NEH Hudson River Workshop Lesson Plan 2013

Teacher: Nick Santora

Subject: Social Studies

Grade Level: 7th-8th Grade

Summary:
This lesson prompts students to discover how natural resources affect economies. They will learn how the Hudson Region contributed to the distribution of ice and brick as an example. Students will learn the history of ice and brick on the Hudson region and their importance. Students will begin to understand what natural resources are and how they are utilized by people.

Nick Santora *Lesson Plan*

1 to 2 days.

UNIT OF STUDY: Hudson River
ESSENTIAL QUESTION: To what extent do natural resources affect the economy of a region?
STANDARDS:
CCLS: RH1, RH4, RH7, WHST9
NYS: US History, Global History, Geography, Economics, Civics

PURPOSE/CONNECTION: How did the Hudson region contribute to the production and distribution of brick and ice?

MATERIALS/RESOURCES: excerpts from ***The Hudson: A History*** by Tom Lewis. Clay and ice (from a cooler), vocabulary sheet.

VOCABULARY: thrive, ensue, excavate, exploit, millennium, enterprising, insulate, entrepreneur, gouge, tenement, affluent, diminish

LEARNING OBJECTIVE: Students will explore two important natural resources in early Hudson River history.

WARM-UP: What are "natural resources?"

MINI-LESSON: Natural resources – Materials or substances such as minerals, forests, water, and fertile land that occur in nature and can be used for economic gain.
Can you provide examples of natural resources?
Demonstration of clay and ice. Explanation of how my grandfather used to deliver ice for a living.
What was life like before the invention of bricks? What were all buildings made from? How did people preserve their food before ice was easy to produce and purchase?
Students will break into 2 groups: One group will read the excerpt from Lewis's book about the brick industry. One group will read the passage on the ice industry.

INDEPENDENT EXPLORATION:

BRICKS

1. Why did the city of Haverstraw become the richest and best-known brick making site on the river? *(Because of its close proximity to New York City and the rich glacial deposit of blue clay that lay about thirty feet below the sandy surface, Haverstraw became the richest and best-known brick-making site on the river).*
2. In what year did the brick-making industry thrive and why? *(Its industry **thrived** after 1852 when Richard Ver Valen, a local resident, invented a machine that packed the clay firmly into a series of molds, using just the right proportions of clay, coal, dust, and sand, and firing their bricks at just the right temperature).*
3. What proportion of the bricks molded in Haverstraw was used in New York City? (*A third of all the bricks used in New York City came from Haverstraw.)*

4. What 2 great problems arose out of the brick-making industry?

a.) *(There were labor issues. Owners sometimes demanded more hours and cut wages. Strikes ensued in Haverstraw in 1853 and 1870, and the state militia had to be called in to keep order.)*

b.) *(Improper excavation of one of the clay pits in Haverstraw caused a landslide that swallowed up five blocks of houses and about 20 people.)*

5. What do you think the mayor's response to the landslide reveals about him as a person? *(open-ended answer)*.
6. What effect do you think the exploitation of the minerals required for brick-making would have on the environment of the Hudson's landscape? *(open-ended answer)*

ICE

1. In what year did the mass production of ice begin? (*The mass production of ice began in 1827 when horses were used to pull saws to cut grooves across the frozen surface of a pond in a checkerboard pattern of 2-foot squares. Workers walked behind the horses, guiding the saws to cut out blocks from a lake or a river.)*
2. How were icehouses insulated in order to keep the ice frozen? *(The icehouses were insulated with straw and sawdust.)*
3. What period of time in the late winter was it best for workers to cut ice? (*Every farmer for miles around the Hudson River could find steady work for three weeks in the late winter before the ice let out.)*
4. By 1900, how many icehouses were constructed along the Hudson River and how many tons of ice were they able to hold? (*By 1900 there were 145 icehouses along the river with a capacity of more than three million tons.)*
5. How large were the great rectangular icehouses? *(The great rectangular icehouses stood several stories high and measured up to 300 feet in length.)*
6. What great problem arose as a result of ice harvesting on the Hudson? *(Large ice companies formed monopolies in which they set the prices and made sure there would be no competition. Prices for ice rose in the last two decades of the 19th century as much as 100 per cent. New York's sanitary officials feared that price gouging would mean death for many of the thousands of people crowded into New York's tenements.)*
7. Why do you think New York's sanitary officials feared that lack of ice would mean death for many of the thousands of people crowded into New York's tenements? *(open-ended answer [i.e., spoiled food, bad milk for babies]*.
8. Why did ice harvesting eventually end on the Hudson River? *(Ice harvesting died out by the 1940's with the invention of the refrigerator.)*

GROUP SHARE:

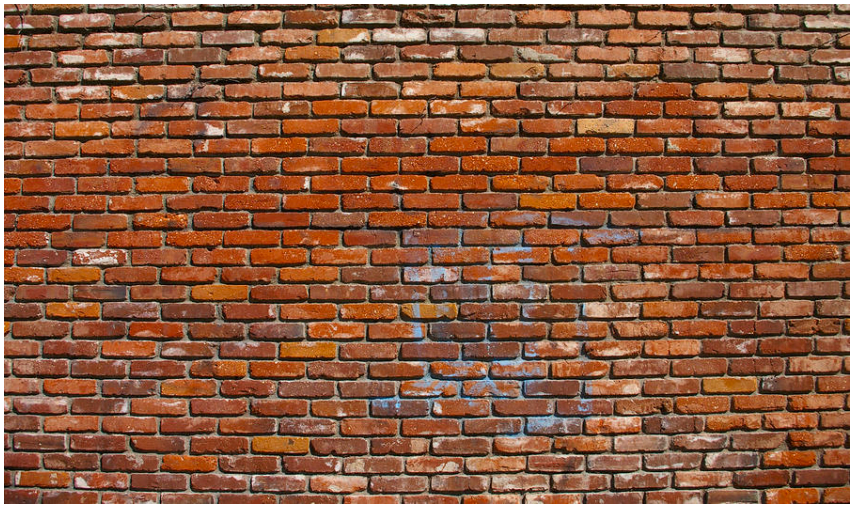
Students will compare the ice and brick industries in terms of economic impact and exploitation of workers and natural resources.

Example:

Why were owners able to force workers to toil for low wages?

What examples can you think of today in which we as a society are using up natural resources to the point of danger?

BRICKS



Ever since the Dutch arrived in the seventeenth century, the Hudson Valley was noted for its clays. *"The country has … several sorts of fine clay, such as white, yellow, red, and black, which is fat and tough, suitable for pots, dishes, plates, tobacco – and like wares,"* wrote Adriaen van der Donck in his ***Description of the New Netherlands***. About this time the Dutch began using Hudson River clay to make bricks for their houses and public buildings. By the mid 19th century, brick making was an important industry in places like Haverstraw, Mechanicville, Castleton, Shodack, Beacon, Verplanck, and Saugerties.

Because of its close proximity to New York City and the rich glacial deposit of blue clay that lay about thirty feet below the sandy surface, Haverstraw became the richest and best-known brick-making site on the river. Its industry **thrived** after 1852 when Richard Ver Valen, a local resident, invented a machine that packed the clay firmly into a series of molds. With Ver Valen's molding machine, Haverstraw's factories increased their production from a few thousand bricks a year to more than a million. Haverstraw factory owners prided themselves on using just the right proportions of clay, coal, dust, and sand, and firing their bricks at just the right temperature. By the end of the nineteenth century more than 41 factories lined the shore, producing as many as 325 million bricks a year. A third of all the bricks used in New York City came from Haverstraw.

The brick- making industry came with a cost, however. Owners sometimes demanded more hours and cut wages. Strikes **ensued** in Haverstraw in 1853 and 1870, and the state militia had to be called in to keep order. The greatest price was exacted in 1906, when improper **excavation** of one of the clay pits caused a landslide that swallowed up five blocks of houses and about 20 people. Still, Haverstraw's mayor

looked at the bright side of the disaster: he estimated that the landslide had exposed another $200,000 worth of clay.

After the Civil War, stone quarrying became a big business along the Hudson. By the nineteenth century the **exploitation** of these mineral riches was in full swing. Hudson River factories turned out 10,000 barrels of cement each day for New York's monumental 19th century building projects, like the construction of the Brooklyn Bridge and the five pointed pedestal of the Statue of Liberty

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4. What 2 great problems arose out of the brick-making industry?
5. What do you think the mayor's response to the landslide reveals about him as a person?
6. What effect do you think the exploitation of the minerals required for brick-making would have on the environment of the Hudson's landscape?

ICE

Hudson River ice proved most important to New York City's crowded residents in the late nineteenth century. *"It is fast becoming a [necessary] of life in every well-regulated household during hot weather,"* a ***New York Times*** reporter wrote of ice in 1857. Of course ice had been cooling food since the Chinese used it before the first **millennium**. But it was not until 1827, when an **enterprising** Bostonian named Nathaniel Wyeth used horses pulling saws to cut grooves across the frozen surface of a pond in a checkerboard pattern of 2-foot squares that mass production came to the operation. Workers walked behind the horses, guiding the saws to cut out blocks from a lake or a river; still more workers took the neatly cut blocks to icehouses insulated with straw and sawdust at the water's bank. The equipment was inexpensive but the rewards were great. From the mid 19th century until mechanical refrigeration became common in the 20th, every farmer for miles around the Hudson River could find steady work for three weeks in the late winter before the ice let out. Wyeth's invention brought a revolution to the frozen ponds and rivers of New England, but even more so to the Hudson Valley.

The Hudson provided more ice than any other single operation, and most of the product went to New York City. By 1880, when Manhattan's demand for ice reached 1.5 million tons a year, the 74 icehouses along the river had a capacity of more than two million tons; 15 years later the number had increased to 145 icehouses with a capacity of more than three million tons. The Knickerbocker Ice Company dotted the Hudson landscape with 16 icehouses at Castleton, ten at Stuyvesant, nine at Catskill, and still others at Troy, Rhinecliff, Rondout and Athens. For about three weeks, usually between mid-January and mid-February, as many as 25,000 men labored to cut blocks weighing 250 to 300 pounds out of the river, float them along a channel they had cut in the ice to a storehouse at the river's bank, and, with the aid of steam-driven conveyor belts, hoist them into the icehouse for storage before their eventual trip by boat to the city. The

great rectangular icehouses stood several stories high and measured up to 300 feet in length. Inside they were divided into compartments separated by thick wooden walls.

Figure 21. Substantial variation existed among Hudson River ice houses in the configuration of elevators used to load ice. Here, in an undated photograph of the Empire Number 2 Ice House at Catskill, N.Y., a separate elevator is located in front of each door. (Courtesy of the Vedder Memorial Library, Greene County Historical Society.)

From the beginning, **entrepreneurs** quickly understood the vast amounts of money to be made selling Hudson Ice. Large ice companies formed monopolies in which they set the prices and made sure there would be no competition. Prices for ice rose in the last two decades of the 19th century as much as 100 per cent. New York's sanitary officials feared that price **gouging** would mean death for many of the thousands of people crowded into New York's **tenements**.

As more **affluent** New Yorkers bought electric and gas refrigerators, the demand for Hudson River ice began to **diminish**, until it died out altogether in the 1940's.

1. In what year did the mass production of ice begin?
2. How were icehouses insulated in order to keep the ice frozen?
3. What period of time in the late winter was it best for workers to cut ice? (
4. By 1900, how many icehouses were constructed along the Hudson River and how many tons of ice were they able to hold?
5. How large were the great rectangular icehouses?
6. What great problem arose as a result of ice harvesting on the Hudson?

7. Why do you think New York's sanitary officials feared that lack of ice would mean death for many of the thousands of people crowded into New York's tenements?
8. Why did ice harvesting eventually end on the Hudson River?

VOCABULARY SHEET

Thrive - to prosper; be fortunate or successful.

Ensue - to follow in order; come afterward, especially in immediate succession.

Excavate - to make hollow by removing the inner part.

Exploit - to use selfishly for one's own ends.

Millennium – a thousand years.

enterprising - energetic in carrying out any undertaking.

Insulate - to cover, line, or separate with a material that prevents or reduces the passage, transfer, or leakage of heat.

Entrepreneur - a person who organizes and manages any enterprise, especially a business, usually with considerable initiative and risk.

Gouge - to extort from, swindle, or overcharge.

Tenement - a run-down and often overcrowded apartment house, especially in a poor section of a large city.

Affluent – rich; wealthy

Diminish - lessen