Railroads of Nodaway County

Lesson Plans for grades 3-5

Fun artifacts for hands-on activities inside!

Introduction

Introduction

Railroads are an important part of Nodaway County history and people's lives. The first railroad in Nodaway County was completed in 1869. The establishment of railroads brought new economic opportunities to the county such as new jobs, trading of goods and also provided travel opportunities. Through the lessons in this trunk, students will have the opportunity to expand their knowledge of railroads as they work hands-on with materials provided by the Nodaway County Historical Society.

Missouri Learning Standards

- S5 1.6, 1.8 Construct and interpret maps
- SS5 1.6 Describe how people are affected by, depend on, adapt to and change their environments
- SS5 1.6 Describe how changes in communication and transportation technologies affect people's lives

Content

The lessons within this trunk will explore the geography, life, and travel of the railroads throughout history. Students will use real life artifacts to explore those concepts. Activities that incorporate the artifacts will give the students hands-on experience with the information they are learning.

Student Friendly "I can" statements throughout the unit

I can use map scale to determine distance.

I can explain how railroads are built.

I can list people who worked on Nodaway County Railroads.

I can list materials and resources used in making the railroads.

I can explain how important the railroad and rail workers were to Nodaway County.

I can identify at least three rules that railroaders were expected to follow.

I can describe how the rule book connects to the Time Book.

I can describe at least two ways in which technology was used on the railroad.

I can explain the purpose of a ticket punch.

I can list examples of how transportation by railroad today differs from the past.

I can describe how changes in railroad ticket technology affect people's lives.

Contents

For Grades: 3-5   Lesson Duration: 1 Session

Lesson #1 Tracking the Train Tracks

Introduction

The Nodaway County Railroad System is made up of three major rail lines. These rail lines move North and South, East and West, as well as Northwest and Southeast. These tracks are represented on most maps as they twist and turn across Nodaway County. These maps are able to represent accurately depict the actual distance, direction and placement of the railroad as they actually lie in real life.

Missouri Learning Standard

Knowledge of major elements of geographical study and analysis (such as location, place, movement and regions) and their relationship to changes in society and the environment

Guiding Questions

How does map scale work?

What are the names of the railroads?

What is the purpose behind where the railroads are placed in Nodaway County?

- SS4.5.A Construct and interpret maps
- SS4.4.D Describe how people are affected by, depend on, adapt to and change their environments

Student Friendly "I can" Statements

- I can use map scale to determine distance
- I can identify ad label the names of all three rail lines in Nodaway County
- I can list at least three reasons why railroads twist and turn between points on the map.

Getting Ready to Learn

Have you ever looked at old maps from over a hundred years ago? Maps have been used to depict various types of information ranging from land ownership, distance between places, elevation of land, bodies of water, and much more. The most single piece of information found across all maps is a relation of scale of distance that the map shows compared to the actual distance of the land.

The map included here is from a 1911 Atlas Map of Nodaway County. Each carved section in the map depicts areas that are called townships which help with the economics and services that the county provides. The presence of the railroads are also a major point of interest. The names of the railroads represent the major locations that the lines service or the actual company responsible for the construction of the rail line.

Lesson 1 Trunk Materials

1. Copy of atlas map of Nodaway County (1911)
2. Copy of outline of Nodaway County (1 per student)
3. Rulers, Pencils, Colored pencils(if desired)
4. Railroads of Nodaway information sheet

Procedures

1. The teacher should demonstrate how maps use units of scale to show distance. Explain to the class how a set distance on a map equals a specific number of miles. Be sure to specify that the student can use any set distance for their measurement on a map but it must remain equal to the total number of miles that are represented and present on the map. Example: 1 inch could equal 10 miles but you might also use a scale that shows 2 inches yet still only equals 20 miles.

2. Show the class how to measure the dimensions (height and width) of the county and how that translates into miles.

3. The teacher should pass out copies of the outline of Nodaway County.

4. Use the large map as a reference to copy an outline of the tracks onto their own map. Use the placement of major towns (Maryville, Skidmore, Quitman, and Burlington Junction etc.) to help put the tracks in the correct places.

5. Ask the students as they are partway through placement if they notice anything about the placement of the towns on the map. Do they have anything in common? Students should note how they all have railroads close to the vicinity of the towns.

6. Pass out the short informational sheet of the three named railroads.

7. Divide students into groups of two-three.

8. Students are to, using their scale, determine about how many miles of tracks their railroad has in Nodaway County.

9. Determine the distance between each currently active station.

Conclusion

1. Did all the towns have a railroad traveling through them?
2. Why would a train stop at any of the stations that are listed on the map?
3. Have students compare their data. Is there agreement in the distance that each student listed for the amount of track that lays in the county?

Assessment

Students will complete constructing a map labeling the functioning railroad station locations, their distance scale used, railroad lines, and the distances between railroad locations and total miles of track in Nodaway County based on their map.

Extension

Have students compare data. Did their scales cause differences in their calculated distances? Have students place bodies of water that are seen in the maps.

For Grades: 3-5   Lesson Duration: 1 Session

Lesson #2 Working on the Railroad

Introduction

In 1867, the citizens of Nodaway County voted to provide $125,000 for the construction of a railroad track that runs north and south through the country. The Missouri Valley Railroad Company completed the tracks in 1869. The Kansas City, St. Joseph, and Council Bluffs R.R. was the first railroad to be completed. This could not have been done without the hard work of the railroad workers in Maryville.

Missouri Learning Standard

- SS5 1.6, Grade 3: Describe how changes in communication and transportation technologies affect people's lives

Guiding Questions

How was the railroad built?

Who worked on the railroad?

Why was the railroad important to Nodaway County?

Student Friendly "I can" Statements

- *I can* describe how the railroad was built and who worked on the railroad.
- *I can* describe what materials, and resources were used in the making of the railroad.
- *I can* learn how important the railroad and rail workers were to Nodaway County.

Getting Ready to Learn

Think about the railroad. What are some things that you think were used in building the railroad? Who, do you think, worked on the railroads?

Before railroads, goods and materials were moved from place to place by way of horse and carriage or ship. Once railroads began to form, goods and materials were able to be shipped faster and over longer distance or more tetras land.

Imagine you are a railroad worker working on building the railroad in Nodaway County! How would you build the railroad? What materials and resources do you need? Where would you build the railroad? Today students are going to use artifacts to understand how and why the railroad was built.

Lesson 2 Trunk Materials
4. Railroad spike
5. Pictures of railroad workers
6. Pictures of railroad development
7. Toothpicks
8. Popsicle sticks
9. Glue
10. Tape

Procedures

1.   Show the students the materials that were used to build the railroad. Have the students identify as many materials as they can. Then discuss what any unidentified materials are and how they were used in building the railroad.

2.   Pass around the railroad spike to all of the students and have them write down their observations about the spike.

3.   Explain how the railroad spike was used when building the railroad and what would happen without using railroad spikes.

4. Demonstrate how the railroad spike was used.

5. Look at the pictures of the railroad as it is being developed and progressed. Discuss the process that occurred to continue to the next phase of building the railroad.

6. Discuss what techniques were used to build the railroad.

7. Show the students the pictures provided of the railroad workers.

8. Discuss the types of people that worked on the railroad, work conditions, and benefits of working on the railroad.

Conclusion

1. Who can tell me how the railroad was built?
2. Who can tell me who worked on the railroad? What conditions did they work in?
3. Why was building the railroad important to Nodaway County?

Assessment

Students will build their own railroads, using craft materials and the techniques learned that were used to build the Nodaway County railroad.

For Grades: 3-5   Lesson Duration: 1 Session

Lesson #3 *Safety Rules*!!

Introduction

The Nodaway County Railways contain three lines throughout the county. Several workers were employed by the rail systems during the 1800s and early 1900s. Due to the large number of employees and the dangers presented by new technology, a larger number of rules were written up, which each engineer and worker were required to follow.

Missouri Learning Standard

- SS5 1.6 Describe how changes in communication and transportation technologies affect people's lives

Student Friendly "I can" Statements

- *I can* identify at least three rules that railroaders were expected to follow.
- *I can* describe why engineers had to follow such strict rules on the Nodaway County Railroads in the 1800s and early 1900s.
- *I can* describe at least two ways in which technology was used on the railroad.

Guiding Questions

Why were workers required to follow such strict rules while working on the railroad?

What rules were the most important in keeping workers safe on the railroad?

Getting Ready to Learn

For the first 3 sessions of the week, the booklets will be available for the students to view during center time or reading time, allowing them to see some of the rules beforehand and to make inferences and observations about railroads during this time period.

The teacher should start the lesson by showing and blowing (optional) a train whistle for the students that comes as one of the artifacts in the trunk.

The following questions should be asked by the teacher:

- Do you know what this is?
- Do you know what it is used for?
- Do you know why they might use a whistle as a signal on the railroad?

The teacher should then show the students the rule book artifacts in the trunk and ask the following questions:

- Who knows what this is?
- Why do you think that railroads had such strict rules for workers?

Procedure

Lesson 3 Trunk Materials

1. Burlington Northern Railroad Safety Rules and General Rules

2. Burlington Northern Railroad Co. Instructions for Train Order Operators, Control Operators, and Bridgetenders

3. Train whistle

1. Markers

2. 11X18 Construction Paper

3. 8.5X11 Lined Paper

4. Pencils

5. Stapler

1. Show the students some of the rules from the Burlington Northern Railroad Co. Instructions for Train Order Operators, Control Operators, and Bridgetenders**.**
2. First, focus on the general rules, specifically #1 and #2.
3. Then, the teacher should focus on the use of explosives on the train (pg 82) and radio rules (pg 85-88).
4. The teacher should also show the students some of the rules from Burlington Northern Railroad Safety Rules and General Rules. Focus should be on the various hand signals used (pg 53-55). The teacher should show the students some of the hand signals used in the book, then instruct the students to perform the hand signals with them.
5. The students and the teacher should identify similarities between the two booklets that are provided as artifacts in the trunk as a Venn diagram on chart paper. The Venn diagram should only be comparing the rule books from the trunk to one other and not comparing them to present day rules. T
6. The teacher and the students should also discuss the types of technology that were used on the trains in the 1800s and early 1900s, making sure that the students understand that technology was used, but at that time, it was not the same types of technology that we associate with the word today.
7. After looking through the booklets and the having a class discussion, the students will be allowed be making their own rule booklets that highlight a minimum of three rules that they believe to be the most important.
8. The students should write their rules and rationales on the lined paper first, then fold the construction paper hamburger style, creating a cover for the rule pages, and stapled at the crease to hold the booklet together.
9. The rules can either be rules that the students have selected from the booklets in class or they can be rules that they have modified or created on their own.
10. Students will be asked to consider the time period in relation to technology available when considering their rules.

Conclusion

1. Who can tell me what they believe is the most important rule the railroaders had to follow?
2. Why do you believe it is important that each railroader had a copy of these rules to follow?"
3. Today we learned about some of the rules used on the Nodaway Country Railroads in the 1800s and early 1900s. After learning about some of the rules that workers had to follow, how do you think these rules made workers feel while working?

Assessment

At the end of their self-created booklets, students will write a rational for each rule they selected and how they think their rules would have made railroads in Nodaway County safer during the 1800s and early 1900s. Each rational needs to be a minimum of four sentences.

For Grades: 3-5   Lesson Duration: 1 Session

Lesson #4 Punching Our Way Through The History Of Railroad Tickets

Introduction

A ticket is required to travel by train. Ticket punching began in America in the 1860s. Conductors used ticket punches as a way of identifying and tracking the tickets they validated. Each conductor had a unique ticket punch shape or design. The uniqueness of the design is comparable to a person's signature. This process differs from today, where tickets can be scanned from a person's smartphone.

Missouri Learning Standard

- SS5 1.6 Describe how changes in communication and transportation technologies affect people's lives

Student Friendly "I can" Statements

- *I can* explain the purpose of a ticket punch.
- *I can* list examples of how railroad ticket validation today compares and differs from the past.
- *I can* describe how changes in railroad ticket technology affects people's lives.

Getting Ready to Learn

Has anyone seen The Polar Express? [Yes or no.] What form of transportation is used in The Polar Express? [They travel by train.] Show your students the video clip from The Polar Express (https://www.youtube.com/watch?v=C3i3XvyDosQ). What did the boy find? [He found the girl's ticket.] Why was the girl so thankful? [She needs a ticket to ride the train.] What did the conductor do to the ticket? [He used a ticket punch to create a design on the ticket.] Today we are going to learn about traveling by train. More specifically, we are going to learn about train ticket punches and how validating tickets has changed over time.

Introduce the ticket punches by walking around the classroom and showing your students ticket punches. Does anyone know what these are? [They are hole punches.] They are like hole punches. They are train ticket punches. The conductor on The Polar Express used a ticket punch to make the design on the girl's ticket. You will then explain the history of train ticket punches.

Ticket punching began in America in the 1860s. Conductors used ticket punches as a way of identifying and tracking the tickets they validated. Each conductor had a unique ticket punch shape or design.

Guiding Question

How have changes in railroad technology, in relation to validating tickets, affected people's lives?

Procedures

Lesson 4 Trunk Materials

1. Ticket Punches
2. Unused tickets
3. Validated tickets
4. Sticky notes

1. Divide your class into groups of four students.
2. Give each group two unused tickets, 8 tickets that have been validated, and a ticket punch.
3. Tell your students to practice using the ticket punch on one of the unused tickets.
4. Have the groups describe their ticket punch shape or design during a class discussion.
5. Model the process of creating a design using the ticket punch. Think aloud so students will understand your thought process. (Example: I want to create a smiley face for my design. I am creating eyes by punching two shapes into the ticket side by side. I am creating a smile by punching shapes into a half circle under the two eyes).
6. Have the students work together in their groups to create a design using the ticket punch.
7. Tell the groups that they are going to sort their pile of validated tickets into two piles. The ticket punch shape for every group is a square. One pile will be tickets that they could have validated. The other pile will be tickets that they could not have validated.
8. Ask the students if they think ticket punches are still used today. Have them discuss their ideas and reasoning in a class discussion.
9. Tell students that e-tickets are one form of validating tickets that are used today. An e-ticket can be purchased on a person's phone. The conductor scans the barcode on the ticket that is displayed on the phone.

Conclusion

1. Why did conductors have unique ticket punch designs?
2. How do changes in ticket validation affect people's lives?
3. Do you prefer the ticket punch or e-ticket? Why?

Assessment

Students will complete the assessment individually. Students will be given a sticky note. They will write how they think changes in ticket validation affect people's lives. When they are finished, they will place their sticky note on the board.