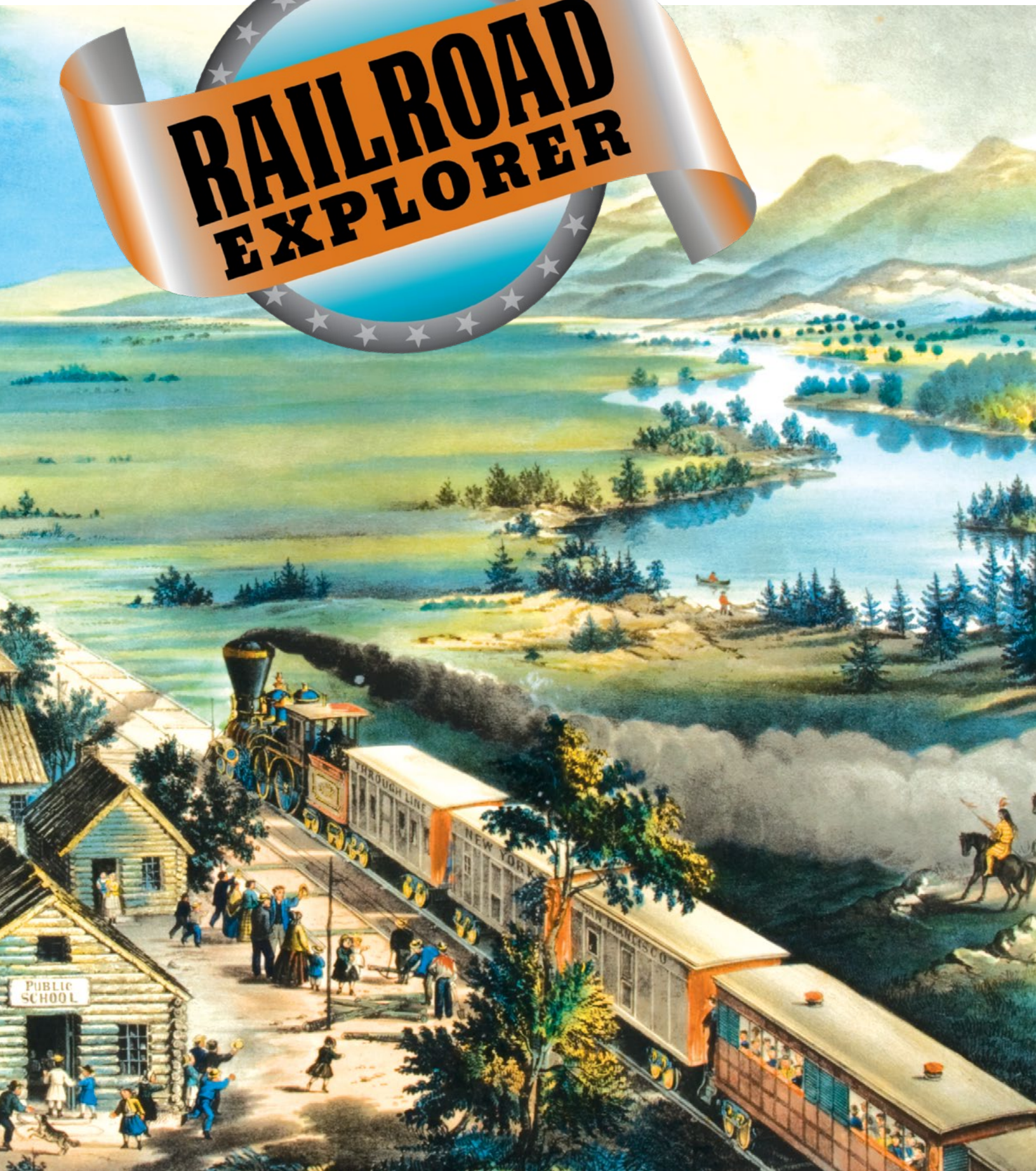
National Park Service
U.S. Department of the Interior

RAILROAD EXPLORER



Get Ready to Ride the Rails!

With this book in your hands, you are ready to become a Railroad Explorer. This book will teach you about the transcontinental railroad, which helped link the United States from coast to coast.

Follow the directions below:

1. **Complete this book.**
   Do your best to finish as much as you can.
2. **Check your work.**
   Show a ranger, a teacher, or another adult what you completed.
3. **Become a Railroad Explorer.**
   When you are done, fill out the pledge in the back of this book.

Use the map to fill out the statement below.

My name is _____ .

I am _____ years old. I am completing this book on lands traditionally associated with the _____ tribes.

Go West!

Before the transcontinental railroad, it took four to six months to cross the United States. People had to either travel by ship around South America or travel by wagon across the country. The transcontinental railroad made it possible for people, as well as fruits and vegetables, clothing, and other goods, to move at much faster speeds.

1862

Pacific Railroad Act: Abraham Lincoln and Congress approve construction of the transcontinental railroad.

1869

East to West: Construction on the transcontinental railroad is completed connecting the east and west coasts.

1861

Tapping Out the Code: The transcontinental telegraph line uses Morse code to send messages between the east and west coasts.

Civil War Begins: Northern states and southern states fight over slavery. This slows progress on the railroad. The war ends in 1865.

1890

Visit a Park: People take vacations by train to see new national parks in the west, such as Yosemite.

1850

Indian Wars Begin: As the government takes land away from Native Americans and moves them onto reservations, wars break out and continue into the 1890s.

1848

Gold Rush! Many people travel by wagon to California when gold is discovered there.

1826

First American Railroad: A horse-drawn railroad opens in Massachusetts.

1841

Oregon Trail: Wagons begin taking people west in large numbers.

1847

Mormon Pioneers: To escape religious discrimination, Mormons travel by wagon to Utah's Great Salt Lake Valley and call it home.

Show What You Know

Many events happened before the transcontinental railroad was built.

1. Brigham Young and the first Mormon settlers arrived in _____.

2. _____ was discovered in California in 1848.

3. The _____ were conflicts between tribes and the government as the government took tribal lands and moved Native Americans to reservations.

4. Beginning in 1861, northern and southern states fought over slavery during the _____.

Check your answers on the back cover.

Meet the Builders

Many people worked to build the transcontinental railroad. Workers faced bad weather, dangerous work, long hours, and difficult tasks, such as lifting heavy iron rails, driving spikes, and tunneling through mountains. Despite these hazards, a job meant earning money and gave workers a chance for a better life.

Civil War Veterans and Freed Slaves
Union, Confederate, and black Americans (many of them freed slaves) worked to build the Union Pacific Railroad. When the war ended, the railroad provided jobs.Men could work as surveyors, graders, or track layers.

Courtesy of J. Willard Marriott Library University of Utah

European Immigrants
Many Irish, German, and other European immigrants worked for the Union Pacific Railroad as graders who leveled the earth so that tracks could be built across the Great Plains.

Mormon Settlers
As the railroad went through Utah, Mormons went to work for the railroad because they knew the land so well. They worked as surveyors who recorded the locations of rivers, mountains, and valleys.

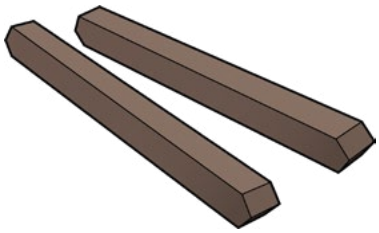
Chinese Immigrants
Due to their engineering and explosives experience, Chinese immigrants did the dangerous work of blasting through the Sierra Nevada Mountains, which had some of the hardest rock imaginable. Sometimes workers could only tunnel through eight inches of solid granite a day.

Thinking Question

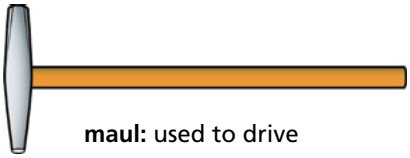
How far would you move for a job? What type of railroad work is interesting to you?

Could You Build a Railroad?

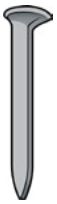
Draw a line from the tool to its purpose. Check your answers on the back cover.



ties: support the rails

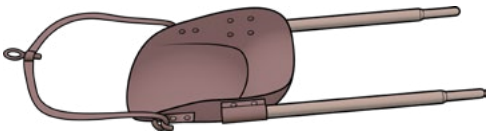


maul: used to drive spikes into the ties; a type of sledgehammer



spikes: hold the rails to the ties

rail: guides the train's wheels



horse-drawn buck scraper: used to level the ground; a horse pulled the bucket forward to move dirt and rock

1. First the land had to be surveyed, or investigated, to determine if tunnels or bridges would be necessary. What tool did the surveyors use?

2. The graders were the first group of workers out on the railroad. If they had to create a tunnel, what tool would they use to drill holes for blasting through rock?

3. Graders would create the railroad bed. What tool did they use to remove large amounts of rock, dirt, and debris? Hint: They also needed a horse to use this tool.

4. The track layers followed the graders. What did the track layers put down to support the rails?

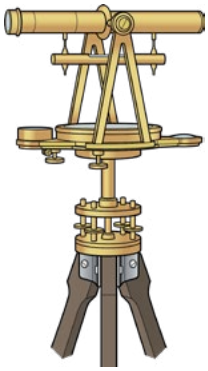
5. When the ties were in place, the railroad line looked like a giant ladder. What did track layers put on top of the ties?

6. What attached the rails to each other?

7. For the last step, what two objects did railroad workers use to attach the rails to the ties? Hint: One tool was used for pounding.

fishplates: connect the rails together

rock drill: used to create a hole that would be filled with explosive powder; once ignited, this powder would blow up rock to make way for construction; one or two men would drive this drill into rock with a sledgehammer



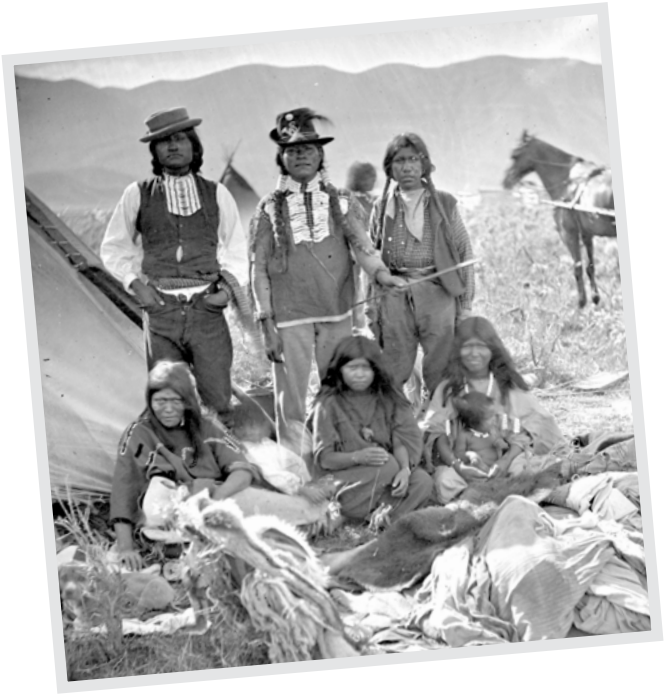
transit: used to survey the land

DID YOU KNOW?

The "clickety clack" sound you used to hear when a train came down the track was due to the joints that were held together by the fishplates.

Lost Homelands

Native Americans were the first people to live in America. There were hundreds of tribes throughout the United States. Each tribe had its own customs and language. When settlers started moving west, there were conflicts about who owned the land.



The transcontinental railroad was built through Native American lands. The government determined the railroad route, despite treaties that said the land belonged to the Native Americans.

Native Americans tried to resist these changes. They fought for their lands, destroyed tracks, and derailed trains. Eventually, the government sent troops to remove them from their traditional lands to reservations.

Thinking Question

The United States government broke its promise when it took back land that was promised to Native Americans. Has anyone ever broken a promise to you? How did it make you feel?

Key Events in the Indian Wars

1864
Sand Creek Massacre: Government forces attack a Cheyenne and Arapaho encampment along Sand Creek.

1867
Medicine Lodge Treaty (The Reservation Act): This peace agreement sets up reservations for the tribes. Though the treaty is adopted, Congress soon breaks the treaty to make reservations smaller.

1876
Battle of the Little Bighorn: In response to the ongoing loss of land, the Lakota, Northern Cheyenne, and Arapaho fight and defeat the U.S. Army's 7th Cavalry Regiment.

1890
Wounded Knee Massacre: This was a battle between federal troops and American Indians of the Lakota tribe.

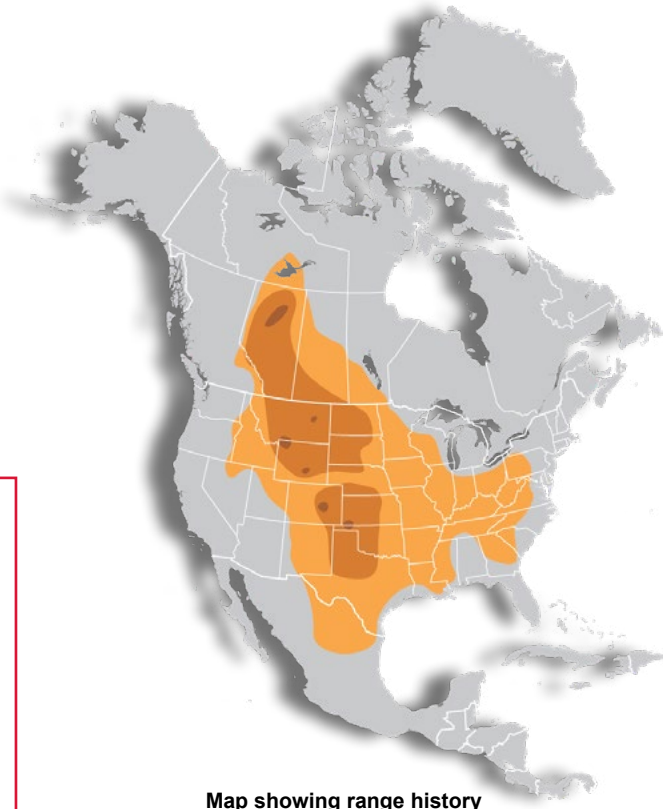
Where Have All the Bison Gone?

Native Americans relied on bison for food, clothing, and shelter. They even made tools out of bison bones and horns. No part of the animal was wasted.

When the transcontinental railroad was built, bison began to scatter. People shot the animals for sport. Herds began to get smaller and smaller. Before the railroad, there were 60 million bison in North America. By the late 1800s, the number was less than 1,000.

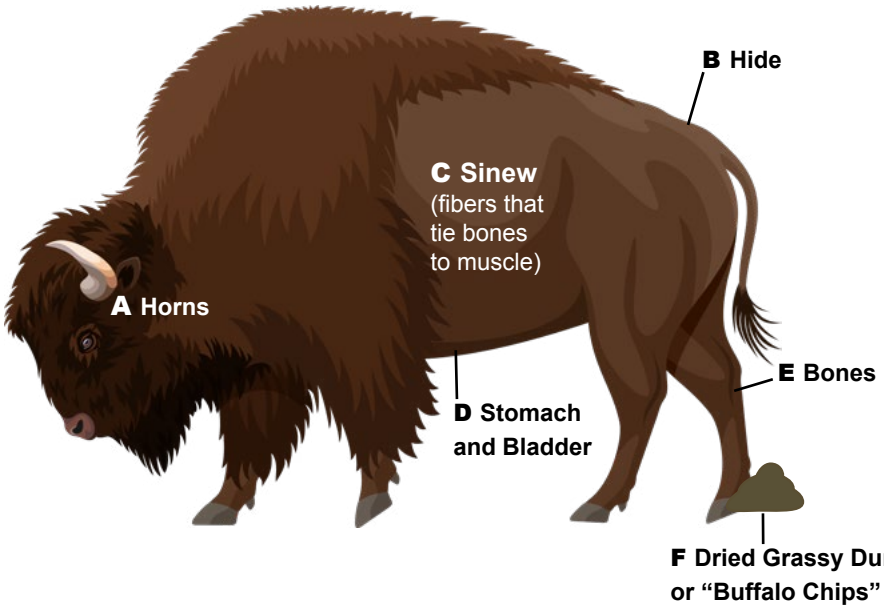
Thinking Question

Native Americans needed bison to survive. Many people faced starvation without the bison. Have you ever been hungry? How would you survive if you lost your food supply?



Map showing range history of bison in North America

- Original range Pre-1800: **60,000,000 Bison**
- Range as of 1870: **5,500,000 Bison**
- Range as of 1889: **541 Bison**



Match the bison parts to their uses by writing the correct letter in the blank.

_____ Spoons, scoops, and cups

_____ Bow string and thread

_____ Clothing, blankets, tipi covers

_____ Fuel to burn in fires

_____ Canteens, water holders

_____ Tools and weapons

Check your answers on the back cover.

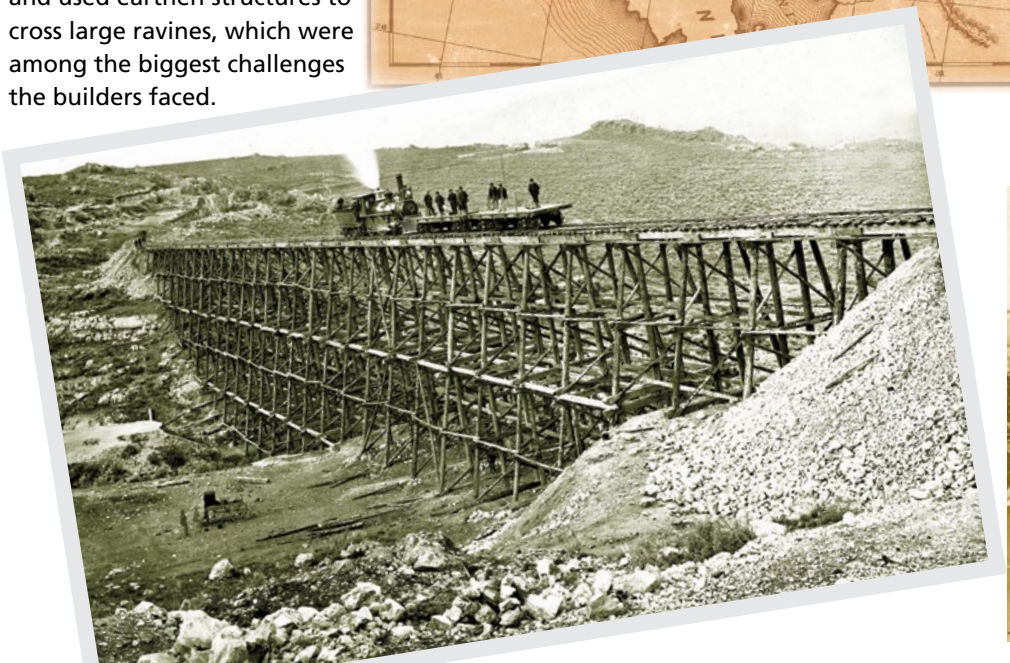
Let's Connect the U.S.

Trace the line from New York City to San Francisco. What major cities are on this route?

DID YOU KNOW?

To ride the railroad from New York City to San Francisco took about a week and covered nearly 3,400 miles.

Railroad workers built trestles and used earthen structures to cross large ravines, which were among the biggest challenges the builders faced.



The **Civil War** delayed construction.

Across Rivers and Through Mountains

The people building the railroad had many challenges. Can you identify some of these challenges on the map? Type an X on the ones you find.

The **Central Lowlands** and the **Great Plains** extend from the Missouri River over 500 miles to the eastern base of the Black Hills. During the summer months, this area is hot and very dry. In the winter, it can be very cold.

The Black Hills of Wyoming, now called the **Laramie Mountains**, are part of the Rocky Mountains. Can you imagine building a railroad over a mountain?

The high rolling plains of the **Wyoming Basin** challenged builders to find the flattest route.

Crossing the **Wasatch Mountains,** Union Pacific workers encountered difficult terrain. This required building tunnels to complete the transcontinental railroad in Utah.

Railroad builders decided to go around the **Great Salt Lake**, a body of water about eighty miles in length.

In the **Sierra Nevada Mountains**, builders found heavy snow, hard granite rock, and steep ravines.

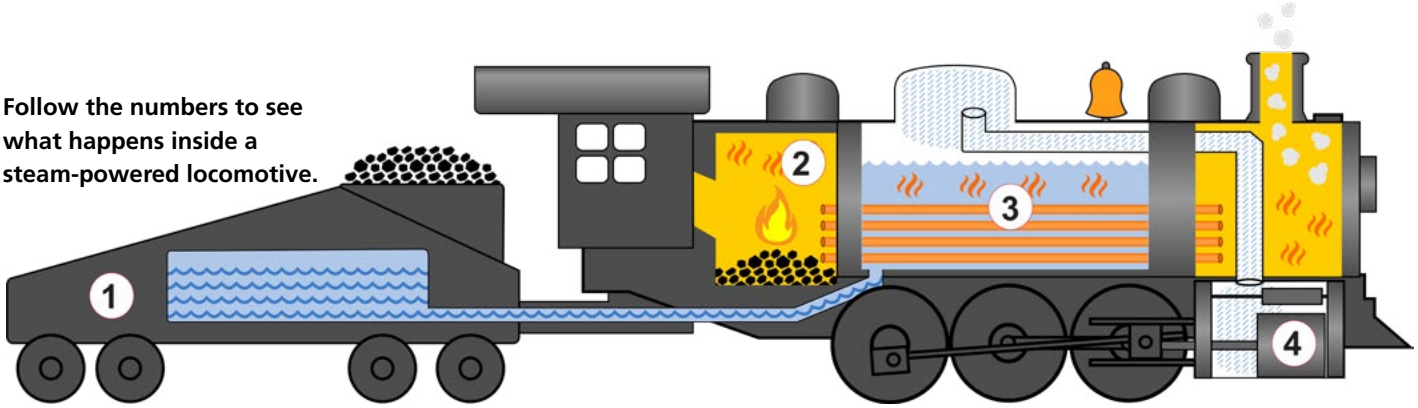
Promontory Summit is where the Union Pacific Railroad met the Central Pacific Railroad. This is where builders drove a final spike to connect the country by rail.

The railroad crossed American Indian homelands.

Choo Choo!

Steam locomotives are big machines that do a simple job. They make steam. The locomotive needs fuel (wood or coal), heat, and water to make steam. This steam provides all the power necessary to move an enormous train.

Follow the numbers to see what happens inside a steam-powered locomotive.



Courtesy Steamtown National Historic Site

1 Tender

The tender is attached to the engine and carries the water and fuel that powers the locomotive.

2 Firebox

One person, called the "fireman," shovels fuel into the locomotive's firebox, where a small fire burns the fuel and produces a lot of heat!

3 Boiler

Water is pumped into the locomotive's boiler. As the water warms, steam is produced.

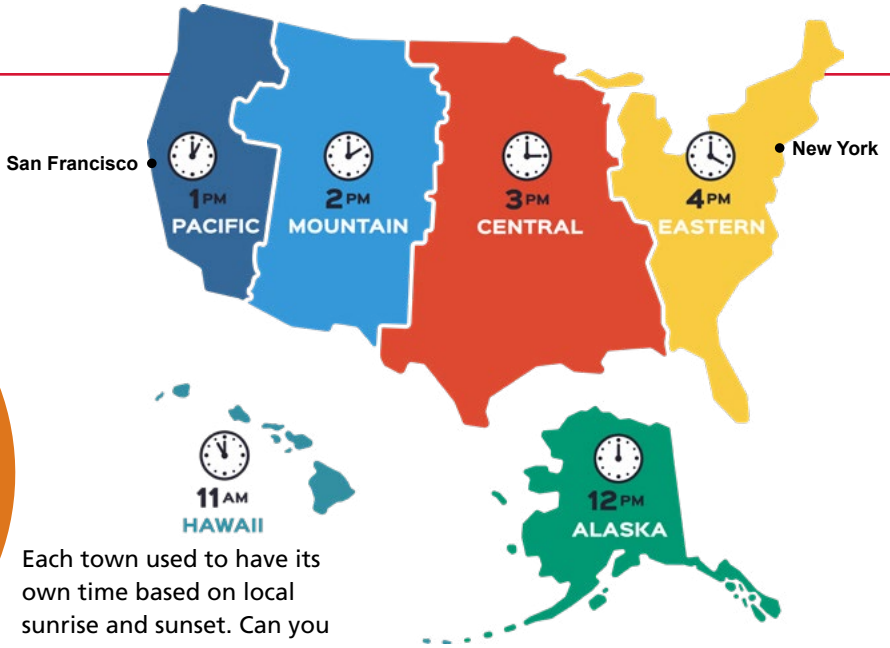
4 Pistons

The steam is then directed through pipes to the pistons that move the wheels and pull the train.

DID YOU KNOW?

As steam is released from the exhaust, it makes a "choo" sound. This is a different sound from the train's warning whistle.

Try releasing the sound "choo" from your mouth. See how high, low, long, and short you can make the sound.



Each town used to have its own time based on local sunrise and sunset. Can you imagine the confusion?

To solve this problem, railroads began using time zones in the 1870s. In 1883, time zones were adopted nationwide.

If it is 8 AM in San Francisco, what time is it in New York?

_____

Check your answer on the back cover.

DID YOU KNOW?

Before the telegraph line, which was completed in 1861, the only way to send a message across the United States was by Pony Express. Horseback riders would race across the United States. Still, it took them ten days to take a message from Missouri to California.

Got the Message?

Morse code is made of dots and dashes that are tapped out in short and long signals. These signals stand for individual letters and numbers. Once the transcontinental railroad was built, railroad workers used the telegraph to communicate train arrival and departure times. This allowed the railroads to safely schedule more trains to move people and goods quickly.

At Promontory Summit, May 10, 1869, a crowd gathered to honor the completion of the transcontinental railroad. After ceremoniously tapping a golden spike and then removing it, workers drove a final iron spike into the last tie.

Telegraph wires had been attached to both the spike and the maul. This allowed reporters in cities and towns across the nation to hear the exact moment our country was connected by rail. To see the location where the railroad was completed, visit Golden Spike National Historical Park.

A ●–	J ●–––	S ●●●
B –●●●	K –●–	T –
C –●–●	L ●–●●	U ●●–
D –●●	M ––	V ●●●–
E ●	N –●	W ●––
F ●●–●	O –––	X –●●–
G ––●	P ●––●	Y –●––
H ●●●●	Q ––●–	Z ––●●
I ●●	R ●–●	

Try Morse Code

Can you decipher this message in Morse code?

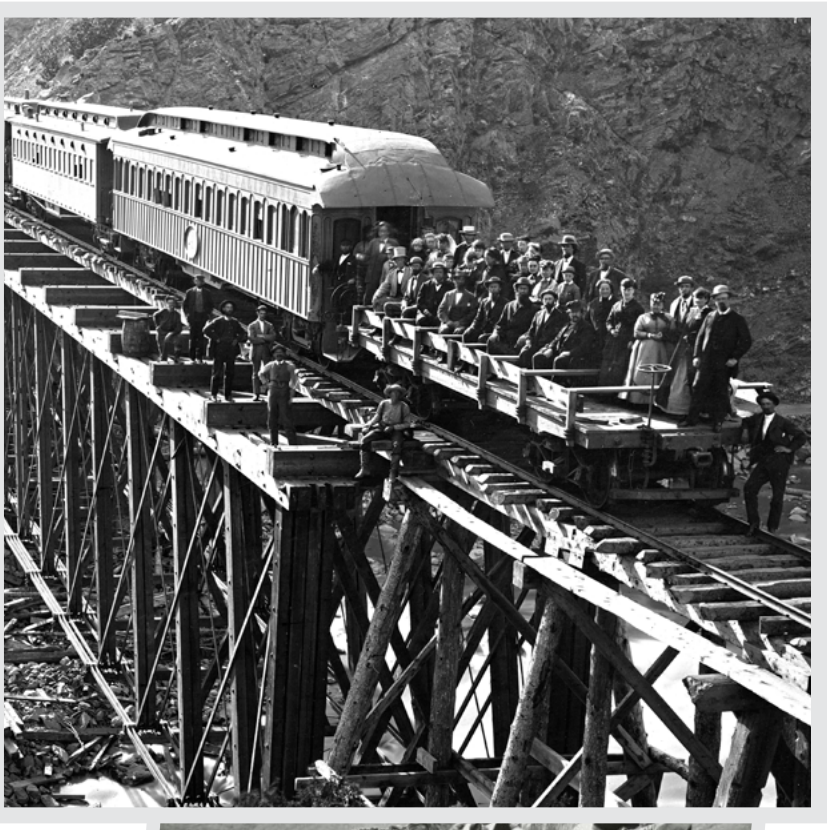
––● ––– ●–●● –●● ● –●

●●● ●––● ●● –●– ●

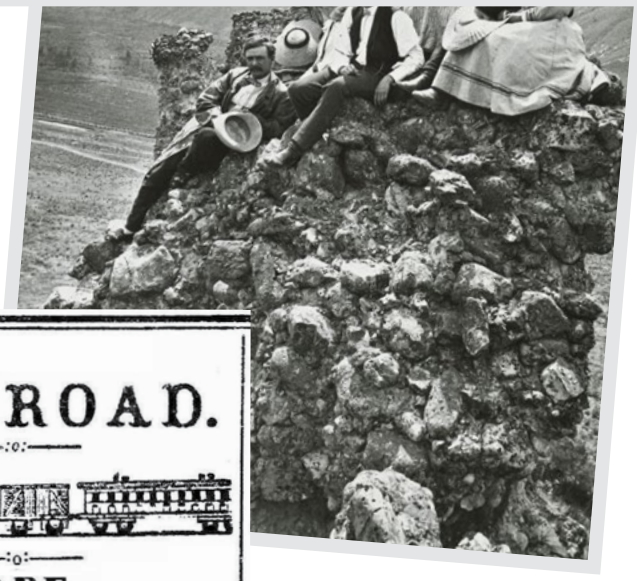
Check your answer on the back cover.

All Aboard!

Not long after the transcontinental railroad was completed, many people left their homes in Europe in search of a better life in the United States. They traveled by ship to join family or friends already living here. Once immigrants arrived on the east coast, they would continue their journey by train. Often new immigrants would go from cities to farms packed into immigrant cars.



Imagine what it would be like to move from your home and travel to live in another place. Draw one item you would need on your journey.



Plan a Trip

Use the railroad flyer to help you calculate the answers to these questions.

How much would it cost to travel from Chicago to Sacramento?

_____

How much would it cost to travel from St. Louis to Promontory?

_____

How much would it cost to travel from Chicago to Council Bluffs/Omaha and back to Chicago?

_____

Check your answers on the back cover.

RAILROAD.

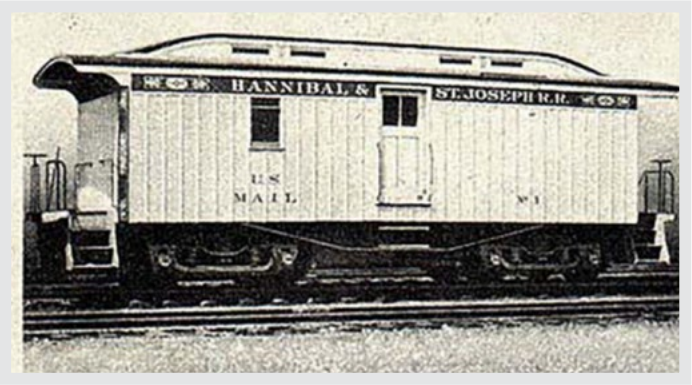
FARE.

Chicago to Council Bluffs/Omaha	$ 42.00
St. Louis to Council Bluffs/Omaha	$ 20.00
Council Bluffs/Omaha to Promontory	$ 81.50
Council Bluffs/Omaha to Sacramento	$ 131.50

May 17, 1869.

Eventually, people traveled by train for vacations. The railroad opened a new part of the United States to a variety of people. Travelers would spot a railroad flyer, dream about where they wanted to go, choose a destination, and then purchase a ticket. Often the destinations were places of interest that people heard about, such as tourist attractions or national parks.

Buy a House by Mail, Delivered by Rail



Before railroads, moving products long distances was difficult. Most people got their food, clothing, building supplies, and other goods within a few miles of their homes. With the ever expanding railroad network came the possibility of ordering nearly anything by mail. Railway post office cars picked up and delivered mail to every community along the railroad line. This made it possible to deliver goods to nearly anywhere in the country.

Sears & Roebuck and Montgomery Ward offered catalogues filled with everything from socks and shirts, to dresses and coats, to dishes and dining room tables. People could mail order a bed to complete a bedroom suite. They could even select a house from a catalogue, order it by mail, and it would arrive by train. Then they just followed the directions to put it together.

Can you match each item with the state it comes from?

California

Minnesota

Florida

Massachusetts

Wisconsin

Ohio

Items Moved by Rail: How many can you find?

C	O	U	C	H	C	M	A	T	T	R	E	S	S	O	C	H	A	I	N	S	B
M	L	S	H	I	R	T	U	C	H	O	M	F	L	O	W	E	R	S	A	T	L
A	I	R	W	H	I	T	E	F	L	O	U	R	S	S	C	T	A	B	L	E	A
G	V	I	O	L	I	N	C	H	A	F	E	Y	E	G	L	A	S	S	E	S	N
A	E	I	O	I	L	T	R	U	S	S	E	S	N	S	O	S	W	H	I	P	K
Z	S	P	I	C	E	S	R	T	F	H	Q	U	I	L	T	L	E	O	W	I	E
I	E	I	E	R	C	A	N	D	Y	I	S	W	H	S	H	E	E	T	S	A	T
N	I	E	T	B	E	D	F	L	O	N	U	V	A	S	E	R	T	T	A	N	S
E	B	S	B	L	E	D	V	I	O	G	L	A	S	S	S	S	S	L	I	O	B
N	R	M	M	A	I	L	H	O	E	L	T	R	U	M	P	E	T	T	R	I	O
C	I	H	O	R	S	E	S	H	O	E	S	Y	C	B	U	T	T	E	R	L	O
E	D	R	E	S	S	E	R	O	S	S	K	B	A	T	H	T	U	B	A	G	K
C	L	T	E	P	B	O	A	U	C	E	R	E	A	L	R	E	D	S	H	U	S
L	E	G	G	I	N	G	S	S	R	A	I	S	I	N	S	E	B	O	P	I	F
O	P	I	N	K	G	B	A	E	H	A	I	R	C	U	R	L	E	R	S	T	L
C	S	H	H	E	R	B	S	L	U	M	B	E	R	T	A	M	E	P	I	A	O
K	P	A	N	S	O	H	O	N	E	Y	H	O	N	S	E	Y	S	S	N	R	U
D	O	U	B	L	E	B	O	I	L	E	R	S	H	O	V	E	L	S	K	H	R

Word List:

bag, bathtub, bed, blankets, books, bridles, butter, candy, cereal, chains, clock, clothes, couch, double boilers, dresser, flowers, flour, glasses, hair curlers, herbs, hoe, honey, horses, house, leggings, lock, lumber, magazine, mail, mattress, nuts, oil, pans, piano, pies, quilt, raisins, roof sheets, shingles, shirt, shoes, shovels, sink, spices, spikes, sweets, table, tar, trumpet, vase violin, white flour

Railroad Safety

Need to Cross the Tracks?

Always expect a train. Look both ways before crossing.

Never cross the tracks when the signal lights are flashing and the safety gates are lowered.

Only cross the tracks at railroad crossings, located where streets intersect the tracks.

Never walk near railroad tracks, or in areas that are not designated railroad crossings.

Avoid distractions including loud music, texting, or talking on a phone near railroads.

Study this picture. Can you circle two safe behaviors and cross out two unsafe behaviors? Check your answers on the back cover.

Railroad Explorer Pledge

I _____(print your name) **promise to stop, look, and listen at railroad crossings. I also promise to teach others about the ways the transcontinental railroad changed the United States and the technology and cultures that contributed to its construction.**

I will also continue to explore my national parks by traveling throughout the country and researching the history of the different sites I visit.

Congratulations! You are now a Junior Ranger Railroad Explorer.

_____ _____

Signature Date

Find your next adventure at
nps.gov/kids

Answer Key

Go West!
1. Utah's Great Salt Lake Valley
2. Gold 3. Indian Wars 4. Civil War

Could You Build a Railroad
1. Transit 2. Rock drill 3. Horse-drawn buck scraper 4. Ties 5. Rails
6. Fishplates 7. Maul and spikes

Where Have All the Bison Gone?

A, C, B, F, D, E

Choo Choo!

11 AM

Got the Message?

Golden Spike

All Aboard!

$173.50, $101.50, $84

Buy a House by Mail, Delivered by Rail

Orange: Florida, Raisins: California, Flour: Minnesota, Cloth: Massachusetts, Cheese: Wisconsin, House: Ohio

Railroad Safety

SAFE: The family with the dog is waiting at the railroad crossing for the train to pass.

SAFE: The woman in the dress is also waiting at the railroad crossing for the train to pass.

UNSAFE: The boy with the headphones is walking along the railroad tracks and does not hear or see the train.

UNSAFE: The person on the bicycle is crossing the tracks when the signal lights are flashing and the safety gates are lowered.

Thank You

This Junior Ranger Explorer Book on the transcontinental railroad was produced by the National Park Service with support from the Union Pacific Railroad and the National Park Foundation.