



**The History Channel® Presents:
Modern Marvels: Freight Trains
An Original Documentary**



(A Locomotive's Route through Castle Gate, Utah circa 1927)

Modern Marvels: Freight Trains captures the essence of the American railroad industry, traveling back into history on a journey to discover how freight trains were created and how they became central to the economy of the nation. This special presentation draws upon the expertise of historians, freight train engineers, heads of major U.S. railroad companies, and railroad control center employees to explain the significance of the U.S. railway system both past and present. Viewers will follow along as the documentary takes an unprecedented inside look at the largest port in the United States, telling the storied history of this fascinating locale and the role of the American freight train.

Modern Marvels: Freight Trains explores this amazing freight transportation system— a complex network woven into the very fabric of the United States. From the early “iron horses” to the sleek steel stallions of today, these magnificent machines grind up hillsides, snake through valleys, and thunder across prairies to deliver the goods essential to so many Americans. Almost every commercial product is carried by freight trains in the United States: fruits, vegetables, machines, cars, pencils, books, batteries, livestock, computers, and endless other goods that Americans need and crave daily. The complex labyrinth of the U.S. railway system has stitched together parts of the American homeland for centuries. This documentary provides a behind-the-scenes view of how the system was masterminded, and how it shapes our lives today.

Curriculum Links

Modern Marvels: Freight Trains would be useful for high school and middle school classes on United States History, Social Studies, Science and Technology, Economics, Engineering, and Current Events. This documentary fulfills several key guidelines and goals outlined by the National Council for History Education including: (1) Patterns of social and political interaction, (2)

Civilization, cultural diffusion, and innovation, (3) Human Interaction with the environment.

Vocabulary

Using the dictionary at www.merriamwebster.com, an internet resource such as www.google.com, or an encyclopedia, students should define or explain the significance of the following terms:

Arbitrage
Dynamic
Entrepreneur
Exculpatory

Exposition
Free Trade
Freight
Pejorative

Staggering
Transcontinental
Railroad
Zenith

Fun Facts

DID YOU KNOW that Julius Griffiths was the first person to patent a 'steamcarriage' for transportation of passengers in 1821?

IT IS TRUE that train engines, while coming in many different shapes and size, can cost millions of dollars.

Comprehension Questions

1. What was the Transcontinental Railroad? When was it completed? Why was it so important to the development of the United States rail system?
2. What was so impressive about General Electric's locomotive manufacturing plant? How is a new locomotive engine processed and built?
3. Explain the evolution of the locomotive engine. When was the first locomotive developed? What type of engine was it? How did the engineers power the locomotive?
4. Why is the Cajon Pass one of the most treacherous stretches of railroad track in the United States? What is the strategy for getting over 100 freight cars up the hill and back down the other side safely?
5. What safety features are there in the cockpits of modern locomotive engines? What other safety precautions are on the boxcars of the trains?
6. Who was George Westinghouse? What is an airbrake? Why are they so crucial in operating trains?
7. How does the port of Long Beach and Los Angeles, California handle all the freight traffic coming in each day? What is the "trench"? What do you think are the greatest challenges involved in organizing freight traffic?
8. How are trains around the country monitored to ensure that only one train is assigned to a specific track at one time? Why is the system considered so technologically advanced?

9. What is ETMS? How does it help guarantee the safety of America's railroads? What types of actions can the system take on its own?
10. What do you think are the most important jobs involved in keeping the freight train system running? What do you think would be the effects on the American economy if the freight train system grinded to a halt?

Extended Activities

A Sudden Stop Sign: Trains at a Halt

Technology has progressed dramatically over the last few centuries. The transportation system has been advanced exponentially in the past two hundred years, so that people can now travel at the speed of sound. The modern system of freight transportation, as this documentary discusses, is central to the economy of the nation, and even the world. Imagine for a moment that the freight transportation system was suddenly frozen, and no products were able to be transported to their destination. Write a five page paper describing what it would be like if this occurred, and how the economy would be affected if freight trains were not able to run.

A System in Sync

The unification of railroad lines in 1869 marked the completion of the Transcontinental Railroad. These links created a network of rails throughout the United States capable of carrying enormous quantities of goods and people. Research the unification of the Union Pacific and Central Pacific Railroads and the day they came together at Promontory Summit, Utah. Imagine you were a reporter on hand the day the rail lines were united. Write a newspaper article describing this event and how it might change U.S. history. These articles can be designed with images of this event and other train-related photos.

Time for a Break!

The evolution of the brake system was one of the most important transformations in train technology. The ability to bring trains to a stop in a speedy and efficient manner is one of the most important features of a successful rail system. In a short essay of 3-4 pages, describe the evolution of the brake system, the engineers who played a role in developing it, and updates to the system throughout history. You may also want to include an illustration or drawing to depict the way brake systems operate.

Wholes and Parts

In order to make the freight transportation system work in the contemporary world, a complex system of communications, technology, and interpersonal organization is necessary. This documentary focuses on the many interconnected aspects of the freight system. In small groups, create a map or chart depicting the process and route through which commercial goods are transported. For example, groups might chart the route a pair of jeans follows from a factory in Illinois to a department store in California. These presentations can be in PowerPoint format, on poster-board, or on roll-out paper. Share these presentations with the larger class or group.

Additional Resources

Books

Boyd, Jim. *The American Freight Train*. MBI, 2001.

Codoni, Fred and Paul Trimble. *Northwestern Pacific Railroad*. Arcadia Publishing, 2006.

Del Vecchio, Michael. *Iron Horses: The Illustrated History of the Tracks and Trains of North America*. (Philadelphia, PA: Courage Books, 2000).

Fraser, Mary Ann. *Ten Mile Day: And the Building of the Transcontinental Railroad*. (New York: Henry Holt, 1996).

Stille, Darlene. *Freight Trains*. Compass Point Books, 2001.

Websites

California State Railroad Museum: <http://www.csrmf.org/>

Central Pacific Railroad Photographic History Museum: <http://cprh.org/Museum/>

The National Railroad Museum: <http://www.nationalrrmuseum.org/>

Northern Pacific Railway Historical Association: <http://www.nprha.org/>