two ways to run it** Plan A free · Plan B Teacher Plus

Choose one plan

Plan A (free): every student plays on their own device against computer-run rival lines. No accounts, nothing to set up. **Plan B (Teacher Plus):** the class game. Students join with a code and work together on team lines that race each other, with Foremen and artisans, while you run the game and the projector. Everything else in this plan (objectives, standards, questions, the exit interview, background and assessment) is the same for both. The exit interview worksheet is free with either plan.

Overview

Students take a job in a 1913 car factory. Line workers each do one small job as cars move past them on a line that never stops; a few volunteer **artisans** design and hand-build whole cars from scratch. A warm-up has every student build one car alone from standard parts, so the class can feel the difference division of labor makes. Event cards bring in real history: the line speeds up, a worker quits, "any colour so long as it is black," and the five-dollar day. The game ends with each student's own numbers: time per car, quality, waiting time, pay, and what a working family's year cost.

The simulation highlights the tensions of industrialization: products got much cheaper and jobs multiplied, while each job took less skill and the work became faster and more repetitive.

Learning objectives

Students will be able to:

1. Explain the two innovations behind Ford's assembly line: division of labor, and bringing the work to the worker on a moving line.
2. Compare craft production, one-person production and the assembly line using data from their own play (time per car, labor cost per car).
3. Describe how the line changed the experience of work: skill, pace, repetition, waiting and control over speed.
4. Analyze wages against prices and a family budget, and explain why Ford introduced the five-dollar day.
5. Make an evidence-based argument about who benefited most from the assembly line.

Standards covered

STANDARD	WHAT STUDENTS DO
CA HSS 10.3.4	The evolution of work and labor, including the division of labor and the union movement
CA HSS 10.3.5	Connections among natural resources, entrepreneurship, labor and capital in an industrial economy
CA HSS HI 1	Show how specific events connect to broader social, economic and political trends
C3 D2.His.14.9-12	Analyze multiple and complex causes and effects of events in the past
CCSS RH.9-10.7	Integrate quantitative or technical analysis (data, charts) with qualitative analysis

Summaries. Official text: California History–Social Science Content Standards; California History–Social Science Analysis Skills, grades 9–12; C3 Framework for Social Studies State Standards (NCSS); Common Core Literacy in History/Social Studies.

Plan A · Free: solo play

Each student works alone on their own device. The computer runs the other stations and three rival lines. Nothing is sent anywhere.

Materials

- **Students:** one device each (Chromebook, laptop or tablet) at **simhistory.org/play/assembly-line-1913**. No accounts.
- **Teacher:** a projector for the case file and the debrief.
- **Jobs:** spread the class across Worker 1–5; 2–3 volunteers who like digital art take **Artisan**; one or two take **Foreman**.
- **Start-screen options:** line speed (Easy / Normal / Hard), what happens when a car leaves a station unfinished (default: *Ford, 1913: the line never stops*), pay (day wage or piece rate), and the warm-up (on by default).
- **Printed:** the exit interview worksheet (one per student), or assign it in Google Classroom.

Procedure

Times are suggestions for a 55-minute period.

Hook 5 minutes	• Project the case file (Highland Park, 1913). Ask: *How could a company make a car cheap enough for the people who build it?* • Name the two innovations to watch for: division of labor, and the work coming to the worker.
Jobs and training 8 minutes	• Students pick their job and do its tutorial. The practice car is checked by the real quality check; they tap **Accept** when ready. Artisans may need a few extra minutes for the drawing tools.
Warm-up 5 minutes	• Everyone builds one car alone from standard parts, walking to each shelf. Make the point: this is *no division of labor*, not artisan craft.

The line 12–15 minutes	• Workers race three rival lines to 10 cars. The car keeps moving; parts must go on before it leaves the station. The line starts slow and speeds up several times (about 40% faster by the end). Event cards appear on their own. • Artisans design and hand-build their cars while the lines' totals climb. • Circulate. Ask: *How much skill does your job take? What do you do while you wait?*
Results 5 minutes	• Students read their results: time per car, waiting time, unfinished cars, pay under both systems, the family budget. Ask two or three to share a surprising number.
After Action Report and exit interview 12–15 minutes	• Students answer the six questions and download the certificate + answers PDF. • The exit interview worksheet finishes the lesson or goes home as homework. Close with: *Who gained the most from the assembly line?*

Plan B · Teacher Plus: the class game (coming soon)

You run the factory from your computer; students join with a code and work on team lines that race each other. The line runs on your computer and students' devices send only their part positions, by a random seat number. No student names are sent.

Materials

- **Teacher:** a computer with the projector, signed in to Teacher Plus, at **simhistory.org/play/assembly-line-1913/class**. Keep this tab open and showing during the game: it runs every team's line.
- **Students:** one device each, at **simhistory.org/assembly** with the code on the projector. No accounts.
- **Setup (one screen):** about how many students, artisans (at least 2), teams of five (suggested for you), race to N cars. More options: line speed, automatic or manual speed-ups, never-stop line or workers may stop it, day wage or piece rate.
- **Printed:** the exit interview worksheet (one per student), or assign it in Google Classroom.

Who does what

- **Workers 1–5** fill each team's stations first. Then **artisans** (volunteers first), then one **Foreman** per team, then extra artisans. Empty or untrained stations are run by stand-ins, so you can start any time.
- The Foreman inspects every car before the quality check and can set the team's line up to 15% slower or faster than your speed.

Procedure

Times are suggestions for a 55-minute period.

Before class 2 minutes	• Open the class game, make your choices and click **Create the game**. Put the projector view on the screen (join address and code).
Hook 5 minutes	• While students join, read the case file aloud. Ask: *How could a company make a car cheap enough for the people who build it?* Name the two innovations to watch for.
Seats and training 8 minutes	• Students are placed on a team and a station automatically and do that station's training, then tap **Accept**. Your screen turns each station green as students are ready.
The race 15–18 minutes	• Click **Start the race**. Teams race to the goal on the projector; a red light shows a stopped line. The line speeds up on its own (or tap **Speed up the line**). • Play the event cards when you choose: **Any colour, so long as it is black** and **The five-dollar day**. • Use **Show** to put one station's car on the projector and talk about a mistake or a fix. **Automate** covers an empty seat; **Show latest car** shows an artisan's work.

Results 5 minutes	• Project the team results: cars passed, the repair bay, and each station's average job time and unfinished cars. Ask: *Which station slowed your line down, and why?* Show the artisans' showroom. • Each student's own results, pay and family budget are on their device.
After Action Report and exit interview 12–15 minutes	• Students answer the six questions and download the certificate + answers PDF; the exit interview worksheet finishes the lesson or goes home.

After Action Report questions

1. Compare the time it took to build a car without division of labor (the warm-up, or the artisan) with your assembly line. What made the line so much faster?
2. Describe your job on the line (or in the workshop). How much skill did it take? How did it feel to do it over and over, or to wait?
3. Look at the pay. Who earned more per car, the line worker or the artisan? Who earned more per day? Explain why.
4. Use the family budget. Could a family live on $2.34 a day? On $5 a day? What would they have to give up?
5. Turnover at Ford reached 380 percent in 1913. Why might Ford have doubled pay in 1914?
6. Who gained the most from the assembly line: workers, buyers, or owners? Use evidence from your results.

Exit interview worksheet (free)

A one-page form in the style of a factory employment office's exit interview. Students "leave" the job they did and compare the two jobs in the game, the line worker and the artisan: skill, pace, control, pay, pride in the work, and how easily they could be replaced. Print it from the game's Standards & Resources list or at **simhistory.org/play/assembly-line-1913/exit-interview**. Use it with either plan; it works well as homework or as a written exit ticket.

Teacher background

- **The moving line.** Ford began moving work past workers in 1913, starting with flywheel magnetos, then engines, transmissions and, from August 1913, whole chassis. Ford called the first step "taking the work to the men instead of the men to the work."
- **The time saved.** Stationary chassis assembly averaged 12 hours 28 minutes; on the moving line it fell to 1 hour 33 minutes. The game's time scale is set so one car per line cycle at Normal's starting speed equals that 1 hour 33 minutes (approximate).
- **Turnover and the $5 day.** By late 1913 labor turnover reached 380 percent. In January 1914 Ford announced $5 for an eight-hour day, up from $2.34 for nine hours.
- **Prices.** The Model T cost $850 in 1908 and fell as low as $260 in the 1920s.

- **Colour.** Ford wrote that "any customer can have a car painted any colour that he wants so long as it is black."
- **Wages and budgets in the game.** Skilled trades earned about 35–50 cents an hour (union scales, 1912); the game uses 50 cents for artisans. A 1918–19 survey found the average working family spent $1,434 a year (food $549). Prices then were higher than in 1913–14. The piece rate and a 300-day work year are game rules.

What to listen for

- **Deskilling:** line jobs took minutes to learn; the artisan's took real skill. Cheaper cars came with simpler, more repetitive work.
- **Pace and control:** on the 1913 line the worker doesn't set the speed; the line does (and in Plan B, the Foreman and you, as management).
- **Speed vs quality:** faster lines make more cars and more mistakes; unfinished cars cost the whole team.
- **Wages vs prices:** why a higher wage could pay off for Ford (lower turnover, workers who could buy cars).

Assessment

- **Formative:** the tutorial check, students' explanations while they play, the results screen.
- **Summative:** the After Action Report. Suggested rubric for each answer (4 points): uses a specific number from their results (1), explains the cause (1), connects to the history in the case file or event cards (1), clear writing (1).

Differentiation and access

- **Support:** Easy speed (a slower line, a wider quality check); pair a student with a partner on one device; use the keyboard (Tab to a part, Enter to place, arrow keys to nudge).
- **Challenge:** Hard speed; the Foreman role; set pay to piece rate and compare. In Plan B, try "Workers may stop the line" and compare stops with output.
- **Middle school:** skip the piece-rate comparison; answer questions 1, 2 and 6 orally.
- **Extension:** research the five-dollar day's conditions, or compare Ford's line with a factory or warehouse job today.

Works cited

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- The Henry Ford. "Ford Methods and the Ford Shops." Blog, The Henry Ford.
- Ford, Henry, with Samuel Crowther. *My Life and Work*. Doubleday, Page, 1922. Ch. IV and V. Public domain.
- U.S. Bureau of Labor Statistics. *Union Scale of Wages and Hours of Labor, 1907 to 1912*. Bulletin 131, 1913.
- U.S. Bureau of Labor Statistics. *100 Years of U.S. Consumer Spending*. Report 991, 2006. Table 8 (1918–19).
- Game design: Isaac Newman, "Industrial Automotive: Digital Assembly Line Simulation."
- Standards: California Department of Education; National Council for the Social Studies (C3 Framework); Common Core State Standards Initiative. Linked above.

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