Construction of the National Road

Construction of the 632 miles of the National Road, from Cumberland, Maryland, to Vandalia, Illinois, cost the U.S. government almost $7 million. That was a lot of money in the early 1800s.

The U.S. Army Corp of Engineers supervised the building of the National Road. Their first task was to decide where the road would go and to survey the land. Then the route needed to be cleared of vegetation. This was a lot of work, especially in the heavily forested areas. All trees and underbrush needed to be cleared from the 66-foot right-of-way. Axmen felled the trees. Then horses and oxen strained at chains to remove the stumps.

The next step was leveling the road bed. Unskilled laborers used picks and shovels to dig out high spots. In some places work animals pulled a wooden bucket, similar to the buckets on today's backhoes, to scoop up the soil. Teams of horses or oxen carted away earth in wagons or men used wheelbarrows to move the waste short distances. The dirt was used to fill in low places. Down the center of the road bed a 20-foot-wide pit was dug 12 to 18 inches deep.

After that the stone was brought in. Men used heavy sledge hammers to break the boulders. Other men sat on the ground and broke stones using a small apple-shaped hammer. The first layer of the road was made up of stones that fit through a 7-inch measuring ring. These large stones were put on the road pit about a foot deep. A second layer of stones that passed through a 3-inch measuring ring was placed on top. A layer of sand or gravel was added on top, and the road was compressed with a heavy log.

Gangs of laborers were needed to complete all the work. Most of them were illiterate Irish immigrants. Their wages were low, sometimes only 25 cents per day. However, one observer noted "they appear well fed, well clothed and comfortable."

At every creek and brook a culvert was needed. Beautiful bridges spanned the rivers. Travelers marveled at the superior workmanship shown in the Great Crossings Bridge and the unique "S" bridges. Skilled stone masons were brought in to create these superb structures.

Finally, in 1818 the road opened between Cumberland and Wheeling. The National Road was better than most roads in the United States or, as one farmer stated, "good enough for an emperor to travel over."

Cast iron markers placed at each mile along the road helped travelers know how far they had come or how far they had to go.

As soon as people started to use the road, it began to deteriorate. Repairs were continuously needed. John McAdam developed a new road-building system where the road bed was raised above ground level to allow for drainage and to slow erosion. Several layers of crushed stone were laid and then compacted, creating a solid surface. Starting in 1834, this new system was used to repair the National Road.

Construction of the National Road

The United States Congress became frustrated by the constant calls for money to repair the National Road. They passed legislation allowing for the transfer of the road to the states through which it passed. Pennsylvania had Congress repair the road and provide money to build tollhouses before accepting the road in 1835. The states then collected tolls which paid for the road's maintenance. The tolls were based upon how much the animals or person's vehicle damaged the road.

Additional Information

1. The following **Occupation Card** provides additional information:
   - Tollkeeper
2. The following **Historic Site Cards** provide additional information:
   - Mile Markers
   - Tollhouses at Addison and Searights
   - Great Crossings Bridge
   - Dunlap's Creek Iron Bridge
   - "S" Bridge

Supplemental Activities

1. Make measuring rings with the students. Use sturdy paper plates or plastic lids to create 7-inch and 3-inch measuring rings. Have the students bring in different sized rocks from home and then measure the rocks to see if they could have been used on the National Road.
2. Build a "road" with the students. Have students bring in bags of small rocks and pebbles from home. Build the "road" in dishpans or other shallow pans. In small groups, have students lay the larger rocks on the bottom and the smaller rocks on the top. They can use rolling pins to compact the surface. Discuss how difficult or easy it would be to travel on the "road."

Student Reading: Building the National Road

Materials

- Copies of the reproducible pages ***Building the National Road***.

Objectives

After reading the student reading and answering the thought questions, students will be able to

- Describe the steps used to build the National Road.
- Describe the type of workers that built the National Road.

Standards

Pennsylvania Standards for History

- 8.1.3 A
- 8.2.3 C

Pennsylvania Standards for Economics

- 6.2.3 H
- 6.2.3 I

Procedures

1. Make a copy of the reproducible pages for each student.
2. Have the students read and answer the thought questions.
3. Discuss the thought questions.

Thought Question Answers

- The mountains made the road building more difficult because the steep slopes were harder to level out. Also the mountains had more trees to cut and clear.
- It would be easier to build a road today because of all the machinery we have.

Student Reading:
Building the National Road

Building the National Road

In 1811, people began to build the National Road. Building a road was hard work. There were no trucks, backhoes, or bulldozers back then. People with hand tools and animals did the work of today's machines.

Building the National Road

First, all the trees were cut down and moved. Then horses or oxen pulled out the stumps and the ground was flattened. After that men shoveled out a shallow strip where the road would go. The dirt was moved away by wheelbarrow.

Wagon loads of stone were brought in. Men broke the boulders with sledge hammers. Other men sat on the ground and used apple-shaped hammers to break the stone into even smaller pieces.

Only the right sized stones could be laid in the strip. The rocks that could pass through a 7-inch metal circle or measuring ring were laid first. Then a layer of rocks that could pass through a 3-inch measuring ring was put on top.

Hundreds of workers were needed to get all the work done. Most of the jobs did not pay very well. Often the workers earned only 25 cents a day. Nearly all the men who built the National Road were workers who had come to American from Ireland. They did not know how to read or write and could not get better jobs.

To finish the road many bridges also needed to be built. They were both sturdy and beautiful.

The National Road took a long time to build and did not reach Wheeling, Virginia, until 1818. However, when it was finished, it was one of the best roads in the United States.

Thought Questions:

1. The National Road cost more to build in the mountainous areas than in other areas. Why?

2. Why would building a road today be easier than it was in 1811?

Student Activity: Road Building Tools

Materials

- Copies of the reproducible page ***Road Building Tools***.

Objectives

After completing the student activity, the students will be able to

- Identify three National Road building tools and describe how they were used.

Standards

Pennsylvania Standards for History

- 8.1.3 B
- 8.2.3 C

Pennsylvania Standards for Economics

- 6.5.3 B

Procedures

1. Make a copy of the reproducible page for each student.
2. Have students complete.

Activity Answers

- **Horses and oxen:** pull down trees, carry loads, pull wagons.
- **Hammers:** break rocks.
- **Shovels:** shovel and move dirt, shovel loads of rocks into wheelbarrows.
- **Axes and saws:** chop down trees.
- **Wheelbarrows:** transport dirt, rocks, pieces of trees, and vegetation.
- **Measuring rings:** measure the size of rocks.

Road Building Tools

Directions: Write how you would use each tool to build the National Road if you were building it in the 1800s.

Horses and oxen _____

_____

Hammers _____

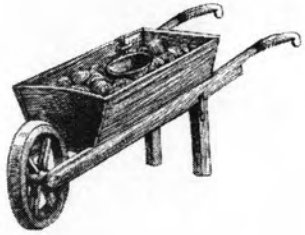
_____

Shovels _____

_____

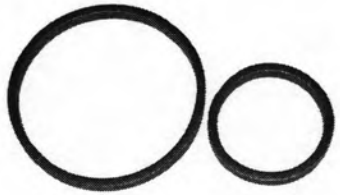
Axes and saws _____

_____



Wheelbarrows _____

_____



Measuring rings _____

_____

Student Activity: Workers Building the National Road

Materials

- Copies of the reproducible pages ***Workers Building the National Road***.

Objectives

After completing the student activity, the students will be able to

- List two jobs workers who built the National Road completed.

Standards

Pennsylvania Standards for History

- 8.1.3 B
- 8.2.3 C

Pennsylvania Standards for Economics

- 6.5.3 B

Procedures

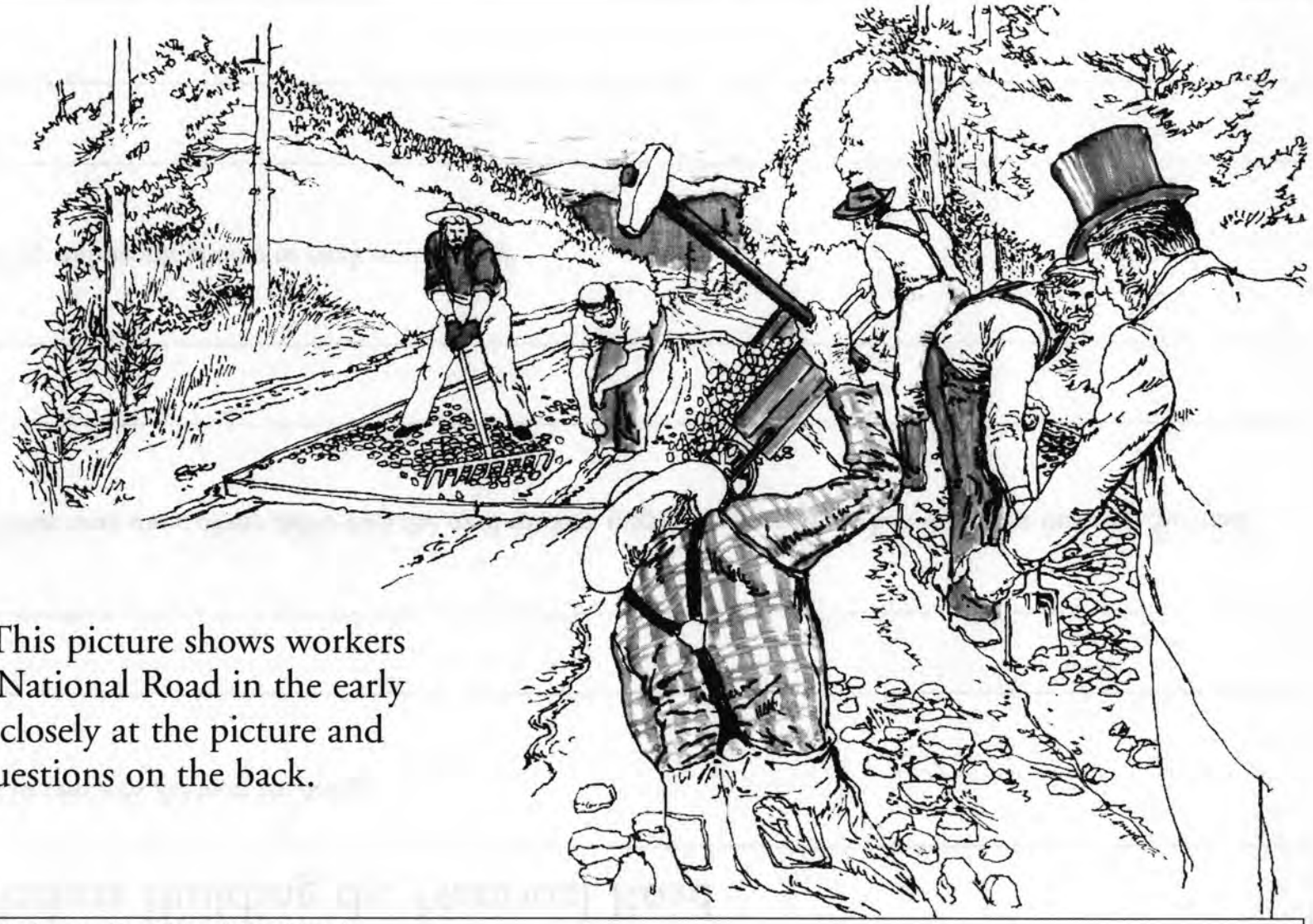
1. Make a copy of the reproducible pages for each student.
2. Have students complete.

Activity Answers

- **Jobs:** supervising the work, breaking rocks, shoveling rocks, moving rocks in a wheelbarrow, leveling the rocks with a rake.
- **Difficulties:** the work was very hard to do, the rocks were very heavy, there was a lot of work to do, they did not have a comfortable place to rest.
- **Why did people work on the road:** for many of the workers it was hard to find other work, it was better to work than have no job, the supervisor was well paid.

Student Activity:
Workers Building the National Road

Workers Building the National Road



Directions: This picture shows workers building the National Road in the early 1800s. Look closely at the picture and answer the questions on the back.

Workers Building the National Road

1. List two jobs the men are doing.

2. What were some of the difficulties the road workers might have run into when they were building the road?

3. Why did people choose to work on the road?