

**Grade Level: Intermediate**

(Grade level may be altered by adjusting numbers and prices in the game.)

# The Total Toll Game

## Objective

Read primary sources written in the 1800s about traveling on the Santa Fe Trail to understand problems encountered at water crossings and possible solutions. Play a math game related to the use of toll bridges to aid travelers in crossing creeks and streams while producing income for entrepreneurs living on the trail. The grade level associated with the game may be altered by choosing livestock numbers and ferry prices reflective of grade level standards.

## Standards

**Mathematics Standard (2017)**

Domain - Number and Operations in Base Ten 5.(NBT)

Cluster Heading - Perform operations with multi-digit whole numbers and with decimals to hundredths.

Tag - 5.NBT.7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

**KHGSS Standard (2020)**

Standard 5 Relationships among people, places, ideas, and environments are dynamic.

Benchmark 5.1 The student will recognize and evaluate dynamic relationships that impact lives in communities, states, and nations.

## Objectives

**Content**

1. The student will recognize problems related to water crossings along the Santa Fe Trail and propose potential solutions.

**Skills**

1. The student will evaluate primary source information to locate information about water crossings.

2. The student will calculate numbers with decimals to hundredths.

## Essential Questions

1. What was the impact of rivers on those traveling on the Santa Fe Trail?
2. How did the relationship between creeks or rivers and Santa Fe Trail travelers help shape the lives of people who lived on the trail?

## Assessments

1. Evaluate primary source entries to determine problems encountered by Santa Fe Trail travelers at water crossings.
2. Add amounts of .10, .20, .25, and .30 to a maximum of \$10.00 in a math game.

## Activities

**Previous Knowledge:** Students will know the purpose of the Santa Fe Trail as a nineteenth century trail of commerce that crossed Kansas as traders moved merchandise between Missouri and Santa Fe.

**Advance Preparation:** Label two cubes with numbers. The sides on the first cube will be numbered 1, 2, 3, 4, 5, and 6. The sides on the second cube will be numbered .10, .20, .20, .25, .25, and .30.

### Lesson:

1. Introduce the Santa Fe Trail topic. Access students' previous knowledge of the trail.
  - a. It was a commercial trail that entrepreneurs used to move goods both east and west to make a profit on their investment.
  - b. Santa Fe Trail travelers crossed rivers and streams on their journey across prairie, mountain, and/or desert terrain between the Kansas City area and Santa Fe.
2. To provide context for the need for ferries and toll bridges on the Santa Fe Trail, read the following quotes from Santa Fe Trail travelers. After reading each quote, students should determine what problem the traveler encountered and why a bridge or ferry would be beneficial at that location. Make a list of the problems and post it where the class can see it for future reference..
  - a. "The bed of [Bridge] creek is muddy and must of necessity be bridged." *Joseph Brown wrote this about four years after trading between the U.S. and Mexico over the Santa Fe Trail began. (condition of bank or bed of creek/river)*
  - b. "Cow Creek [present Rice County, Kansas] is a very bad stream to ford. So great is the travel on this road that wagons are often detained from one to two days on others who were in advance of them." *The Leavenworth Herald reported this on June 11, 1859. (bottleneck backing up wagons and causing delays)*
  - c. "Uncle Nick . . . said that on one or two occasions he found the water so high that they could find no place to ford, and, had selected a wagon body best fitted for the purpose, caulked it as well as they could, and (stretching raw buffalo skins on the outside) made a boat or scow to ferry over. This is no small job to ferry across such a stream seventy-five to one hundred tons of freight, delaying a train sometimes a week or ten days, and under an expense of eighty dollars to one hundred dollars a day." *James Josiah Webb reported on an 1844 crossing of the Arkansas River. (delays from crossing high water. That same year William Bent's caravan waited a month for floodwaters on Pawnee Fork, a tributary of the Arkansas River, to go down enough for the caravan to cross.)*
  - d. ". . . we had to double teams to get out and make a short and very difficult turn up the stream; so the wagon fell into the deep water, and bottom up. All hands took to the water and in two or three hours succeeded in getting dry goods and wagon to camp on the opposite bank. The next two days were spent in opening the goods, and spreading them on the ground to dry, repacking, and loading up." *(damage to trade goods. "Dry goods" refers to fabric, clothing, thread and related merchandise in contrast to hardware and groceries.)*
  - e. "The next day was spent in greasing up, making repairs, cooking, and resting teams." *James Josiah Webb noted this in 1844. (lost time resting tired animals)*
3. Explore solutions to the problem of river crossings.
  - a. Review the list of problems travelers encountered.
  - b. Have students brainstorm possible solutions to the problems of crossing rivers. Direct discussion toward bridges.
  - c. Share the following scenario with the class.
    - I.B. Titus owned a bridge in Burlingame, Kansas over a creek named Bridge Creek. In 1859 this bridge earned Mr. Titus \$20-\$30 a day.
  - d. Use the information shared about I.B Titus and the primary source quotes to understand the role of bridges on the Santa Fe Trail.
    - How could Mr. Titus earn money with a bridge? *(people pay to use toll bridges)*
    - If \$1 in 1859 is worth \$31.30 today, how much did Mr. Titus earn in today's dollars? *(\$26 - \$939. The \$31.30 rate is October 2020 dollars.)*
    - What were the benefits of toll bridges to those traveling along the Santa Fe Trail? To those living along the trail? Were there possible drawbacks for either?
    - Do drivers today pay tolls on roads and bridges? Why?
4. Reinforce the role of toll bridges as an expense for Santa Fe Trail travelers and a revenue source for those living along the trail by playing the "Total Toll Game."
  - a. The objective of the game is be the first player to earn \$10.00 from their toll bridge.
  - b. Game Instructions: One cube is the number of people or mules. The second cube is cost per person/mule. Roll the two cubes and determine the amount of money the player will make. Everyone takes a turn. Keep a running total of your earnings. When a player has made at least \$10.00, the game is over.

### Lesson Extension:

Charles Withington and his family operated a store, saloon, mail station, blacksmith shop, and toll bridge at 142 Mile Creek in what is today part of Lyon County, Kansas. Between May 21 and November 25, 1865, he recorded the following traffic at his location: 4,472 wagons, 5,197 men, 1,267 horses, 6,452 mules, 32,281 oxen, 112 carriages, and 13,056 tons of freight.

Mr Withington did not leave a record of his toll charges. Using the rates set by the U.S. government in 1859 for a different bridge along the Santa Fe Trail, how much money would he have made?

- 50¢ for each wagon or vehicle
- 10¢ for each large animal
- 5¢ for each person