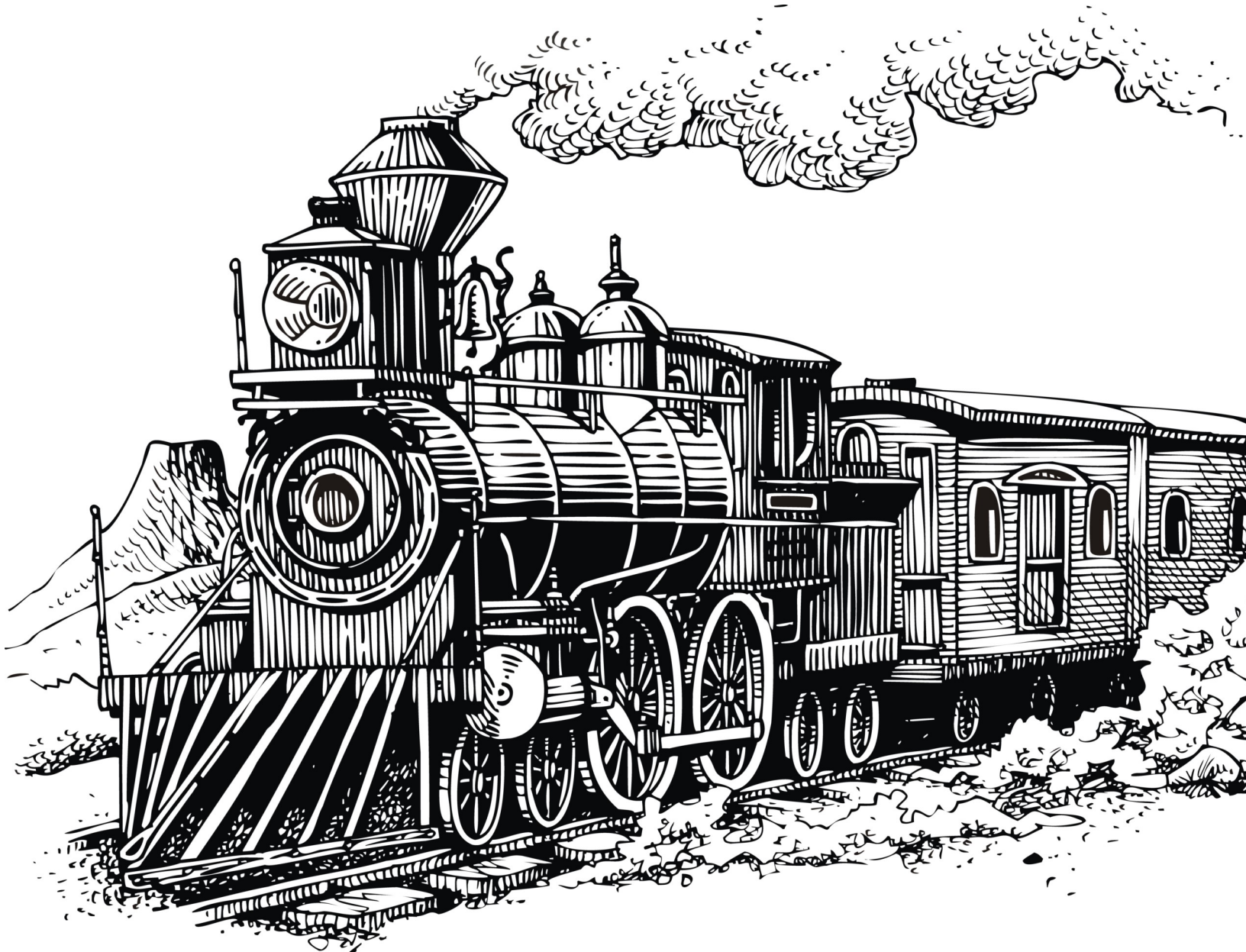


TEN MILE DAY

and the Building of the Transcontinental Railroad



Ten Mile Day and the Building of the Transcontinental Railroad

Book by Mary Ann Fraser

Unit study by Melissa Rosson

Social Studies

Pacific Railroad Act:

In the 1850's Congress had commissioned several surveys across the West to determine the best route for a Transcontinental Railroad. President Abraham Lincoln encouraged the passage of the Act. It wasn't until July 1, 1862, that Congress passed The Pacific Railroad Act. The Act was an effort that would give aid for the construction of the railroad and telegraph lines from the Missouri River to the Pacific Ocean. The railroad would be used to secure safe and speedy transportation of mail, troops, and passengers from the East to the West. It granted the right of way through public lands for the construction.

The Pacific Railroad Act created the Union Pacific Railroad, which would begin construction of the railroad in Omaha, Nebraska. The Act also gave the Central Pacific Railroad the rights to start the railroad construction eastward from Sacramento, CA. Both the Union Pacific and the Central Pacific companies and laborers faced many challenges, construction problems, severe weather, mountains and angry Native Americans.

Theodore Judah:

As a young boy growing up in the east, Theodore was fascinated with railroads and by the age of 18 had become a railroad surveyor. At 21, he married Anna Pierce and they traveled together across the northern-eastern states working on various railroads. He once told Anna, *"I'm going to California to be the pioneering railroad engineer for the Pacific Coast."* It earned him the nickname "Crazy Judah".

Theodore Judah went to Washington in 1859, to lobby for a transcontinental railroad. He then traveled to California and searched and planned a route through the Sierra Nevada Mountains and across the plains. In 1861, he returned back to Washington with a map of his route and a group of investors. With the "The Big Four" investors a new railroad company was borne, The Central Pacific Railroad, in which Theodore Judah was named Chief Engineer.

By 1863, tensions had mounted between him and the “Big Four” businessmen. Because Judah didn’t have the funds needed he was forced off as a board member.

While traveling by boat to New York to find financial backers to buy out his Central Pacific co-founders he became ill. In a Panama port on November 2nd, 1863, he died at the age of 37. He was never to see his dream of a transcontinental railroad completed.

The Big Four:

Collis Huntington -

He was born on October 22, 1821, in Raquette Lake, NY. He worked as a peddler before becoming a successful merchant. In 1849, during the gold rush, he moved to Sacramento, CA and formed a company with Mark Hopkins. It specialized in offering supplies to the Gold Rush miners. He later became interested in linking the east and west together with a railroad.

In 1861, he joined Leland Stanford, Charles Crocker and Mark Hopkins, a group who became known as the “Big Four”.

He became the Vice-President of the Central Pacific. Mr. Huntington often traveled to Washington D.C. with Theodore Judah to help encourage the forward passage of *The Pacific Railroad Act*. He eventually decided to remain in Washington DC, and stayed until the Railroad Act was passed in 1864. During his stay in Washington DC, he worked to secure financing and legislation from the government.

In 1865, the Big Four formed another railroad, The Southern Pacific Railroad. In 1869 he became the owner of the Chesapeake and Ohio Railway.

Mark Hopkins -

He was born on Sept. 3, 1814, in Virginia. His family later settled in North Carolina. When the news of the Gold Rush reached North Carolina, Mark and his brothers Moses and Mark left for California.

By the spring of 1852 he gave up panning for gold and started a grocery business in Sacramento and Placerville. In 1855, he joined Collis P. Huntington to form Huntington & Hopkins, a mercantile company that became very prosperous. The

two men were approached in 1861 by Theodore Judah, an engineer, who envisaged a transcontinental railroad. The “Big Four” Leland, Stanford, Hopkins and Huntington organized the Central Pacific Railroad in June of 1861. He would become the treasurer of the Central Pacific throughout the construction of the railroad until his death. After the completion of the railroad he remained in Sacramento but had begun to build a mansion in San Francisco. He died in 1878 before the completion of his mansion. The mansion was destroyed in the 1906 San Francisco earthquake and fire. The Mark Hopkins Hotel now sits on the site of the previous mansion.

Leland Stanford -

He was born on March 9, 1824, in the state of New York. He practiced law in Wisconsin before moving to Sacramento, CA. He had a successful retail business supplying mining equipment. He became involved in politics and served as Governor of California between the years of 1861-1863. He invested large sums of money in the planning and development of the Central Pacific Railroad and became its president for five years. He played a major role to further the railroads of California and the Southwest. He was given the honor of driving the “golden spike” on May 10th, 1869 in Promontory Summit that connected the Transcontinental Railroad.

From 1885-1893 he served in the U.S. Senate. He and his wife, Jane, founded Stanford University in 1885 as a memorial to his son who had died at the age of sixteen.

Charles Crocker -

Charles Crocker was born in 1822, in the state of New York. He came to California during the Gold Rush, and he quickly turned from mining to becoming a store owner. His store prospered and he became a wealthy man.

Charles Crocker became involved in politics and served in the state legislature. Mr. Crocker assisted in organizing the Republican Party and was a supporter of Abraham Lincoln’s presidential campaign. He was president of the Contract and Finance Company, which oversaw the construction of the railroad. He solved the problem of Central Pacific’s lack of laborers when he began to hire Chinese immigrants.

Railroad Workers:

Chinese Workers -

Two years after the beginning of the construction of the railroad the line had only completed 50 miles of running track. They needed 5,000 constant and permanent laborers. The Central Pacific at the time only had a work force of about 800.

Charles Crocker was the first to suggest using Chinese immigrants. During this time there was a recession in the mining business that had left many of the Chinese Americans without work. When construction superintendent J. H. Strobridge was told to hire the Chinese immigrants, he refused and said "I will not boss the Chinese." He soon changed his mind and they were hired in the spring of 1865.

It was believed that they would not be able to handle the hard physical labor so they were given the duties of loading and driving the carts. After a while, Strobridge decided to use the Chinese immigrants on a softer excavation and was amazed at their work abilities. He quickly increased his hiring of them and by the completion of the railroad as many as 10,000 immigrants had been hired.

The Chinese workers were divided into groups of 12- 20 men with one cook. Each group also had a man assigned as "head man." The head man was responsible for buying all the provisions needed monthly for his group. Each worker in his group paid him from their monthly wage. They Chinese workers were paid around \$25 dollars in the beginning and eventually it was increased to \$35 per month. They worked six days a week from sunrise to sunset.

Their diet consisted of dried fish, dried fruit and vegetables, salted cabbage, crackers, sweet rice, dried bamboo, chicken and tea. The Chinese immigrants were known to drink lukewarm tea. Because the tea was made with boiled water, it helped to keep them healthy. The other workers were known to drink water straight from rivers or streams, which sometimes would be contaminated and caused the workers to have stomach problems.

The company provided the workers with low, cloth tents. Many of them preferred to live in dugouts or burrow into the earth. They faced many challenges of severe weather, harsh winters and dangerous working conditions. Along the Cape Horn passage, they faced a nearly perpendicular rocky promontory. They used

techniques from their homeland of China by lowering workers into baskets up and down the rocky mountain. These workers would then chip and drill holes for the explosives.

Many perished from their labors and recorded history does not give enough credit to the Chinese Americans and their contribution to the building of the Transcontinental Railroad.

Union Pacific Workers -

By the end of the Civil war many of the soldiers went to work on the railroad. There were free men and at times as many as 8,000 immigrants from Germany and Ireland that worked for the Union Pacific.

The men ate well with their diet consisting of beef, pork, potatoes, onions, butter and coffee. The railroad hired men to hunt buffalo, antelope, elk, deer and fowl. Unlike the Chinese immigrants, the Union Pacific workers were known to be breaded, rowdy men who did not bathe regularly. On Sunday, their day off was often spent gambling and sometimes fighting.

Some workers were housed in a boarding train. The train consisted of several boxcars. Inside were hammocks and places to store their belongings. Surveyors and graders lived in tents and camped near the job site. All supplies were brought to them by wagon.

The Union Pacific workers contributed 1,086 miles of completed track.

American Indian Conflicts:

There were many accounts of conflicts with American Indians during the building of the Transcontinental Railroad, mostly towards the Union Pacific workers. The American Indians were angry of the invasion of their lands by the white settlers.

They were angry when the white people would slaughter the buffaloes, their main source of meat. To them the white man had little respect for the land and nature. With their hunting grounds being disturbed, this caused great hatred and resentment to rise up in some tribes.

As time went on, the government began to enforce more and more tribes to move to reservations. At times the railroad would hire men round the clock to be watchful for any attacks of nearby American Indians.

One such incident is told in Death of the Iron Horse by Paul Goble. A summer day in August 1867, a small band of Cheyenne left their village secretly to find the iron horse:

They had heard the stories being circulated about the iron horse's smoke and its voice of Thunder, and the road the white men were building for it. The braves left the camp determined to find the iron horse for themselves. They rode all night and most of the next day before coming to a ridge overlooking a flat valley. In the far distance, black thick smoke was rising into the sky. They watched until the train disappeared from sight and then the young men took their tomahawks and knives digging and chopping at the ties, hacking out the spikes until the rails were no longer together. They waited until dawn when the small light of the iron horse's eye was approaching, coming closer and closer until it was so close the Indian braves galloped up to the track shooting their arrows. Suddenly the locomotive jumped and boxcars slammed together with a dreadful sound. Several of the Union Pacific workers were killed in the crash or killed by the Indians. The braves were curious to see what the white men carried so they broke open the box cars and pulled pans, knives, china plates, and cups from barrels and boxes. Each brave found something interesting and useful to them. They scattered many of the soldier uniforms, blankets, and flags all around. One brave found a shiny bugle. In the caboose they found a tin locked box. When opened, bags of silver coins and bundles of green paper were scattered and thrown into the sky as the wind blew it away. Then the braves found bolts of colored cloth of every color. They had fun taking the cloth and galloping around on their horses with the colored cloths streaming behind them. With the appearance of another iron horse approaching the Indian braves quickly gathered up their precious items and galloped away.

Ten Mile Day: April 28, 1869:

Charles Crocker, construction boss for the Central Pacific Railroad, heard that the Union Pacific laborers had laid 7 miles of tracks in one day. He boasted to Dr. Thomas Durant, the Vice president of the Union Pacific, that His men could lay 10 miles in a day. This exchange of boasting initiated Dr. Durant to wager \$10,000 that it couldn't be done by the laborers of the Central Pacific.

Mr. Crocker was up for the challenge and asked for volunteers from his crew. If the selected laborers were able to complete the task and lay the 10 miles in a day, they would be paid 4 times the normal wage.

At 7 a.m. the morning of April 28, 1869, Crocker and his crew of 1,400 men began laying down the tracks. It resembled an assembly line of work and by 9 a.m. 2 miles had already been completed. At the lunch break 6 miles had been completed. The laborers worked until 7 p.m. that evening. The Union Pacific surveyors were then called upon to measure the distance completed. The total was 10 miles and fifty-six feet. The Central Pacific had won the challenge and defeated the Union Pacific's record. A total of 3,520 rails, 28,160 spikes, and 14,080 nuts and bolts were used that day to complete the job.

The Joining of the Rails:

On May 10, 1869, in Promontory Summit, Utah, the joining of the rails was completed. It had taken many years of planning and years of laying the tracks to see it finished. The ceremony started at 11:00 a.m. with several hundred people gathered around to watch as the last rails were placed and the four spikes were driven. A crew of eight Chinese men had been selected to place the last section of rails, a symbol to honor the dedication and hard work of these laborers. People from coast to coast "heard" the last spike driven as the telegraph operator tapped "done" to the world. Both the engines, Jupiter and No.119, moved close together until they nearly touched each other on the tracks. Leland Stanford and Thomas Durant shook hands as Mr. Stanford declared, "There is henceforth but one Pacific Railroad of the United States."

Several unusual occurrences happened the days leading up to the ceremony. Mr. Stanford had a special train prepared that would take him to the ceremony originally scheduled for May 8, 1869. In route to Promontory Summit, his train the "Antelope" was following a passenger train that was taking sightseers to the joining of the rails. As the regular train passed through a large mountain still being cleared, workmen did not notice the small green flag flying from the passenger train. The flag indicated another train was following close behind it. Immediately after the regular train passed, the workmen rolled a huge log down the side of the mountain which came to rest on the tracks. Just then Mr. Stanford's special train came around the corner and ran into the huge log. His train engine the "Antelope" was so damaged that he had to wire the next station to hold back the regular

passenger train. Once the tracks were clear he continued on to the next station and had his special train connected to the engine “Jupiter” who led him on to Promontory Summit.

Mr. Durant also had chosen a different locomotive than the No. 119 to take him to the Golden Spike Ceremony. While traveling to the ceremony on his special train, Mr. Durant was stopped in a small town near the Utah border. Four hundred laid off workers met his train as it came into Piedmont, Wyoming demanding their pay. The workers had not been paid for 3 months so they chained his coach to the siding and refused to let the train continue until their wages were given to them. He was delayed for two days. It caused him great embarrassment and his original locomotive whose number is unknown lost her place in history.

While he was being delayed, the nearby Weber River had swollen and risen very high. Once Durant’s Special reached the river, the locomotive’s engineer saw the raging water and refused to cross after observing some missing bridge supports. It left the bridge unsafe to hold the heavy engine. The engineer gave the lighter passenger coaches a push that coasted them across the bridge one at a time. This left Mr. Durant without an engine. They hastily wired a message requesting a rescue. When the call came through, No. 119 was the closest engine available and became a special part in the history of the Golden Spike Ceremony.

Jupiter and No. 119:

Jupiter was built by the Schenectady Locomotive Works of New York in 1868, for the Central Pacific Railroad. Like all engines built for the Central Pacific, it was dismantled and put on a ship that sailed down the east coast of the United States. The ship carrying the engine continued sailing around the tip of South America’s Cape Horn and then up the west coast of South America until it reached San Francisco, CA. The engine parts were then loaded onto a barge and taken up river to Sacramento, CA. Once at the Central Pacific headquarters the engine was re-assembled and placed into service on March 20, 1869. Less than two months later, it would be used to carry Leland Stanford’s special train to the Golden Spike Ceremony in Promontory Summit, Utah Territory.

After the Golden Spike Ceremony, the *Jupiter* was used as a passenger locomotive. It was later repainted, given a new name and was used by various rail companies until it was scrapped in early 1900’s.

Union Pacific's *No. 119* locomotive engine was built by Rogers Locomotive and Machine Works of Paterson, New Jersey in November of 1868. It was used to pull Union Pacific Vice President Thomas Durant to the Golden Spike Ceremony. It was not the original engine taking Thomas Durant to the ceremony. Mr. Durant was delayed during the trip and *No. 119* was placed as the engine used to carry Mr. Durant's special coaches onto Promontory Summit. After the ceremony it was used as a freight locomotive and like the *Jupiter* it also was re-named. It continued in service until it was scrapped in the early 1900's.

Four Special Spikes:

There were four special spikes available to be used at The Golden Spike Ceremony on May 10, 1868, in Promontory Summit, Utah Territory.

The Golden Spike

After hearing that no one had a commemorative item for the completion of the transcontinental railroad, David Hewes, a friend of Central Pacific President Leland Stanford, used \$400 of his own gold to cast a golden spike. He wanted to cast a solid gold or silver section of rail but was unable to find anyone who would finance such a large token. Instead he settled for a golden spike. The golden spike weighed 14.03 ounces, measured 5 5/8 inches long and was made of 17.6 carat gold. Only about \$350 worth of gold was needed for the actual spike. The remaining gold was left attached in a large sprue. This sprue was removed before the ceremony, which Hewes later used to make rings and watch fobs. After casting, the spike was engraved on the top and four sides. One side was engraved "*The Pacific Railroad ground broken January 8th 1863 and completed May 8th 1869.*" Two sides bore the names of railroad directors and officers. The fourth side was engraved "*May God continue the unity of our country as the railroad unites the two great Oceans of the world. Presented David Hewes San Francisco.*" The top of the spike was engraved with "*The Last Spike.*"

After the ceremony the spike was returned back to David Hewes and later given to Leland Stanford Junior University in Palo Alto, CA.

The Nevada Spike

The Nevada spike was ordered on May 5, 1869 by Railroad Commissioner and candidate for Governor of the new state of Nevada, Mr. F. A. Tritle. Nevada's spike was forged from silver. It was 6 inches long and weighed 10 ½ ounces. The spike

was rushed twenty miles to Reno, just in time to give to Stanford aboard his train heading to the ceremony.

After the ceremony it was returned and engraved on one side *"To Leland Stanford President of the Central Pacific Railroad. To the iron of the East and the gold of the West Nevada adds her link of silver to span the continent and wed the oceans."* It was also given to Stanford and later placed along with the Golden Spike in Stanford University museum.

Arizona's Silver and Gold Spike

Governor Anson P. K. Safford presented his spike from the Arizona Territory at the ceremony. The 6-inch spike was made of silver and the head made from gold. It is not known when or who made the spike. The Museum of the City of New York now has ownership of the spike.

A Second Golden Spike

Frederick Marriot, proprietor of the San Francisco News Letter newspaper company had a golden spike ordered for the ceremony also. He had his golden spike inscribed with *"With this spike the San Francisco News Letter offers its homage to the great work which has joined the Atlantic and Pacific Oceans. This month-May, 1869."* It was 5 inches long and weighed 9 ½ ounces of gold. It was worth about \$200. It is not known what happened to the spike afterwards but some believe that the spike was given back to the newspaper. The newspaper company was destroyed in the 1906 earthquake and flood.

Impact of the Railroads:

Time Zones

One of the most important effects of the Transcontinental Railroad was the creation of the time zones. Until the railroad was completed, each town would set their clocks by the sun. This made the clocks in the next town to the west to be slower since the sun would get there later each day. The next town to the east would be ahead because the sun had risen sooner and the day had begun ahead of the town westward. With the completion of the railroad the trains couldn't maintain a schedule with everyone setting their clocks and watches differently. A principal of a girl's school in Saratoga, New York, Professor C. F. Dowd, suggested that a method be established so the world would be in uniform time. His

suggestion would be to divide the earth into time zones of 15 degrees each. This made for 24 time zones. It became operational on November 18, 1883.

Migration

People began to settle on lands previously that had been inaccessible. New towns and businesses arose all along the railroad.

Manufacturing

Manufacturers could distribute their goods to more markets. The east could send supplies to the west and the western manufacturers could transport their goods eastward. Supplies like stove pipes and other equipment could be purchased at lower prices because the cost of shipping was reduced.

Farming

Farmers and merchants could move their produce, grain and other foods to locations across the country in a quick manner without spoilage.

American Indians

The impact of the railroad to the American Indians would not be as beneficial to them as it was for the rest of the country. Their main source of food, the buffalo, was disappearing leaving them with little food. With the many settlers moving westward their lands were taken away, and the American Indians would eventually be pushed onto reservations to live.

Travel

Traveling before the Transcontinental Railroad was long and costly. It would take months to cross the United States by stagecoach or wagon. Some chose to board a ship that carried them down the eastern side of the U.S. all the way to the tip of South America and upward along the western coasts until reaching ports in California. Once the railroad was completed it reduced travel time to about a week to travel coast to coast.

Mail Service

Once the railroad was completed mail would be delivered to its destination within days instead of months. The cost of mailing a letter went from several dollars per ounce to only a few pennies.

Geography – Utah:

Utah became the 45th state in Union on January 4, 1896. The largest city in the state, Salt Lake City, is also its Capital. Utah has 84,904 square miles which makes it the 13th largest state in the United States. It is named after the Ute tribe, and means the people of the mountains. Utah's nickname is the "Beehive State" Its major industries is mining of coal, copper, ore, iron, gold and silver; steel making, farming, natural gas, oil and tourism. Utah is the state that hosts the joining of the Transcontinental Railroad in Promontory Summit on May 10th, 1869.

Quick Facts about Utah:

1. State Bird: The California Sea gull
 2. State Animal: Rocky Mountain Elk
 3. State Insect: Honey Bee
 4. State Fossil: Allosaurus (a meat-eating dinosaur)
 5. State Flower: Sego lily
 6. State Tree: Blue Spruce
-

Language Arts

Vocabulary:

ballast: gravel or rocks used to provide drainage and to keep the ties in place

couple: hooking two train cars together

fishplate: a flat piece of metal used between the two rails before placing end to end

flatcar: a train car that has no sides

grade: ground that has been made ready for the railroad by leveling and smoothing

iron car: a flat car used to carry the iron rails, supplies and tools

Iron Horse: name the Native Americans used for the locomotives

maul: a hammer for driving the spikes

rail: an iron bar that forms the train track

roadbed: the ground that the rails, ties and ballast lie upon

spike: a large nail used to secure the rails to the ties

surveyor: a person who measures the land, they helped determine where to place the railroad

tamper: a person who packs down the ballast

thrusting bolt: a pin used to secure a fishplate to a rail

tie: wooden supports that the rails are fastened to

Bible

Having a Servant's Heart:

Colossians 3:22-23 says:

*Servants, obey in all things your masters according to the flesh; not with eye service, as men pleasers; but in singleness of heart, fearing God.
And whatsoever ye do, do it heartily, as to the Lord, and not unto men;*

Ecclesiastes 9:10 says:

Whatsoever thy hand findeth to do, do it with thy might . . .

The Bible teaches us that we should have a servant's heart that is willing to do whatever is asked of us. When asked to do chores we should do them, whether it's taking out the trash, cleaning your room, or even cleaning the bathroom, something that isn't always fun to do. In all these things we should do it with a cheerful spirit and obey those that ask us to do them. When something is asked of you, make sure you are doing it well and not sloppy and that it is completely finished. Those that are older than we are our elders or leaders, and we should always treat them with respect. Imagine if Jesus was to show up on your door step and ring your door bell, and say (name) I'd like you to come to my house today and do my dishes. You would do your very best to make sure every speck of grim was off those dishes, wouldn't you? Of course, because it was for Jesus! Well, Jesus doesn't want us just to do that for Him, but he wants us to do the same for our parents, grandparents, pastors or our employers. These are our elders and we should obey and do what is asked of us. Whoever we work for, we should do it as if we "Were" doing it for Jesus.

Math

Word Problems:

There were:

1. 3 strokes to a spike

2. 10 spikes to a rail
3. 400 rails to a mile
4. 1776 miles completed.

If there were 10 spikes needed for each rail, and it took each worker three strokes to hammer the spikes in, how many strokes did it take to nail a complete rail?

In each mile there were 400 rails laid down. Each rail weighed 500 pounds. How many pounds of rails were in each mile?

There were only 2,000 Chinese workers employed by the Central Pacific in 1865. By the end of 1868 there were 12,000 Chinese workers. How many more Chinese worked for the railroad in 1868 than in 1865?

The Union Pacific workers completed 1,086 miles of track. The Central Pacific only completed 690 miles of track. How many more tracks did the Union Pacific lay than the Central Pacific?

Comparing Prices:

Have your student compare prices of today to what it would have cost in the 1860's. Use your local grocery ad or take them to the grocery store and have them find today's prices. Find the difference in price.

Pork, 11 cents/lb.

Bacon, 12 cents/lb.

Fresh beef, 4-5 cents/lb.

Flour, 4 cents (superfine) 5 cents (extra fine)/lb.

Hard bread, 10 cents/lb.

Beans, 10 cents/quart

Rice, 8-10 cents/lb.

Coffee, 12cents/lb.

Eggs, 18 cents/dozen

Butter, 16 cents/lb.

Green apples, 2.00/barrel

Potatoes, 23 cents/bushel

Lard, 12 cents/lb.

Cheese, 12-14 cents/lb.

Codfish, 6 cents/lb.
Table salt, 20 cents/sack
Brown sugar, 9 cents/lb.
White sugar, 14 cents/lb.
Coffee, 15 cents/lb.
Tea, 75 cents/lb.
Molasses, 40 cents/gallon
Vinegar (cider), 25 cents/gallon
Dried apples, 9 cents/lb.
Dried peaches, 20 cents/lb.
Cranberries, 12 cents/quart
Raisins, 12 cents/lb.
Honey, 25 cents/lb.
Lemons, 2-3 cents/each
Sweet potatoes, 2.00/bushel
Squashes, 2-3 cents/each

Ticket Prices:

The price of traveling was greatly reduced after the completion of the Transcontinental Railroad. Before the railroad was finished, traveling from coast to coast often cost well over \$1000.00 and took up to six months. A week after the ceremony at Promontory Summit the railroad opened the rails for personal travel. Using the figures below have student calculate the traveling cost of a family of 4, 6 or 8 to ride the rails.

The cost for a ticket from:

Sacramento to Promontory - \$50.00

Promontory to Omaha - \$81.00

Omaha to New York - \$123.50

Science

Inventions - The Telegraph and Morse Code:

The telegraph machine was first developed in the late 1700's, but it wasn't until Samuel Morse and Albert Vail patented it in 1834 that a reliable machine came

into usage. The machines were connected through a series of wires that enabled them to exchange messages. The operator would key messages using the Morse alphabet and the receiving machine on the other end would register the message in the form of clicks made by a bar, which struck another bar. By listening to the clicks the operator could hear the message and transcribe it before passing it on to the recipient.

During the construction of the railroad, telegraph lines were also being placed next to the tracks. It helped to link the east to the west and enabled news to travel at an increased speed. Both the railroad and telegraph lines were completed in time for the ceremony.

Samuel Morse invented the Morse code in 1836. He tested it by sending a message on May 24th, 1844, between the cities of Baltimore and Washington DC: "What has God wrought?" The Morse code was originally transmitted by telegraph using an alphabetic code of long and short sounds. Each letter has a corresponding sound or series of sounds to it. The long sounds are the dashes and the short sounds are dots. To make a dot on a telegraph, the key or switch is depressed and allowed to spring back. Holding the key or switch longer before allowing it to spring makes the dash.

At the completion ceremony a telegraph wire was attached to the head of an iron maul that was used to drive the last spike into the tie. The telegrapher tapped out three dots signaling "done" to the rest of the world.

The Morse code is still used today by Military, Maritime and Amateur Radio Services.

Using the chart found in the lapbook printable file, encourage your student to write a telegraph message telling about the "Joining of the Rails Ceremony". Where was the ceremony held? Who was there? When was it?

Additional Books

The Great Race: The Building of the Transcontinental Railroad by Cynthia Mercati

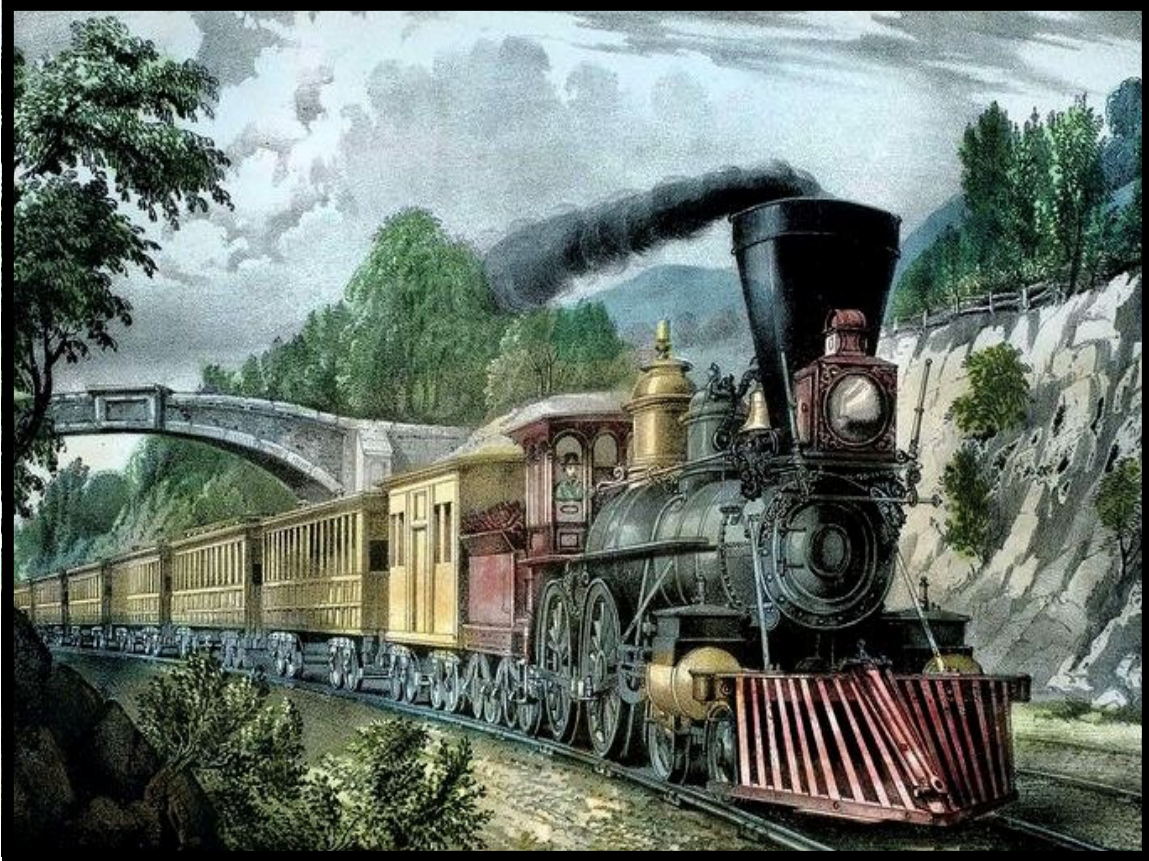
Death of the Iron Horse by Paul Goble

Coolies by Yin & Chris Soentpiet

Brothers by Yin & Yin Soentpiet (sequel to *Coolies*)

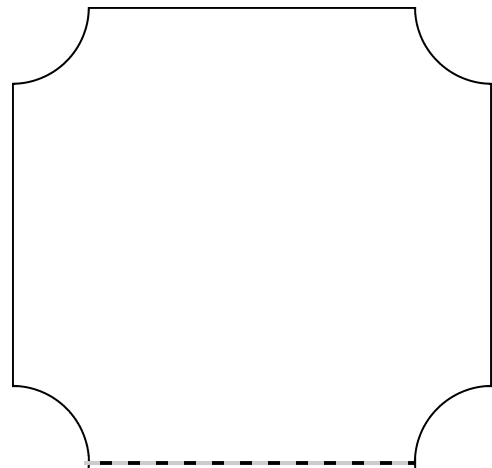
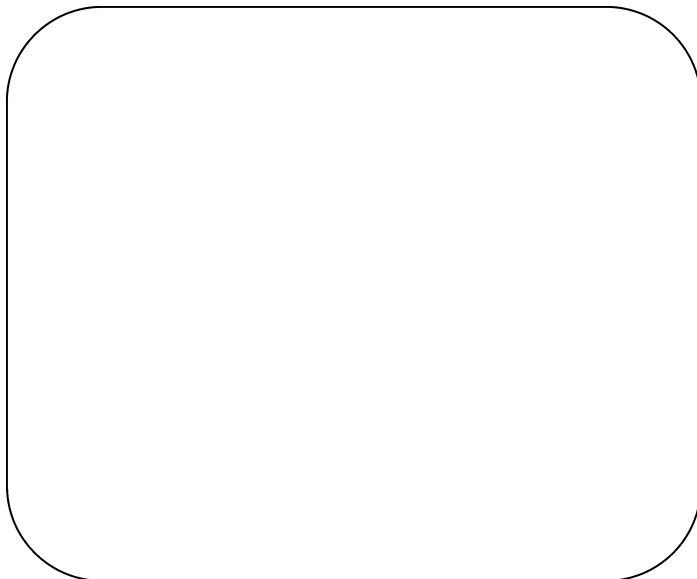
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Ten Mile Day

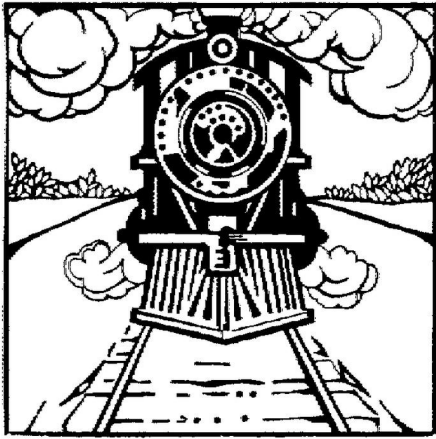
And The Building of The
Transcontinental
Railroad



Theodore Judah



Cut out on outside lines. Fold
in half along dotted line.



THE BIG FOUR

Huntington

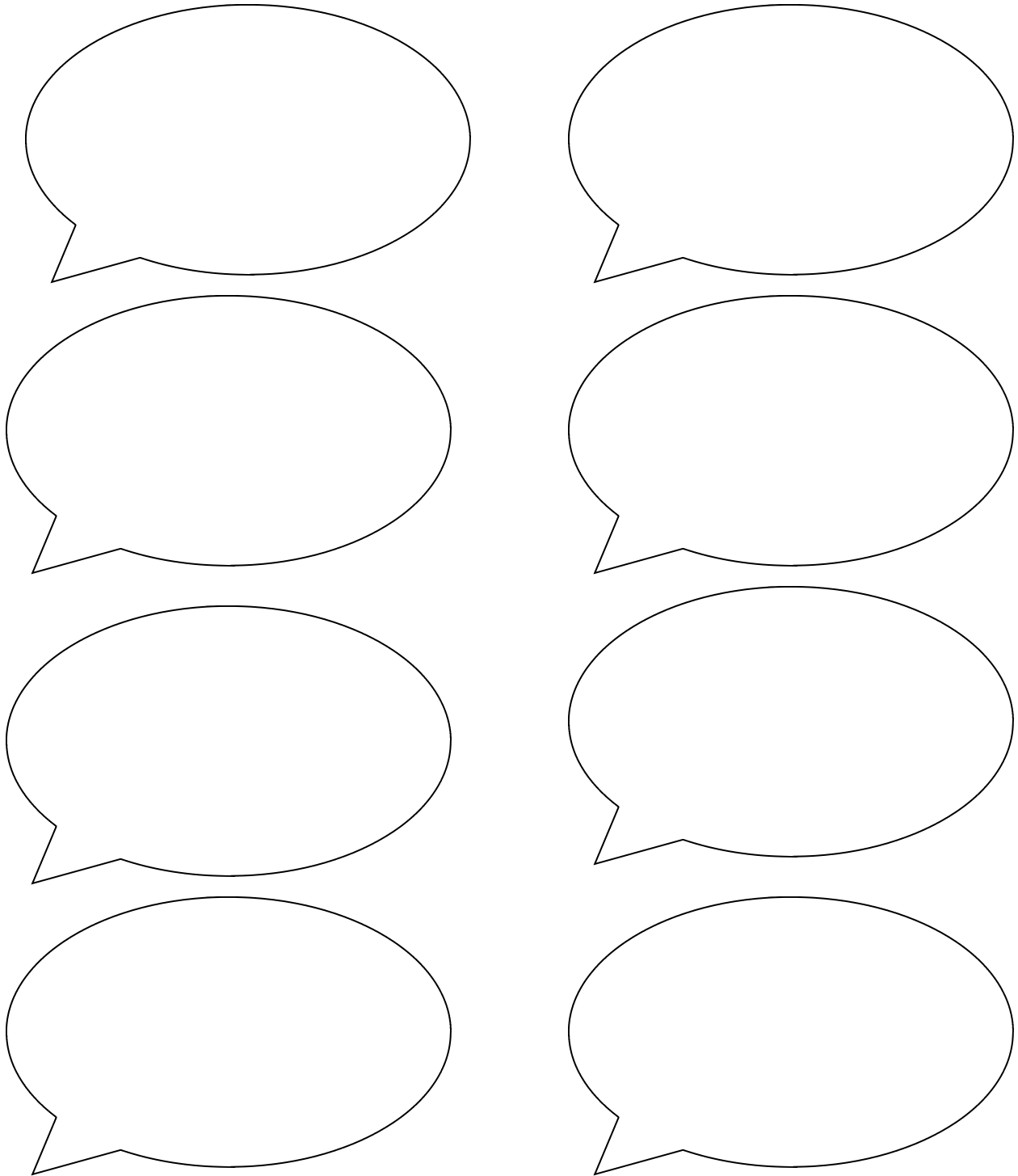
Remove this section

Hopkins

Remove this section

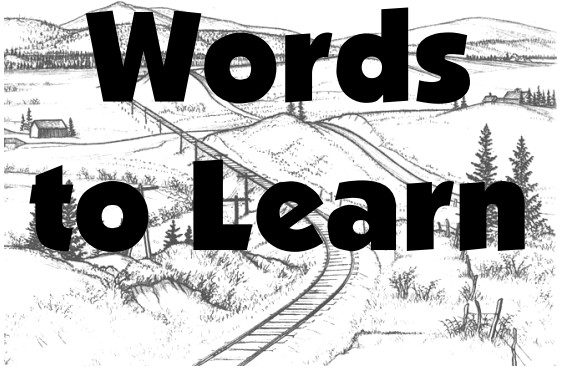
Assembly: Cut each rectangle strip along the outer solid lines. Cut away sections indicted .
Stack the cards in order and staple cover on the left side as indicated.

Stanford	Remove this area
Crocker	



1. Cut out each on solid lines. Add a new word and meaning to each.
2. Staple together and place in pocket.

New Words to Learn



Instructions

1. Cut out on outside lines.
2. Fold bottom square behind, fold side tabs behind, and glue to back of pocket.

Use pocket to hold vocabulary cards.



Colossians
3:22-23

Bible Verse Pocket

back

1. Cut pocket out along solid black lines.
2. Fold back up.
3. Along dotted lines fold side sections behind and glue down.
4. Glue the back of the pocket to your lapbook.
5. Write memory verse on paper and place in pocket.

THE RAILROAD WORKERS



Morse code key

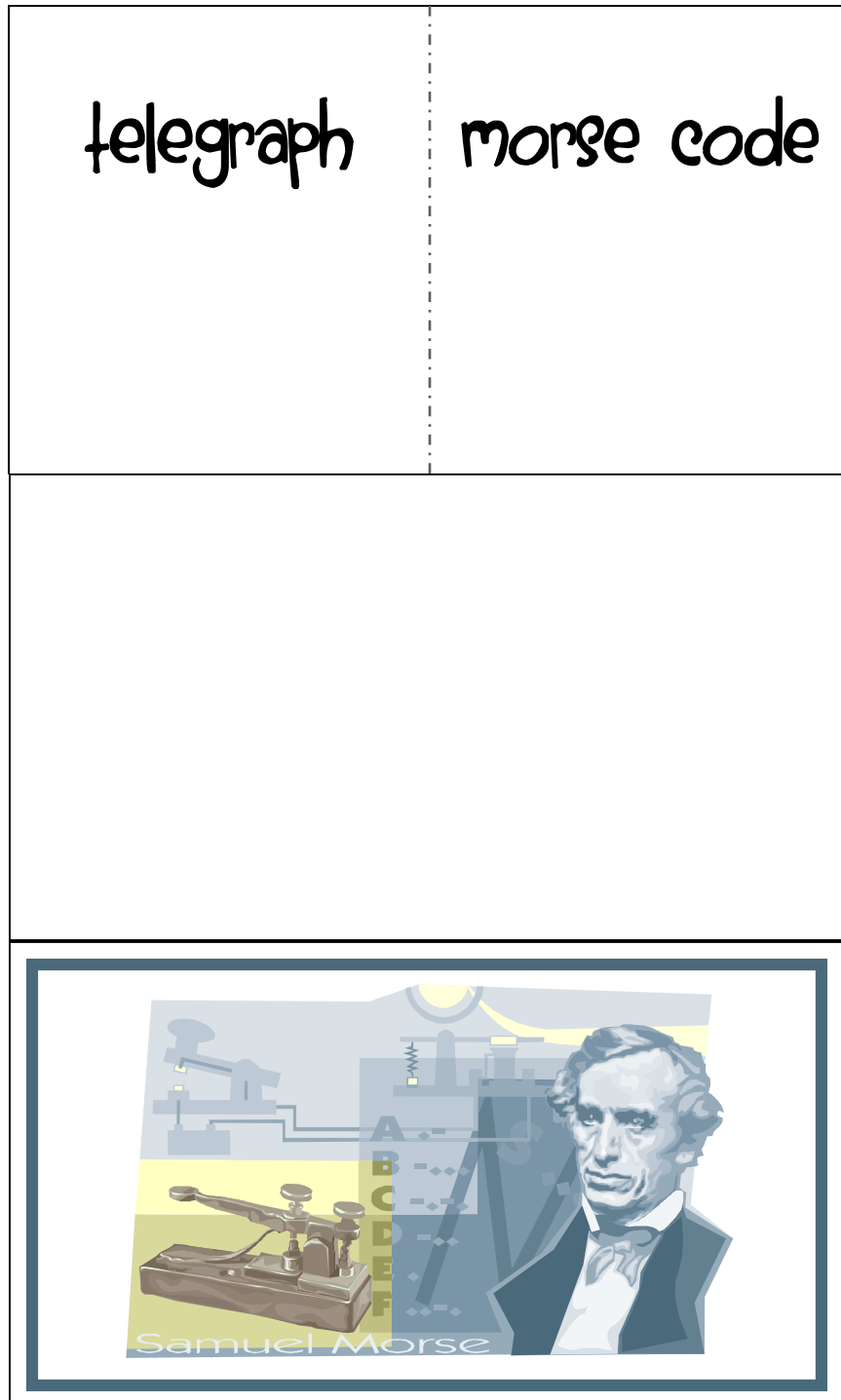
Letters		Numbers	
A	• —	1	• — — — —
B	— • • •	2	• • — — —
C	— • — •	3	• • • — —
D	— • •	4	• • • • —
E	•	5	• • • • •
F	• • — •	6	— • • • •
G	— — •	7	— — • • •
H	• • • •	8	— — — • •
I	• •	9	— — — — •
J	• — — — —	0	— — — — —
K	— • —		
L	• — • •		
M	— —		
N	— •		
O	— — —		
P	• — — •		
Q	— — • —		
R	• — •		
S	• • •		
T	—		
U	• • —		
V	• • • —		
W	• — —		
X	— • • —		
Y	— • — —		
Z	— — • •		

Cut out on outside solid lines. Stack together with the biggest on the bottom and the smallest being the top layer of the book. Staple together. Add information about Central and Union Pacific railroad workers.

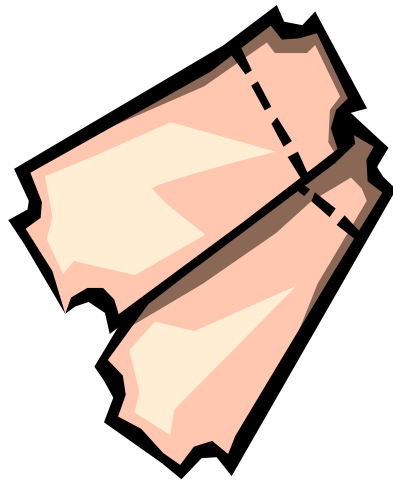
Use Morse Code piece as desired in your lapbook.

Telegraph and Morse Code Template Instructions

1. Cut along outside solid lines.
2. Fold top section under.
3. Fold bottom section under.
4. Turn over, open and cut along dotted line to form two inside flaps.



Tickets! Get Your Ticket!



Cut on outside outer lines. Fold ticket along center line. Use to record information about ticket prices.

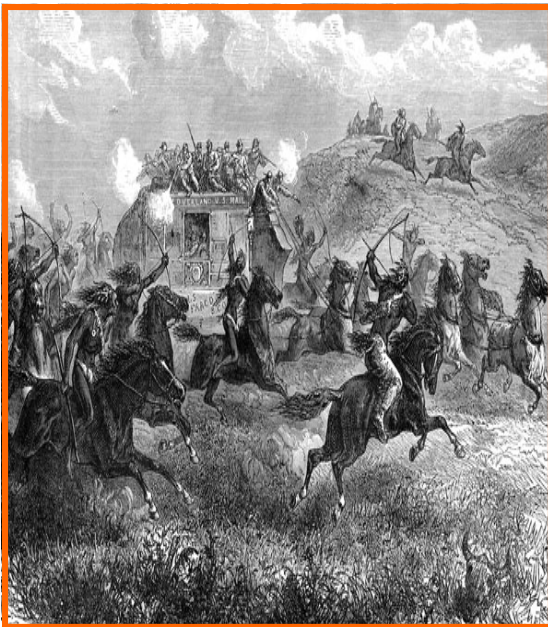
Item	1860's \$	Today \$	Difference

gossiping
corruption

Instructions

Cut out the large rectangle on the outside solid lines.
Fold in along the dotted lines to form a shutter fold.
Cut out the title rectangles along the solid black lines
and paste on the front of the shutter fold. Use shutter
fold to record prices.

Native American Conflicts

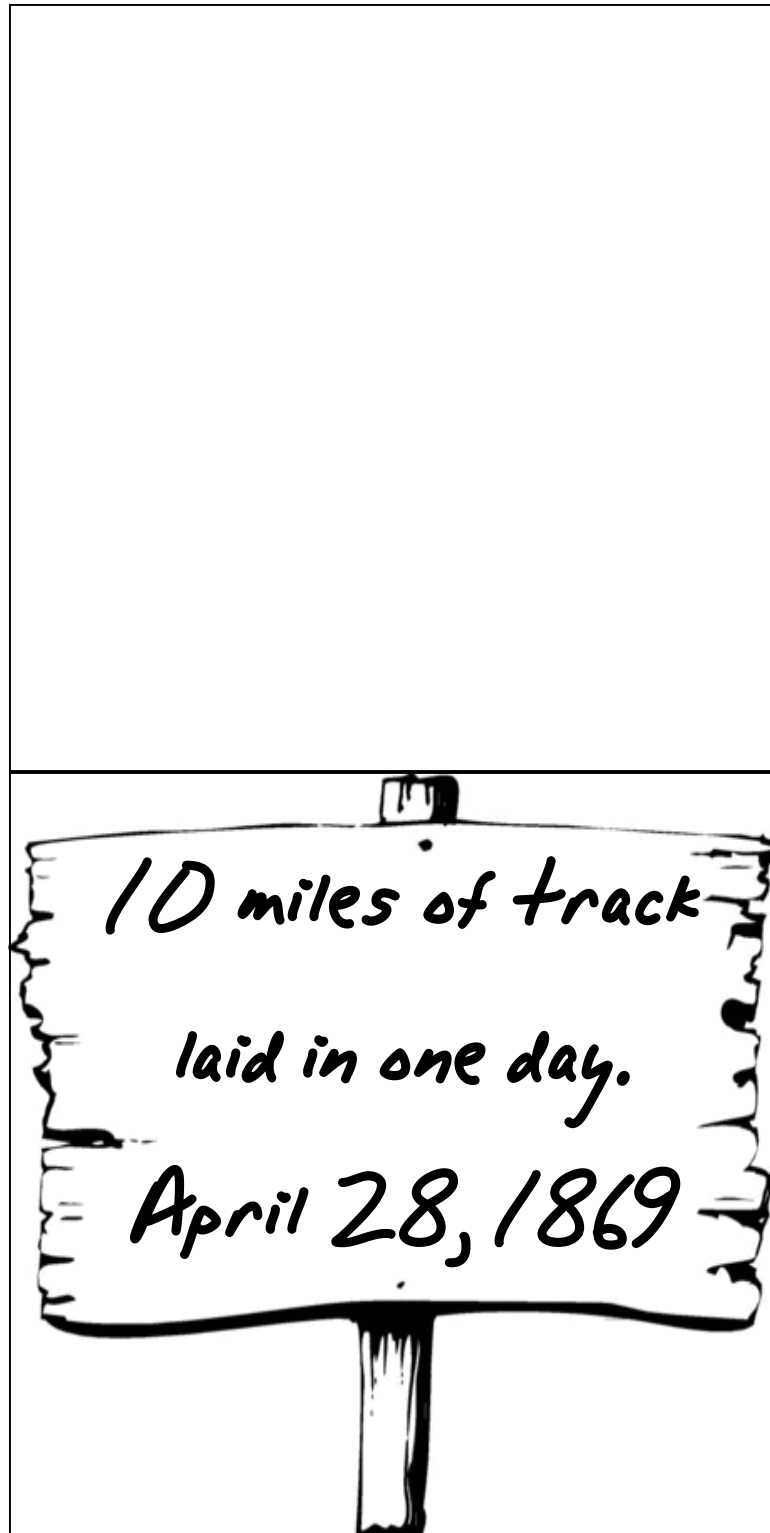


Native American Conflicts Slide Instructions

Cut both templates on outside outer lines.

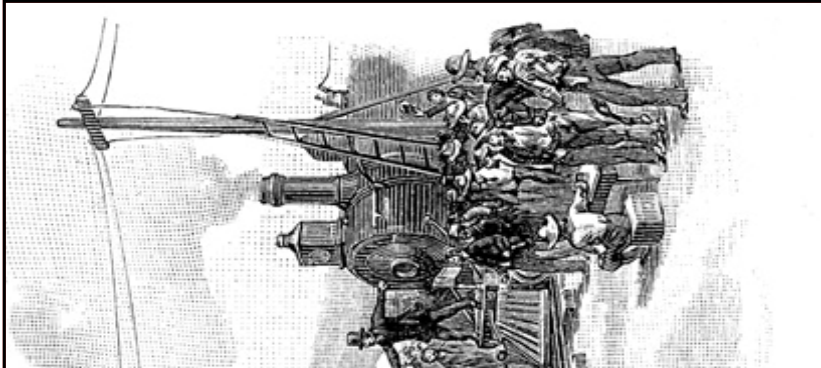
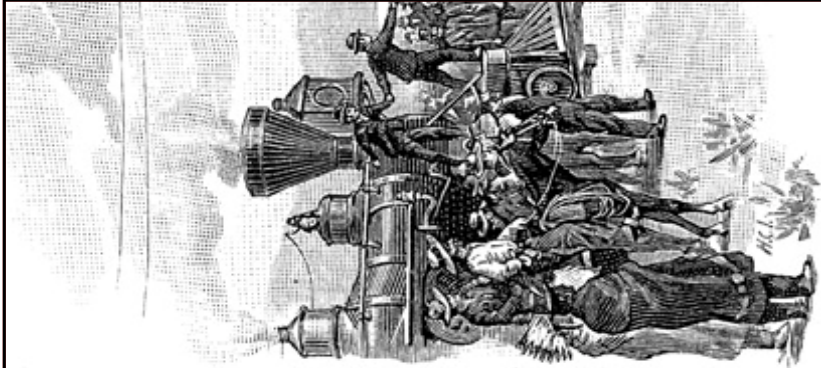
Cut slit with an exacto knife. Place slider in slit.

Place a small line of glue to the back of the top template along outer edge of the template, glue to lapbook; this will enable the slider to still move freely.

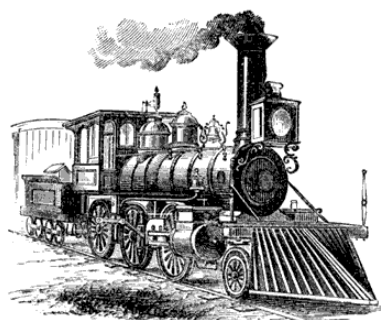


Golden Spike Ceremony

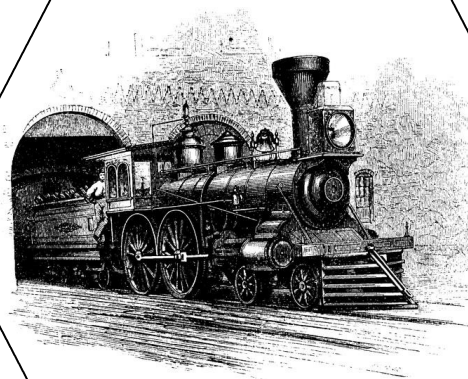
Cut on solid outside lines. Fold each flap in to create a shutter fold. Record information about the ceremony in the shutter book.



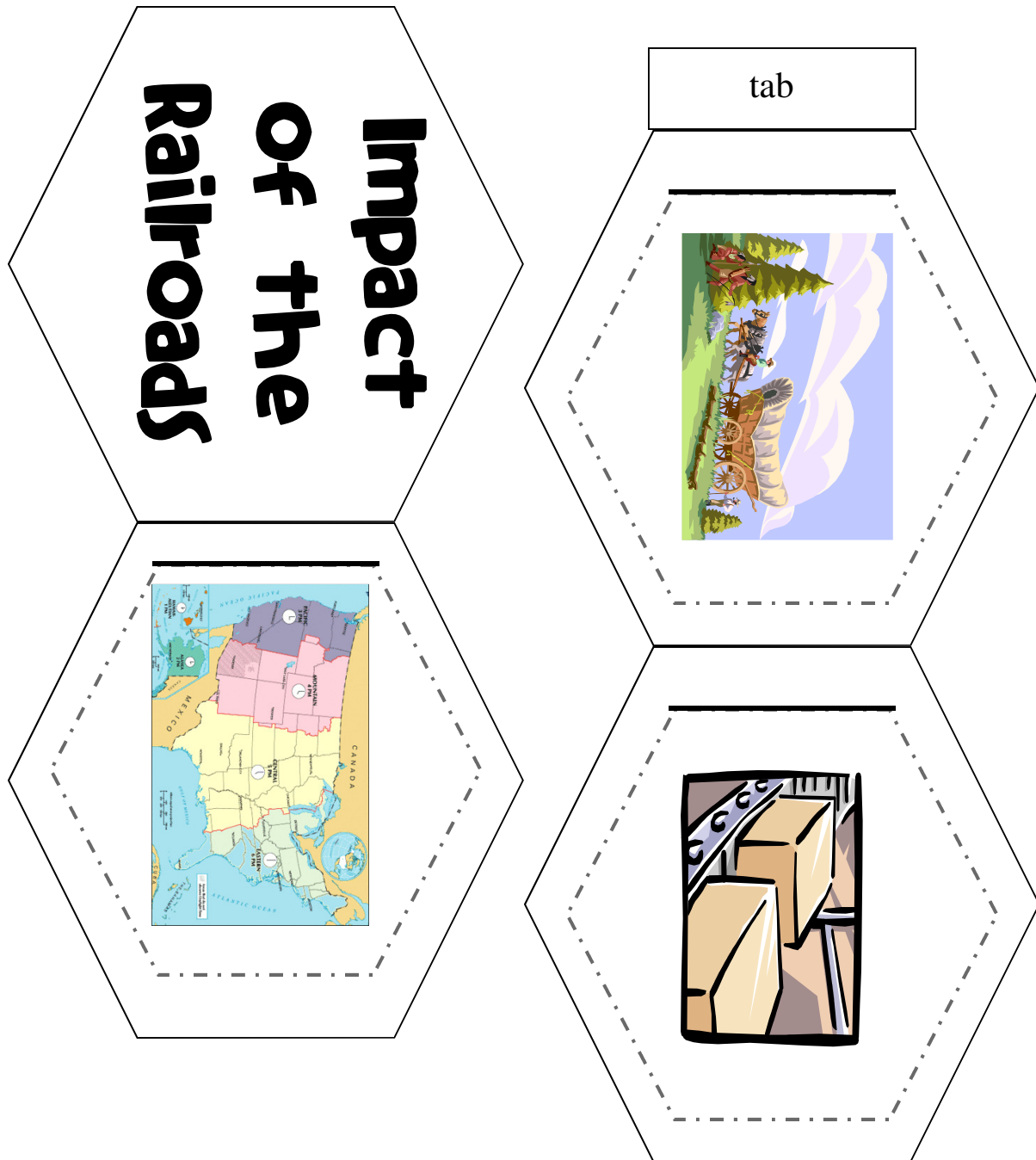
Cut along solid outside lines. Fold over to create octagon fold. Use to record information about the locomotives.



Jupiter



No. 119

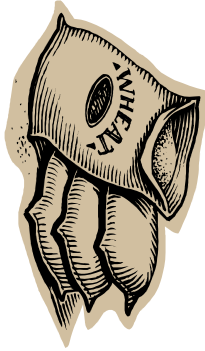


Railroad Impact Hexagon Window Instructions

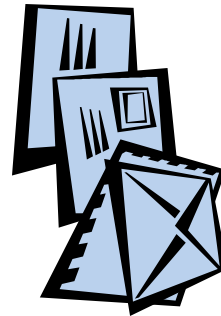
This two layer accordion template has a window opening for information.

1. Cut out pages 1 and 2 on solid outside lines.
2. On pages 1 and 2 cut out along the dotted lines (3 sides) with a exacto knife to form window opening.
3. On pages 3 and 4 cut templates on solid outside lines.
4. Glue pages 1-2 onto the blank template from pages 3-4.
5. DO NOT glue window opening.
6. Glue tabs to form an **accordion**.

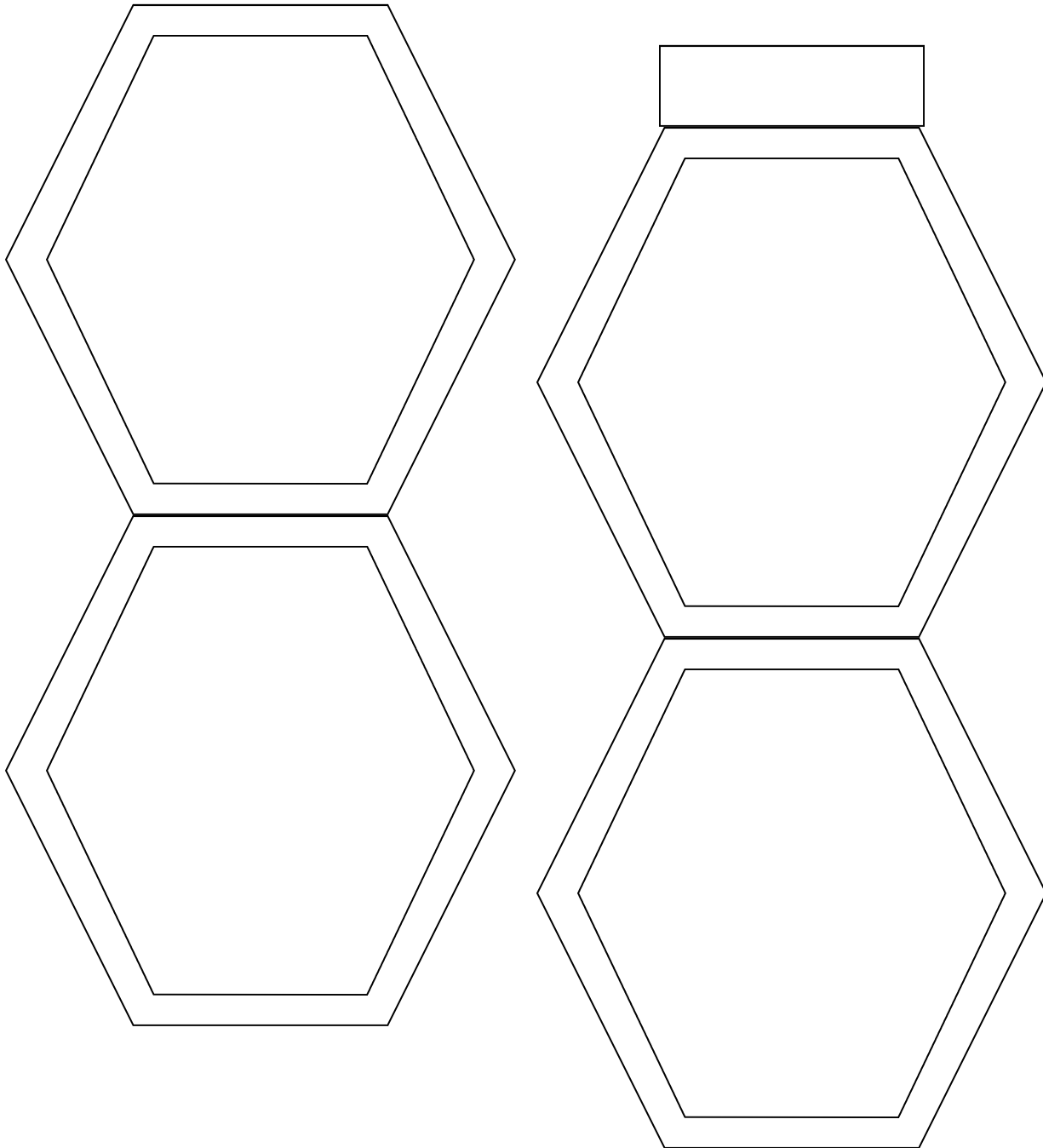
tab



tab



Print 2 Copies

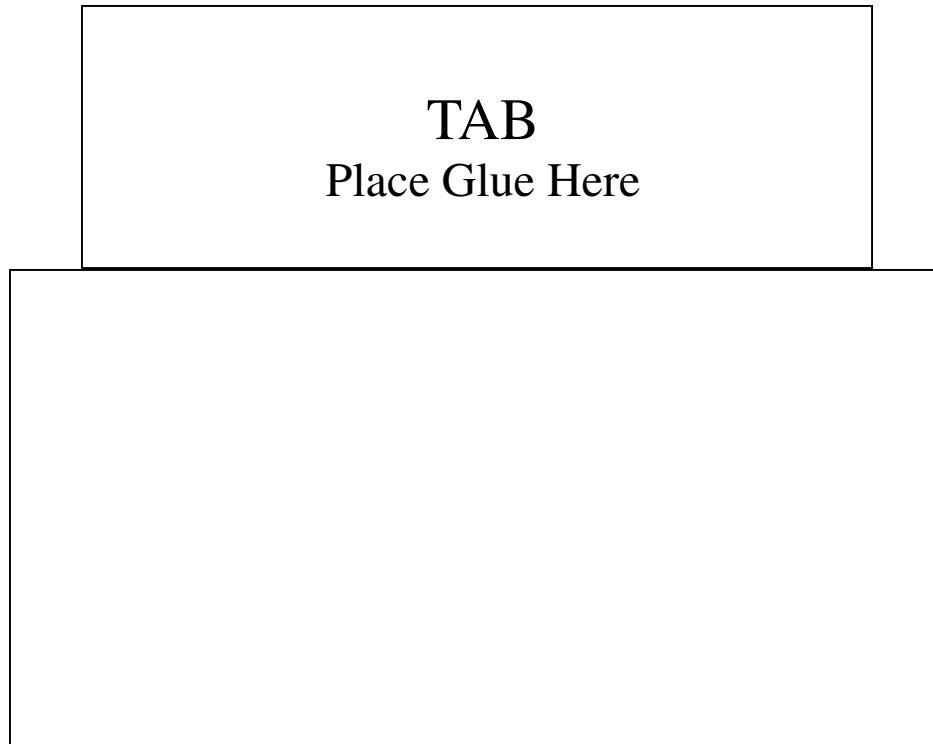


These are the blank hexagons used as the back. You will glue the front hexagons onto these. Do not glue the window opening area. Only add glue around the outside of the hexagons. Once put together, inside widow opening record information of the railroads impact on our nation.

Four Special Spikes



Cut out pages 1 and 2 on the outside solid lines. Fold to form an accordion, alternating with mountain and valley folds. You will glue the tab (pg2) to the last rectangle from page 1. This will complete the accordion. Have student write details of each of the four spikes used at the ceremony.



Instructions for Utah Facts Shutter fold (**next page**)

- 1.Cut out along solid black outside lines
- 2.Cut top “cut away” sections
- 3.Cut along dotted lines
- 4.Fold these sections as a mountain fold
- 5.Turn template over
- 6.Turn top “Utah section” down
- 7.Have child write facts about Utah and each of the sections

<div data-bbox="211 352 430 640" data-label="Text"> <p>cut</p> <p>away</p> </div>	<div data-bbox="511 321 1015 489" data-label="Image"> </div>	<div data-bbox="1096 352 1315 640" data-label="Text"> <p>cut</p> <p>away</p> </div>
<div data-bbox="215 741 462 909" data-label="Image"> </div> <div data-bbox="254 982 410 1039" data-label="Caption"> <p><i>Insect</i></p> </div> <hr/> <div data-bbox="235 1119 430 1312" data-label="Image"> </div> <div data-bbox="263 1354 397 1411" data-label="Caption"> <p><i>Animal</i></p> </div> <hr/> <div data-bbox="211 1465 438 1717" data-label="Image"> </div> <div data-bbox="279 1732 371 1789" data-label="Caption"> <p><i>Bird</i></p> </div>		<div data-bbox="1068 703 1304 955" data-label="Image"> </div> <div data-bbox="1128 987 1269 1039" data-label="Caption"> <p><i>Flower</i></p> </div> <hr/> <div data-bbox="1068 1119 1312 1316" data-label="Image"> </div> <div data-bbox="1156 1354 1245 1411" data-label="Caption"> <p><i>Tree</i></p> </div> <hr/> <div data-bbox="1068 1501 1312 1665" data-label="Image"> </div> <div data-bbox="1123 1732 1253 1789" data-label="Caption"> <p><i>Fossil</i></p> </div>