Trains and Railroads: From Wooden Track to Amtrak

As I watched the rails being taken up and hauled away, I thought—there goes over a hundred years of this town’s history—for it was the railroad that opened up this area back in 1840 before Middletown was even a town. And it was the railroad that built Middletown.*

Marvin Cohen, who wrote this, is not alone in recognizing the importance of the railroad to his town’s history. Indeed, the westward expansion of America and the economic development of towns and cities all over the United States were closely tied to the advent and growth of the railroads in the 1800s and 1900s. Because of this importance and because of the natural fascination most children have with trains, the study of trains and railroad ing is an excellent way of sparking students’ interest in American history from both local and national perspectives.

So here from the Smithsonian Institution, with the NATIONAL MUSEUM OF AMERICAN HISTORY’s RAILROAD HALL as a resource, are some ideas on how you might introduce the subject of trains and railroads to your students, especially in connection with a social studies unit on westward expansion.

Back in the Beginning

Our story begins in the mid-1400s in Europe, when horse-drawn carts with flanged wooden wheels (pictured in this issue of ART TO ZOO) first were used to transport coal and stone by wooden rail. Later, in the mid-1700s, iron rails and wheels began to replace the less durable wooden ones; and it soon became evident that horses could pull heavy loads of many kinds more easily over the rails than over the ground.

It Started in England . . .

Absolutely essential to the development of the railroads was the invention of a “self-propelled vehicle running on a railroad track, designed to pull railroad cars”—which is the locomotive. The first true locomotive, called the “Penn-y-Darren,” was built and operated in 1804 to pull cars to and from a mine in Wales by Richard Trevithick, an Englishman. In 1825, George Stephenson brought out his “Locomotion,” the first locomotive to pull cars on a public-use, passenger-carrying railway. Then in 1829, Robert Stephenson (son of George) developed a faster and more powerful locomotive known as the “Rocket.” The Rocket is often credited with really beginning the “Era of the Railroad.”

And Developed in America

By the end of the Revolutionary War, the westward movement was beginning in the United States and lands immediately west of the Alleghenies were being settled. Travel among the original thirteen colonies had been mostly by horseback, stagecoach, or coastal ship—but now with expansion of the country inland, Americans began to see the need for a more efficient means of transporting people and goods.

Within this context, American railroad ing got its start in 1825 when Colonel John Stevens of Hoboken, New Jersey, built a small demonstration locomotive and ran it on a circular track in his yard to prove that the idea of a steam engine operating on tracks was practical. Stevens’s demonstration created much interest in the steam-powered locomotive, and soon other inventors were working on experimental models. A number of important developments resulted. For example . . .

* In 1829, Horatio Allen imported from England the “Stourbridge Lion,” the first steam locomotive to be used in America.
* In 1830, Peter Cooper built his “Tom Thumb,” the first American-built steam locomotive used for scheduled service, began operation in South Carolina.
* In 1831, the “De Witt Clinton,” another early steam locomotive built in America, began service between Albany and Schenectady, New York. In addition, the Camden and Amboy Railroad began construction in New Jersey. The “John Bull,” which now belongs to the Smithsonian, was this line’s first locomotive.

During this early period of American railroad ing, some American entrepreneurs went to England to study railroad technology and to purchase early locomotives. However, it was soon discovered that the English locomotives could not run very well on the more roughly built, rapidly laid American tracks.

From the very beginning of English railroad ing, the emphasis had been on building a carefully constructed system of rights-of-way, with sturdily engineered tracks, to connect the cities and towns of a relatively small island nation. In America, however, the focus had been on laying down track as quickly as possible to cover vast distances. Speed of construction was the American forte, with durable but lightly built track. By the mid 1830s, many areas east of the Alleghenies were connected by a system of railroads.

The Rail Network Continues to Grow

In less than twenty years, by the 1850s, lines were in service all along the Eastern seaboard, as well as between New York, Chicago, and the Great Lakes . . . Baltimore and Saint Louis . . . Richmond and Memphis . . . Chicago and the Gulf of Mexico. Most of these lines were physically linked together, since an unconnected line couldn’t transfer its freight or carry travelers very far. But the railroad lines were built by many different railroad companies, each operating a particular segment and hoping to realize its own profits.

continued on page 3
The Steam Locomotive
A steam locomotive consists basically of a firebox, a boiler that generates steam, and machinery by which the steam under pressure pushes pistons to turn the drive wheels. This kind of locomotive operates as follows:

- Fuel (wood, coal, or oil) is burned in the firebox.
- Flame and hot gases from the firebox pass through hollow firetubes in the boiler causing the water surrounding the tubes to boil under pressure into steam.
- The steam under pressure is collected in the steam dome.
- The engineer opens the throttle valve, allowing steam to rush down a pipe to the valve chests (of which there are two, one located on either side of the locomotive.) Inside each valve chest, a slide valve regulates the steam flow in and out of the cylinder. (Again, there are two cylinders, one on each side of the locomotive.) Inside the cylinder, the steam expands and pushes a piston. Part way through the piston’s stroke, the slide valve shuts off the steam supply against the piston; the steam then expands on its own, pushing the piston further. At the end of the stroke, the slide valve opens a port through which the spent steam exhausts. The cycle is repeated, with the piston being pushed back and forth. Steam pushes the piston in both directions, every stroke. The movement of the two pistons turns the drive wheels which are connected to the pistons by the piston rods, the connecting rods, and the side rods. As the exhaust steam is released from the cylinders, still under some pressure, it is directed up the smokestack, creating a suction at the front end of the firetubes, drawing the hot gases from the firebox, thereby creating the needed draft on the fire.

The Diesel-Electric Locomotive
The diesel-electric locomotive has three essential working components: a diesel engine, an electric generator, and several electric motors. This kind of locomotive is, in effect, a self-contained power plant. The engine drives a generator, producing electricity that is used to power the electric motors, of which there is one on each driving axle. A brief explanation of the function of each part follows:

- The Diesel Engine. The diesel engine converts fuel into mechanical energy to turn the generator. Each of the 12 to 20 cylinders in the diesel engine contains a piston attached to the crankshaft by a connecting rod. Air enters the cylinder while the piston is moving down. When the piston moves up, the air in the cylinder is compressed, which causes it to become very hot. At the top of the piston stroke, diesel fuel is sprayed by an injector into the hot air and the fuel instantly ignites. The rapid combustion creates very high pressure which forces the piston back down, turning the crankshaft by means of the connecting rod. Each cylinder in the engine fires individually, in sequence, causing the crankshaft to turn continuously.
- The Electric Generator. The engine’s crankshaft is connected directly to the electric generator, where electric energy is produced.
- The Electric Motors. The electric energy produced in the generator flows through wires to the electric motors. (There is an electric motor on each driving axle.) The electric motors convert the electric energy back to mechanical energy to turn the axle and thereby the drive wheels.

Thus, in the diesel-electric locomotive, it is the compact electric motors, and not the big diesel engine, that actually propel the locomotive.

Note to Teachers: The illustrations on this page may be used with an opaque projector, to help you explain how each type of locomotive operates... or as the visual for student committee reports.
Lesson Plan

Step 1: Down by the Station—Planning an On Site Visit

To enable first-hand observation, your lesson should if at all possible include a visit to a nearby railroad station. This will fill the need for information and procedures to follow and useful persons to contact in planning such a field trip. You might contact the public affairs department of the railroad line serving your area. . . . check the yellow pages of your telephone book. . . . or refer to the annotated bibliography of railroad resources included in this issue of AMTRAK.

In planning your visit, you will first need to find out what kinds of materials are available at the site. Are guided tours offered? For what grade levels? What are the times? If a visitor is offered, you can then be knowledgeable about the history both of the railroad and of your community be available to give the tour? And if not, can you find such a person on your own, through the library and other sources?

Retired railroad employees, many of whom are railroad and train "buffs," are often happy to volunteer their services to school groups. . . . some individual railroad lines, including AMTRAK, will make special arrangements for school groups if given advance notice. In addition, excursions and scenic trips usually offer special rates and programs for schools. (See the 1984 Steam Passenger Service Directory—included in our bibliography under Special Resources—for a list of these facilities in the United States and Canada.)

If there is no railroad station in operation within reasonable driving distance of your school, you might consider visiting a freight depot instead—since freight is, and always has been, the most important business of the railroads. Certainly the historical correlation between the growth of the railroads and the growth of the nation can be seen through the study of freight as well as passenger trains. Because a freight yard can be a dangerous place for children, arrangements for a supervised visit must be made with the freight yard ahead of time, and your group must be closely chaperoned.

Under these circumstances, you can then simply adapt our lesson plan to suit your needs.

Step 2: Preparing Your Students

To prepare your students for their railroad station or freight yard visit, encourage them to share in class discussion their own experiences with trains or railroads. Some of the children may actually have ridden on a steam excursion railway or a modern diesel-powered locomotive. Others may frequently pass a railroad yard or have occasion to see trains running through towns. Others may have read books or seen television specials on the subject.

Once this discussion has been completed, armed with pencil, pad, and camera (if desired), your students will be ready to go . . .

Step 3: The Visit Itself

First thing at the station, direct the children’s attention to an arriving, departing, or waiting railroad train. Have them look at the train’s engine, or locomotive, so as to find the headlight and the fuel container and to notice where the engine is coupled to the cars. The children should also be able to locate, painted on the side of the train, an identifying name and number.

Next ask them to speculate as to what the engine is pulling. What kind are they? Passenger or freight? If freight, what types of freight does this train seem to be carrying? How can you tell? Is the train running on a main line, a spur, or some other railroad route? If the train is busy, the children may be able to see if there’s a separate dining car, sleeping car, or lounge. Finally, have the youngsters notice how the flanged wheels of the train fit the rails of the track so as to keep the train on its course.

Then move the class inside the station house to continue their observation and data-gathering activity. Here you should be able to obtain a schedule from which information can be gleaned about where this particular train is headed and where it came from, as well as its daily hours of arrival and departure. Also from the schedule—or from the stationmaster—the students should be able to find out how many trains (general stop at this station to pick up passengers in the course of a usual day . . . and whether most of the people who ride these trains are traveling long or short distances. Then you might try to find out to what extent this station is used by people commuting to and from their jobs.

Once these questions about how the station is used have been answered, you are ready to direct your students’ attention to the architecture of the station house itself. Clues found here can reveal the approximate date of the structure, as well as give you an idea as to the significance of the railroad in your community at the time that the station house was built. Architectural features to note on the inside of the building include: the shape of the doors and windows, the wall coverings and furnishings (if any), and any decorative elements such as light fixtures, fans, or a supervised glass. Have each child select a specific one of these features to sketch and describe briefly, using a worksheet like the one shown here.

Finally move back outside again and ask the children to finish their architectural observations, including notation of the building’s overall size and any ornamental features such as railings, statues, and columns. Have the children notice also the building’s stairs and steps and what materials the structure is made of. Again have each student choose an architectural feature to sketch and describe on the worksheet.

Step 4: Classroom Follow-up

Next day, back in the classroom, ask the children to describe the locomotive(s) they saw at the station. Ask: Did it have a smokestack? Then ask, Do you think the train we saw was a steam locomotive or a diesel locomotive? How could you tell?

Now explain to the students that the early trains (until about the 1940s) used steam-powered engines, and that steam locomotives were gradually replaced by the diesel locomotive. Ask the children why they think this happened; and after they have had a chance to speculate, tell them in order to better understand "why," we need to know something about these two different kinds of engines. Then using an opaque projector along with the illustrations and explanations on page 2 of this issue of AMTRAK, discuss the characteristics of steam-powered versus diesel-powered locomotives, and have the students help you make a list of these similarities and differences on the chalkboard.

Next ask the children if they can describe the early steam trains that once used the station you visited—and why they think the railways finally changed from steam power to diesel power. As this discussion progresses, help the children see that the change-over from steam to diesel occurred primarily because steam locomotives were too costly to operate, used a lot of fuel, and needed a lot of maintenance. A steam engine was in operation only about one-fourth of the time. The rest of the time it was either taking on water and fuel, or being cleaned or repaired. In addition, it polluted the air with large amounts of smoke and cinders.

On the other hand, the new diesel engines in use then were cheaper to operate and used less fuel—and the new diesels in use today are even more economical and powerful than the older ones. They also cause much less air pollution than the steam engine.

Now ask the children to refer to their worksheet sketches and descriptions in discussing the station house. Ask them what they learned from examining the structure. Did they, for example, find out when it was built? If not, could they try to identify the general period by comparing the style of the building with the architectural styles used in this country from let’s say the 1850s up to the present? For example, was the style fancy like a typical Victorian building or was it fairly plain in a more modern way? The date of the station house may well give them a clue as to when the railroad itself was built in the area. Also, judging from the architecture, do the children feel that the station was (and perhaps still is) an important building in the community?

Step 5: A Homework Assignment

As a homework assignment, ask the children to find out the answers to these four questions:

1. When was the first railroad built through this area?
2. What important events were taking place in the nation as a whole at about that time?
3. How have the kinds of trains used on our railroad changed over the years?
4. How have changes in the railroad (including AMTRAK consolidation) affected our community?

Next day, after the children have discussed their answers to these questions, share with them the information on the history of railroad ing and westward expansion presented earlier in this article, emphasizing the interaction between the building of the railroads and the growth of the United States.

Step 6: Further Research

Following this discussion, make a list on the chalkboard of several topics which the students feel need further research, such as:

1. Why the railroad was first built in their community.
2. Effects (if any) of the railroad on the development of the community.
3. Relationship of the development of the railroads to significant national events occurring from around 1830 to the present.
4. What trains of the future will be like—including engineering and design.
5. How railroad folk heroes and legends reflect a period of American history.

Have the students work in committees to complete this research and report on their findings to the rest of the class. Much of the information they uncover might be recorded on a special railroad time-line (like the one shown here) which can be made to extend all along the classroom walls so as to provide a backdrop for a class report or exhibit.

And so, that’s one way to travel the rails of America from your own classroom, an exciting adventure that most boys and girls of today might not otherwise, in reality, experience.

### Data Sheet for Railroad Station Visit

<table>
<thead>
<tr>
<th>Item Sketch</th>
<th>Description (use words and phrases)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station House (outside)</td>
<td>How many people do you think travel on this train daily?</td>
</tr>
<tr>
<td>Station House (inside)</td>
<td>What are some of the architectural features you noticed?</td>
</tr>
<tr>
<td>Additional Observations of Interest</td>
<td></td>
</tr>
</tbody>
</table>

### A Homework Assignment

- **Item Sketch**
  - **Description (use words and phrases)**
    - **Station House (outside)**
      - How many people do you think travel on this train daily?
    - **Station House (inside)**
      - What are some of the architectural features you noticed?
    - **Additional Observations of Interest**
      - Include any other observations you made during your visit.

### Further Research

- **Topic 1:** Why the railroad was first built in their community.
  - **Description:** Research the history and impact of the railroad on the local community.
- **Topic 2:** Effects (if any) of the railroad on the development of the community.
  - **Description:** Analyze the ways in which the railroad influenced the growth and development of the area.
- **Topic 3:** Relationship of the development of the railroads to significant national events occurring from around 1830 to the present.
  - **Description:** Explore the historical context of the railroad and its role in broader national events.
- **Topic 4:** What trains of the future will be like—including engineering and design.
  - **Description:** Discuss possible advancements in railroad technology and design.
- **Topic 5:** How railroad folk heroes and legends reflect a period of American history.
  - **Description:** Examine the role of folk heroes and legends in the history of railroading.

### Classroom Follow-up

- **Next day:** Back in the classroom, ask the children to describe the locomotive(s) they saw at the station. Ask: Did it have a smokestack? Then ask, Do you think the train we saw was a steam locomotive or a diesel locomotive? How could you tell?
- **Discussion:** Explain to the students that the early trains (until about the 1940s) used steam-powered engines, and that steam locomotives were gradually replaced by the diesel locomotive. Ask the children why they think this happened; and after they have had a chance to speculate, tell them in order to better understand "why," we need to know something about these two different kinds of engines. Then using an opaque projector along with the illustrations and explanations on page 2 of this issue of AMTRAK, discuss the characteristics of steam-powered versus diesel-powered locomotives, and have the students help you make a list of these similarities and differences on the chalkboard.
- **Activities:**
  - **Observation:** Encourage students to observe the architectural features of the station house during their visit.
  - **Research:** Assign students to research the history of the station house and its significance in the community.
- **Follow-up:**
  - **Discussion:** Discuss with the class the importance of the station house in the community.
  - **Summary:** Conclude the lesson with a summary of the findings and the impact of the railroad on the community.
Bibliography

For Teachers


For Children


Special Resources Bibliography


AMTRAK. For help and information regarding services and facilities in your area, contact: East: M. Diane Elliott, Director, Special Events, Corporate Communications, National Railroad Passenger Corporation, 400 North Capitol Street, N.W., Washington, D.C. 20001. Midwest: Deborah Macartnair, Corporate Communications, One California Street, Suite 1250, San Francisco, California 94111.


V. Allan Vaughn, Chairman, Board of Directors, National Railway Historical Society, Inc., 320 Wisconsin Avenue, Apt. 511, Oak Park, Illinois 60302. (Write for help in locating regional societies.)

A spike of pure California gold was driven signaling the completion of the building of the transcontinental railroad.

(Please credit: National Park Service, Golden Spike National Historic Site.)
Make Your Own Model!

You might be surprised to learn how trains and railroading are so much a part of our American folklore. In fact many of our traditional folksongs are about trains and railroad engineers. For instance, "Casey Jones" is a ballad about a real train engineer who died in the wreck of his locomotive, the "Cannonball."

Many railroad stories of heroic deeds have become legends. For example, there is the story of Kate Shelley, the daughter of a railroad man who risked her life in order to warn the engineer of an oncoming passenger train about a washed-out bridge ahead.

Stories of train robbers of the American West, such as the Jesse James gang, have become a part of railroad folklore along with stories about Indian attacks on trains, and of train engineers trying to outrun prairie fires.

Railroad folklore is also filled with hobo songs and stories... ghost stories and tall tales. One example is the Phantom Drag, a story about a hobo riding a fast train through space with Casey Jones, the engineer, running a race with time. Chris Wass, whose picture you have seen in this issue, wrote a story recently about an encounter of two railroaders of the late 1800s with a "cosmic cow" from outer space.

Now... perhaps you would enjoy writing a story yourself. Using one of these ideas, or an idea of your own, create your own version of a railroad adventure—a tall tale... a ghost story... or even a science fiction or fantasy.

Good luck with your story! You might even like to send us a copy for possible use in a future issue of ART TO ZOO. Mail it to us at the Smithsonian Office of Elementary and Secondary Education, Arts and Industries Room 1163, Washington, D.C. 20560.
The pattern for a board game that simulates the routing of railroad cars through a freightyard may be gotten free of charge by sending your request to ART TO ZOO, OESE, Arts and Industries Room 1163, Washington, D.C. 20560.
In the meantime, many pioneers had began slowly to make their way into the rich lands of the central plains, creating a need for transportation that was safer and faster than lumbering wagons. Building railroads west of the Mississippi was soon planned by the railway entrepreneurs. This was to be a slow, expensive job, and the distances to be crossed were immense. Because the state and federal governments had very little cash of their own, land grants were then a popular and common way to finance public projects such as turnpikes and canals, and to encourage settlement along the routes. In 1830, President Millard Fillmore signed the first railroad land grant to aid the building of the Illinois Central Railroad. Later, land grants were used to finance additional lines building west. By 1860, Chicago had become the leading railroad center of the nation, the crossroads for many of the major lines running both east-west and north-south.

Spanning the Continent (1862–1869)

Although the westward expansion of the railroads had been slowed by the Civil War, an important impetus to growth was taken on July 1, 1862, when President Abraham Lincoln signed the Pacific Railroad Act authorizing the construction of a transcontinental railroad. In order to support this project, the government promised about $50 million in bonds and 22 million acres of undeveloped federal land in land grants. In exchange, the government would receive, many times the value in preferential rates for mail, goods, and travel. Two companies were chosen to undertake the project: the Union Pacific Railroad was to start building from Omaha, Nebraska, and move westward, while the Central Pacific Railroad was to start from Sacramento, California, and move eastward. The two lines would eventually meet so as to link the East Coast and the West Coast.

The job, begun after the war ended, was colossal—rugged mountains had to be crossed, tunnels had to be drilled, treacherous mountain passes had to be built, and rivers had to be spanned. And every step of the way, Indians often attacked the workers in an effort to stop the construction. To the American Indians who lived in those areas, the railroad was a terrible thing, for they knew that it would bring vast numbers of settlers to permanently displace the original people from their land and their homes.

On May 10, 1869, the two railroads met at Promontory, Utah, in what is one of the most momentous events in American history—the opening of the transcontinental railroad. The event was so significant that the railroadmen measured the exact moment it was accomplished. In the western states, the railroads were more closely linked to the rest of the country. Before 1869, some people feared that the United States might break apart again, as the Civil War had threatened to do. The opening of the transcontinental railroad in 1869, however, brought a new era of safety, security, and progress.

Pullman interior from about the 1920s. "Seats by day—beds by night.” (Photo credit: From the Pullman Negative Collection, Smithsonian Institution.)

EDC™ Travel on the Railroads

An early train would consist of an engine providing the power, a tender containing water and firewood (engine and tender together constituted the locomotive) and several passenger or freight cars (sometimes called coaches if for passengers). The cars were connected simply by a link-and-pin coupling system so that there was little to prevent them from bumping together as the locomotive started and stopped, often sending passengers sprawling. Fortunately, however, improvements came quickly during the 1890s.

Travel by Pullman

The greater distances Americans were beginning to travel in the 1850s prompted several businessmen to independently construct railroad cars for sleeping purposes. The most famous of these entrepreneurs was a traveling cabinetmaker, George Mortimer Pullman, who in 1859 converted a standard railroad car into a car made just for sleeping. Pullman later introduced a completely furnished dining car, with kitchen, as part of his "Pullman service.”

George Pullman became the owner of a fleet of train cars, which he leased to railroad lines. After the opening of the transcontinental railroad in 1869, Pullman cars came into use by most railroad companies, making passenger travel from coast to coast much more enjoyable than before. These cars had seating sections in which the seats could be converted to comfortable berths at night. Even though competing companies provided some of the same services, by the 1890s the name “Pullman” brought to mind comfortable and often luxurious train travel, not only in the United States, but in other parts of the world as well.

Steam and Diesel

As you will see on page 2 of this issue of Air & Space, there are basically two kinds of locomotives: steam and diesel. Steam came first; then, in the 1930s and 1940s, diesel. Diesel engines, greatly developed and improved, are in use today.

It Started with Steam

The era of the steam locomotive lasted for more than a century, from the 1830s until after the Second World War. Many of the very early steam locomotives were painted bright colors, with shiny brass and fancy scrollwork. By the 1850s, many railroads had adopted a basic locomotive design, known as the "American Type" or "4-4-0." Because its running gear (wheels and their suspension system) was ideally suited to high-speed travel on rough track, this highly successful design was used by most builders for many years. The early American steam engines were fueled by wood, which was replaced by coal during the 1860s and 1880s—earlier in the east where coal was more plentiful.

Following the work of the first locomotive pioneers, locomotive designers continued to build larger and more powerful engines, until the steam locomotive reached its peak of efficiency around 1910. Some steam locomotives built between 1850 and 1950 weighed up to a million pounds, had horsepower of up to 8000, and could pull one hundred fifty freight cars! Steam locomotives for passenger service could pull express trains at all over 100 miles per hour, in regular service, day after day.

The Change to Diesel

By 1940, locomotives burning diesel oil as fuel were becoming popular. Diesels were clean and convenient to operate, with greatly reduced maintenance costs for the railroad companies. Passengers appreciated the elimination of smoke and cinders.

Although the diesel engine itself was invented by Rudolph Diesel in the 1890s, it was not until the early 1920s that diesel-powered locomotives were used experimentally. The major conversion from steam to diesel began after the end of World War II in 1945. By the early 1950s, diesel locomotives were a common sight on most railroads, pulling both freight and passenger trains. By 1960, the steam locomotive had disappeared from the major railroads of America. Today the steam locomotive is used primarily for excursions on historic and scenic railroads. Most commercial railroads are operated entirely by diesel locomotives.

Rail Freight: A Profitable Business

The railroads in the United States continue to carry a greater percentage of the total intercity freight hauled in comparison to any other mode of freight transport, including trucks, pipelines, waterways, and air. (Railroads carry over one-third of all intercity freight; trucks over one-fourth.)

There are railroad freight cars designed to carry almost anything you can think of—including most of the nation’s coal and ore. . . most of its special chemicals . . . and even lettuce (which, via the "Salad Bowl Express," can reach a table in a New York City restaurant from a field in California in five days, including packing in California and preparation in New York!).
AMTRAK
A big drop in long-distance passenger service, owing to increased dependence by American travelers on the automobile and airplane, was a prime factor in the financial crisis suffered by the railroads during the 1960s. In 1971, so as to maintain railroad passenger service in the United States, Congress created the National Railroad Passenger Corporation, AMTRAK. AMTRAK now owns and operates the passenger train service, which, except for the busy Northeast Corridor (Washington–New York–Boston), runs on rails owned by the independent freight companies.

From wooden track to AMTRAK—more than a hundred years of the romantic steam era and rapid changes following the switch to diesel. But what of the future? Perhaps trains will glide along a rail supported by a cushion of air or guided by electromagnetic force. Perhaps they will travel through underground tubes at unheard of speeds. With technology advancing so rapidly today, innovations will surely occur. In any event, the railroads will continue in efforts to meet the transportation needs of a still growing America.

Once you have familiarized yourself with all these materials on trains and railroads, you are ready to begin sharing this information through the following lesson, in which the children will examine the role of the railroad in the development of 19th- and 20th-century America and see how railroading events in their own community reflected developments in the nation as a whole. In the process, students will practice data-gathering, organizing, writing, and time-sequencing skills while getting the chance to make careful observations at first hand.

AMTRAK'S newest turboliners represent a blend of American and French designs with their modern lines and comfortable, all-electric interiors. Seven of the red, white, and blue “turbos,” built by Rohr Industries in California, are in service. (Photo credit: AMTRAK.)

“Flanged” wheel of the “John Bull.” (Photo credit: Eric Long, photographer, Smithsonian Institution.)

Middletown, New York, depot photographed in 1910 by J. E. Bailey for The Railroadians of America, Inc. (Photo credit: From a glass-negative in the Division of Mechanical and Civil Engineering, National Museum of American History, Smithsonian Institution.)

Train “buffs” are not of course limited to retirees. In this photo are Rich Delmar, a Washington attorney, and Chris Wasz, a sixth grade student from Wheaton, Maryland—both train enthusiasts. In the photo, Chris and Rich are touring the Hall of Railroads in the National Museum of American History. Rich explained that his love of trains began when as a child he would often wait on a hill near his home to see the Pennsylvania and Jersey Central trains speed by. He remembers waving to the engineers, and the thrill of having the engineers wave back! As Rich was growing up, he continued to be intrigued by both passenger and freight trains, and recalls with delight the time an engineer actually allowed him to climb into the cab of a big locomotive. Stories of such events bring back memories, to many, of a bygone era when the trains of America were so much a part of everyday life, and were indeed the “King of the Road.” (Photo credit: Fernando Sandoval.)