

4.03 Henry Ford and the Model T Activity- A Case Study in Production

This lesson adopted from the National Council on Economic Education:
<http://www.econedlink.org/lessons/index.php?lid=865&type=student>

INTRODUCTION

People often credit Henry Ford with inventing the automobile and the assembly line. In fact, he did neither! What Mr. Ford actually did was change the way manufacturers operate. Henry Ford brought together many innovative ideas that helped revolutionize mass production. For an introduction to this man and the car that made him famous, read the following:

- [Henry Ford: The Innovator](https://www.thehenryford.org/exhibits/hf/The_Innovator_and_Ford_Motor_Company.asp) ([https://www.thehenryford.org/exhibits/hf/The Innovator and Ford Motor Company.asp](https://www.thehenryford.org/exhibits/hf/The_Innovator_and_Ford_Motor_Company.asp))
- [Ford Model T](http://www.modelt.ca/background.html) (<http://www.modelt.ca/background.html>)



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TASK

In the activities that follow, you will learn more about how Henry Ford ' s production of the Model T helped to revolutionize the manufacture of automobiles and life as we know it today. You will be asked to adapt one of his strategies—the moving assembly line—for the production of bookmarks.

PROCESS

The Early Days of Ford Motor Company and the Model T

When Henry Ford incorporated the Ford Motor Company in 1903, automobiles were expensive, custom-made machines purchased as a luxury item by the wealthy. Workers at the Ford factory in Detroit produced just a few cars a day.



Henry Ford's ambition was to make “a motor car for the great multitude.” He wanted to build a high-quality automobile that would be affordable to everyday people. He believed the way to do this was to manufacture one model in huge quantities.

Ford and his company's engineers designed a car named the Model T. First offered for sale in 1908, the Model T was produced like other cars—one vehicle at a time. But the Model T was more sturdy and powerful than other cars.

Considered relatively simple to operate and maintain, the auto offered no factory options, not even a choice of color. The Model T was also less expensive than most other cars. At an initial price of \$950, 10,000 autos were sold the first year—more than any other model.

Vanadium Steel. Henry Ford searched the world for the best materials he could find at the cheapest cost. During a car race in Florida, he examined the wreckage of a French car and noticed that many of its parts were made of a metal that was lighter but stronger than what was being used in American cars. No one in the U.S. knew how to make this French steel—a vanadium alloy. As part of the preproduction process for the Model T, Ford imported an expert who helped him build a steel mill. As a result, the only cars in the world to utilize vanadium steel in the next five years would be French luxury cars and the Model T.

The Moving Assembly Line

Like parts for other cars of the time, parts for the Model T were initially purchased made-to-order from other businesses. Teams of two or three skilled mechanics in the factory would gather these parts and put them together at a workstation, using everyday tools. When parts did not fit together as needed, workers used files and hammers to make them fit.



Take a peek at this process on the following video clip
http://amhistory.si.edu/onthemove/exhibition/exhibition_8_6.html.

Henry Ford realized that a more efficient production process was needed to lower the price and meet increasing consumer demand for his popular new car. He needed to improve productivity—the amount of goods and services produced from a given amount of productive resources. Economists refer to goods and services as output. Henry Ford's output was the Model T. The productive resources used in production—natural resources, capital resources and human capital—are inputs. Ford's inputs were the steel, workers, and other resources required to manufacture the car.

Ford looked at other industries and found strategies that he could apply to making the Model T. Take a look at [Interchangeable Parts](#) and the [Assembly Line](#) to learn more about two of the first strategies he adapted. Using interchangeable parts required making the individual pieces of the car the same every time. All pieces would fit with all others. Any valve would fit any engine and any engine would fit any frame. The standardization of parts made it possible to break down assembly of the Model T into distinct steps. Each worker was trained to do just one step or a very few steps. Economists refer to this practice as **specialization** or the division of labor.

[Ransom Olds](#) is the first manufacturer to have used interchangeable parts and the assembly line in the U.S. auto industry. He used these ideas in the production of the 1901 Curved Dash Oldsmobile also referred to as “the runabout”.

In 1913, the Ford Motor Company established the first moving assembly line ever used for large-scale manufacturing. On a trip to Chicago, Henry Ford observed meat packers removing cuts of beef from a carcass, as it was passed along by a trolley, until nothing was left. He was inspired to reverse the process for the production of his automobile.



Parts were attached to a moving Model T chassis in order, from axles at the beginning to bodies at the end of the line. As vehicles moved past the workers on the line, each worker would do one task. Some components took longer to put together and attach than others. Subassemblies were established for these. For example, each radiator with all its hose fittings was put together on a separate line feeding into the main assembly line. The interval between delivery of the car and its components was carefully timed to maintain a continuous flow.

The home for this new production system was the Highland Park Plant near Detroit, Michigan, which Ford opened in 1910. Assembly wound downward in the factory starting on the fourth floor where body panels were hammered out. On the third floor workers placed tires on wheels and painted auto bodies. After the assembly was completed on the second floor, the autos moved down a ramp past the first-floor offices. Test your comprehension of this lesson in the following activity.

CONCLUSION

Critical to the success of the Model T was Henry Ford's ability to increase productivity—output per unit of input. Specialization and division of labor helped Henry Ford and his company increase Model T productivity. Assembly line production was more efficient than having individual workers making complete products. Interchangeable parts made this new way to organize production feasible.