




PACIFIC RAILROAD

Age group	Secondary school, Grades 3 - 4		
Competency features	Obtaining and receiving information 	Processing information 	Sharing information 
Aims	<ul style="list-style-type: none"> ▪ to participate in tackling a common goal actively ▪ to make use of knowledge by applying it practically ▪ to find one's way through information ▪ to share information ▪ to solve a mathematical problem 		
Timing	30 – 45 minutes		
Location	indoors		
Resources & materials	Pacific Railroad Worksheet – Group Instructions; Pacific Railroad Worksheet – Information Set; pens, paper, scissors		
Description			
<ol style="list-style-type: none"> 1. Advance preparation: Teacher cuts the Pacific Railroad Worksheet – Information Set into slips in such quantities as to satisfy the demand (number of group members). 2. Teacher splits the students into groups (4 or 5 strong) and lets them take up seats so that one group does not disturb another. Each group gets a copy of the Pacific Railroad Worksheet with instructions. Once they have read it through, teacher will pass onto each group the prepared information slips, distributing them evenly among members. 3. Teacher observes how the groups at work without interfering; he only makes notes to use for feedback. He allows for the task to take certain time. 4. When the time is up, all work must stop. Groups make their presentations, solutions are being checked, and ideally explained and elaborated on by the successful group(s). 5. Teacher rounds off the activity with feedback and discussion. He makes clear to the students that except for the mathematical task everything else has come from real life. 			

Risks & recommendations	<p>The suggested time for finding the solution is 30 minutes. If delivering in English, it is good to introduce the activity by watching a short online: http://www.youtube.com/watch?v=dA8FpBGJ4Yg&feature=related</p>
Feedback	<p><u>Questions for discussion:</u></p> <p>How did you approach the task? How long did it take you to realize some information is irrelevant? How did you proceed when tackling the tasks? What helped and what prevented reaching consensus? What made your group come out tops? What made your group fail? What would you do differently next time? Is there anything you have realized due to this activity?</p> <p><u>Solution:</u></p> <p>Correct answer: 10th May, 1869.</p> <ul style="list-style-type: none"> ○ The rectangular area taken up by the Four Corners is 4,800 square miles; on the long side, it is 80 miles (horse speed times 8 hours, i.e. what the chieftain needs for the journey). Accordingly, the short side takes up 60 miles (4800: 80). ○ Based on the rule of Pythagoras, diagonal of the rectangle comes to 100 miles. ○ For one mile of railroad, 2,500 sleepers. Union Pacific Railroad workers moving from the east will lay down 8,750 sleepers daily, i.e. 3.5 miles of railroad (8750 : 2500). Central Pacific Railroad workers moving from the west will lay down 3,750 sleepers (8750 – 5000), i.e. 1.5 miles of railroad (3750 : 2500) daily. ○ Five miles of railroad is built every day, which means that 100 miles is built in 20 days (100 : 5). If the construction started on April 21, the rail lines will be joined on May 10.
Application in classes	maths; history; English
Notes	

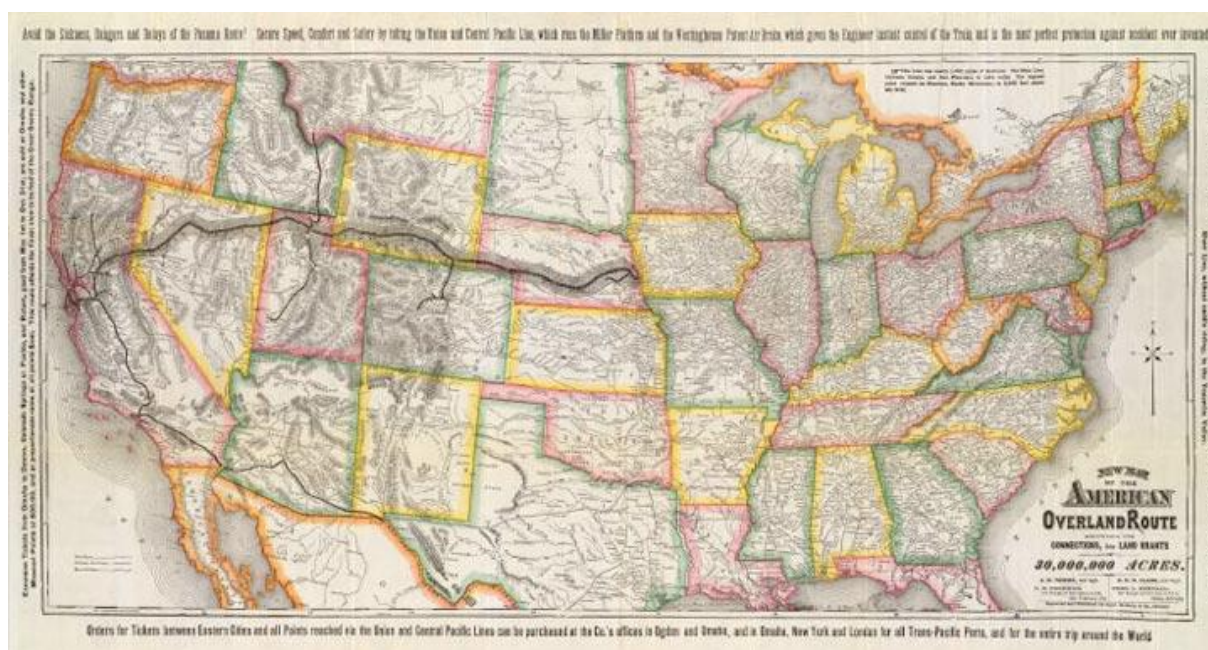
Worksheet **PACIFIC RAILROAD**

Group Instructions

North America, the Gold Rush, second half of the 19th century. A transcontinental railroad is under construction; it will connect the Atlantic East Coast with the Pacific West Coast at long last. There is little but wilderness in between.

From the west, Central Pacific Railroad does the job, hiring many Chinese workers for the tough job. From the east, Union Pacific Railroad strikes forth. This enormous project has been put into motion by the 16th president of the United States, Abraham Lincoln, formerly a railroad lawyer.

At last the two ends meet, and the line is complete. On hearing the agreed signal, "Done! Done! Done!" telegraphed from Utah, a wave of excitement floods the whole country.



Your group task:

Establish on what day exactly would the so far separate rail lines interconnect at the Promontory Summit, Utah.

Worksheet **PACIFIC RAILROAD****Information Set**

This worksheet needs to be cut into slips that will be evenly distributed among the group members. Once they have them, they must not show their slips to anyone.

 The railroad under construction cuts through endless prairie, desert, ridges, canyons and gorges.

 To build the railway, thousands of tonnes of gunpowder and thousands of workers are needed.

 The Sioux and the Cheyenne, two of the most combative tribes, feel threatened by the construction. They fight the "white raiders" and "iron horses" mercilessly.

 While building the railroad, more than 20,000 people will have lost their lives.

 Central Pacific Railroad employs mainly Chinese coolies to start toiling in Sacramento in the west and cut tracks across the Sierra Nevada mountain chain at considerable altitudes.

 Rails, carriages, and locomotives necessary for the railroad traffic are transported by sea from the East Coast all the way around Cape Horn and up through the Pacific to the West Coast.

 Only a week after finishing the railroad, people could travel from New York to San Francisco in seven days.

 Both railroads are to connect in the state of Utah.

 In Utah, the railroad passes through the territory of Ute Indians. The area here is called the Four Corners since it is shaped as a rectangle.

 The territory of the "Mountain People", which the railroad intersects, has 4,800 square miles.

Ute means the "Mountain People".

Should a Ute chieftain follow one of the longer sides of the Four Corners land on an unsaddled horse, it will take him 8 hours to ride the distance.

 The rail line will cut through the Four Corners territory diagonally.

 Ute chieftain's horse's body is painted with symbols that according to Indian tradition, affect its fate.

 The "Mountain People" chieftain rides his horse at 10 miles per hour.

Union Pacific Railroad workers coming from the east daily lay down 8,750 sleepers.

To construct one mile of railroad, 2,500 sleepers are needed.

Both the railroad companies – one in the east, the other in the west, started laying down sleepers in the Four Corners on the same day: April 21, 1869.

Central Pacific Railroad workers, mainly Chinese coolies, have to struggle with difficult geography, which is why they are much slower than their colleagues coming from the other side.

Central Pacific Railroad workers lay down 5,000 fewer sleepers than the workers of Union Pacific Railroad.

The passage of cargo ships circumnavigating South America takes four months over 14,000 miles.

The railroad is under construction seven days a week, both from the east and west.