

THE UNIVERSITY OF THE STATE OF NEW YORK
THE NEW YORK STATE EDUCATION DEPARTMENT

Elementary-Level Learning Experience

Robert Fulton's *Clermont*

NYSED LEARNING STANDARDS

Social Studies Standard 1: History of the United States and New York State KI 3, PI 1; KI 4, PI 1 & 3 Social Studies Standard 3: Geography KI 1, PI 1; KI 2, PI 1

Social Studies Standard 4: Economics KI 1, PI 5; KI 2, PI 2 & 4

English Language Arts Standard 1: Language for Information and Understanding Reading PI 2, 4, 10, 13

English Language Arts Standard 3: Language for Critical Analysis and Evaluation Reading PI 5 + 7

Math, Science, & Technology (MST) Standards 3,4,5

The Arts Standards 1& 3

SOCIAL STUDIES CORE CURRICULUM

Grade 4 – Local History and Local Government

- Industrial growth and expansion

SKILLS

Thinking Skills – Comparing and contrasting ideas; drawing inferences and making conclusions; finding and solving multiple-step problems

Research and Writing Skills – Getting and organizing information; looking for patterns; interpreting information

Interpersonal and Group Relation Skills – Participating in group planning and discussion; cooperating to accomplish goals; assuming responsibility for carrying out goals

Map and Globe Skills – Reading maps, legends, symbols, and scales

Graph and Image Analysis Skills – Decoding images (graphs, cartoons, paintings, photographs)

CONCEPTS

Change

Choice

Environment

Interdependence

Needs and Wants

Technology

MODULE CONTEXT

In partnership with Chancellor Robert Livingston, Robert Fulton designed and built the first commercially successful steamboat, the *North River*, often called the *Clermont*. The *Clermont*'s maiden voyage began in New York City on Monday, August 17, 1807. Powered by a steam engine purchased from James Watt, the *Clermont* traveled 150 miles to Albany in a record 32 hours, averaging 4.7 miles per hour. The invention, initially called "Fulton's Folly," changed both life and work on the Hudson River.

FOCUS QUESTIONS

- What was the advantage of steam boating over sail navigation?
- Why was James Watt's steam engine important to Robert Fulton as he designed and developed the *Clermont*?
- How successful was the *Clermont*?

CLASSROOM ACTIVITIES

Lesson 1: Introduction

- Students will select information appropriate to the purpose of their investigation and relate ideas from one text to another.

Teacher reads aloud Jennifer B. Gillis's *Lives and Times: Robert Fulton* (Chicago: Heinemann Library, 2000).

- Students will complete a K-W-L chart regarding the importance of Robert Fulton and his steamboat, the *Clermont*, to the Hudson River.
- Teacher facilitates students' completion of the "L" column of the K-W-L chart.

Instructional Materials

- Book: *Lives and Times: Robert Fulton*
- "Robert Fulton and the *Clermont*" K-W-L chart

Robert Fulton and the *Clermont*

<u>K</u> now	<u>W</u> ant to Know	<u>L</u> earned

Lesson 2: Interpreting Documents and Analyzing Illustrations

- Students will gather and organize information about the important accomplishments of individuals and groups, including Native American Indians, living in their neighborhoods.
- Teacher will share with the class “The Invention of the Steamboat” below.

The Invention of the Steamboat

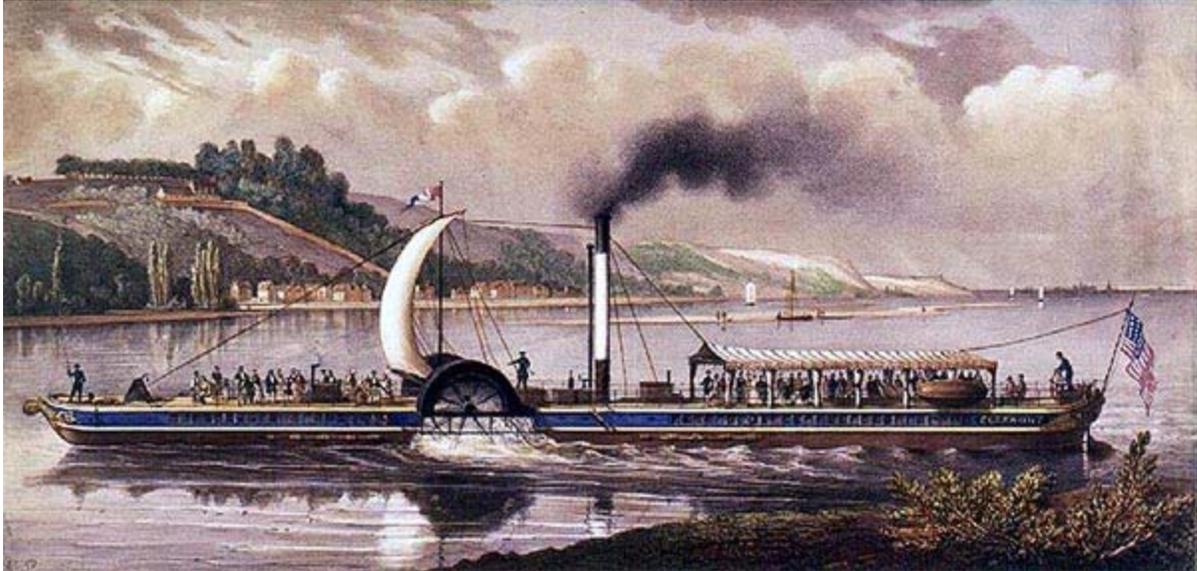
In the 1790s, a wealthy judge in New York named Robert R. Livingston wanted to find a faster way to travel between Manhattan and his country estate, 110 miles up the Hudson River. At that time, transportation on the river was limited to sailboats. Livingston dreamed of inventing a boat powered by steam. Unfortunately, Livingston wasn't much of an inventor, and all his steamboat attempts failed.

A few years later President Jefferson sent Livingston to France. While there, Livingston met Robert Fulton, a talented engineer, and hired him to invent a steamboat. Fulton's first experimental steamboat sailed down the Seine River in 1803. After this success, Livingston and Fulton started to construct a steamboat in New York.

In 1807, Fulton's steamboat was completed. Crowds cheered as his ship hissed its way up the Hudson, traveling at an average speed of 4.5 miles per hour. A few weeks later, Fulton's *North River Steam Boat* offered regular trips on the Hudson.

- What role did Robert R. Livingston play in the development of Fulton's steamboat?

- Teacher helps students analyze and discuss the illustration below.



Robert Fulton's "Clermont" on the Hudson, 1813. Courtesy of the I. N. Phelps Stokes Collection, Miriam and Ira D. Wallach Division of Art, Prints and Photographs, The New York Public Library, Astor, Lenox and Tilden Foundations.

<http://pbskids.org/bigapplehistory/early/topic17.html>

- Why did the *Clermont* use both steam and a sail?

Instructional Materials

- Early New York PBS article
- Illustration: *Robert Fulton's "Clermont" on the Hudson*

Lesson 3: Observing Technological Advances

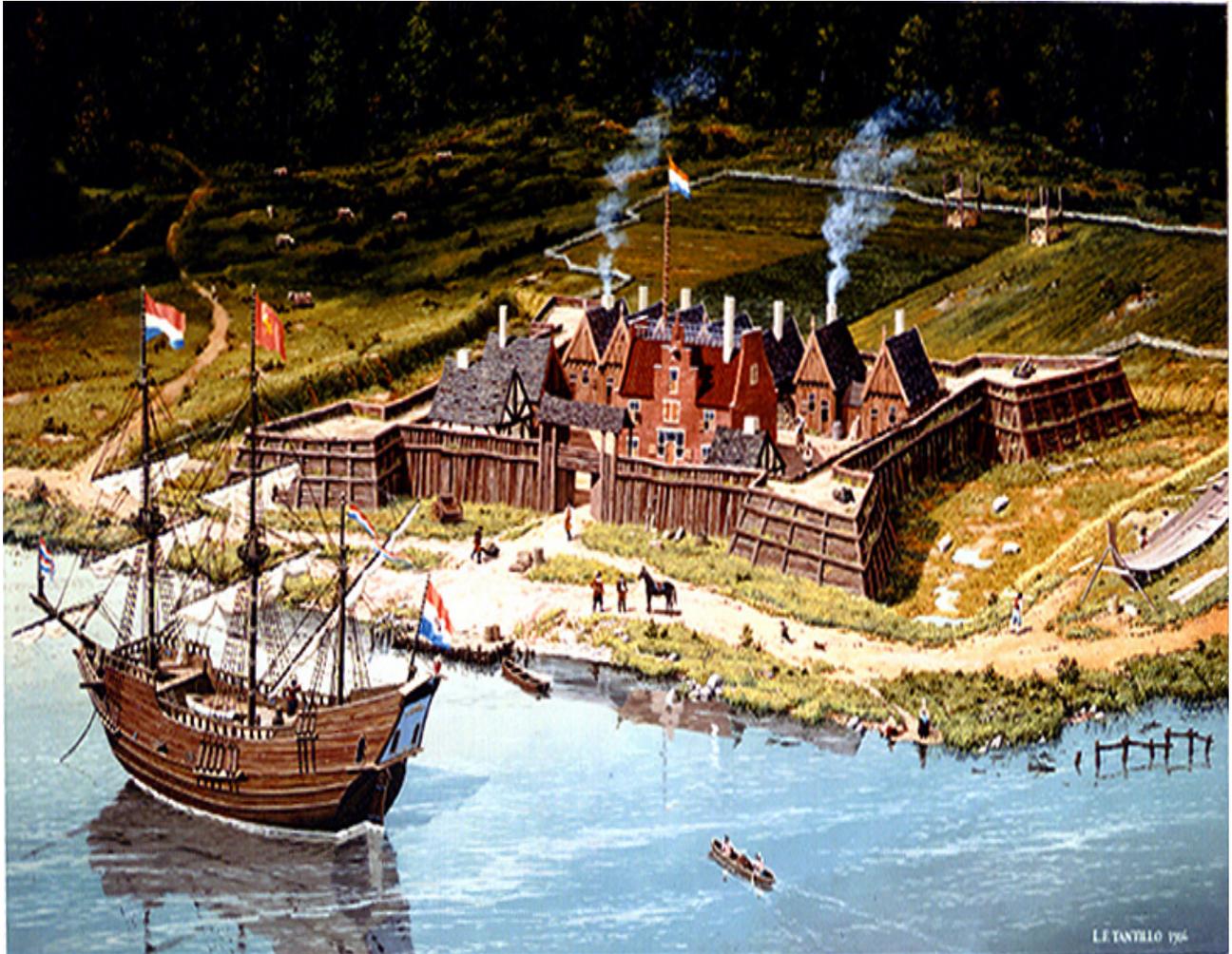
- Students will explain their reflections about the meanings, purposes, and sources of works of art, and they will describe their responses to the works and the reasons for those responses.

The entire class will be engaged in this activity. Students will compare and contrast two paintings of a similar region on the Hudson River to determine changes in technology from 1635 to 1879. The paintings are the work of Len F. Tantillo, a maritime artist who creates research-based works of art. Since these paintings have been created in recent years but depict long-ago scenes, students should recognize that they are interpretations—not exact documentations—of the two time periods seen. It might be important to help students “think” like a historian by teaching them strategies to consider the source, time frame, and possible purposes of a historical document such as art.

Instructional Materials

- Access to computer(s)
- Two Len Tantillo paintings: *Fort Orange, 1635* and *Union Depot, 1879*
- Venn diagram displayed on chart paper
- Student notebook

- Students will analyze Len Tantillo's *Fort Orange, 1635* and write down their observations in their notebook.



Source: <http://atlas.nrcan.gc.ca/site/english/maps/historical/exploration/bogaert.jpg>

- Next, students will analyze Len Tantillo's *Union Depot, 1879* and write down observations in their notebooks.



Source: <http://www.albany.edu/heritage/Len%20Tantillo.htm>

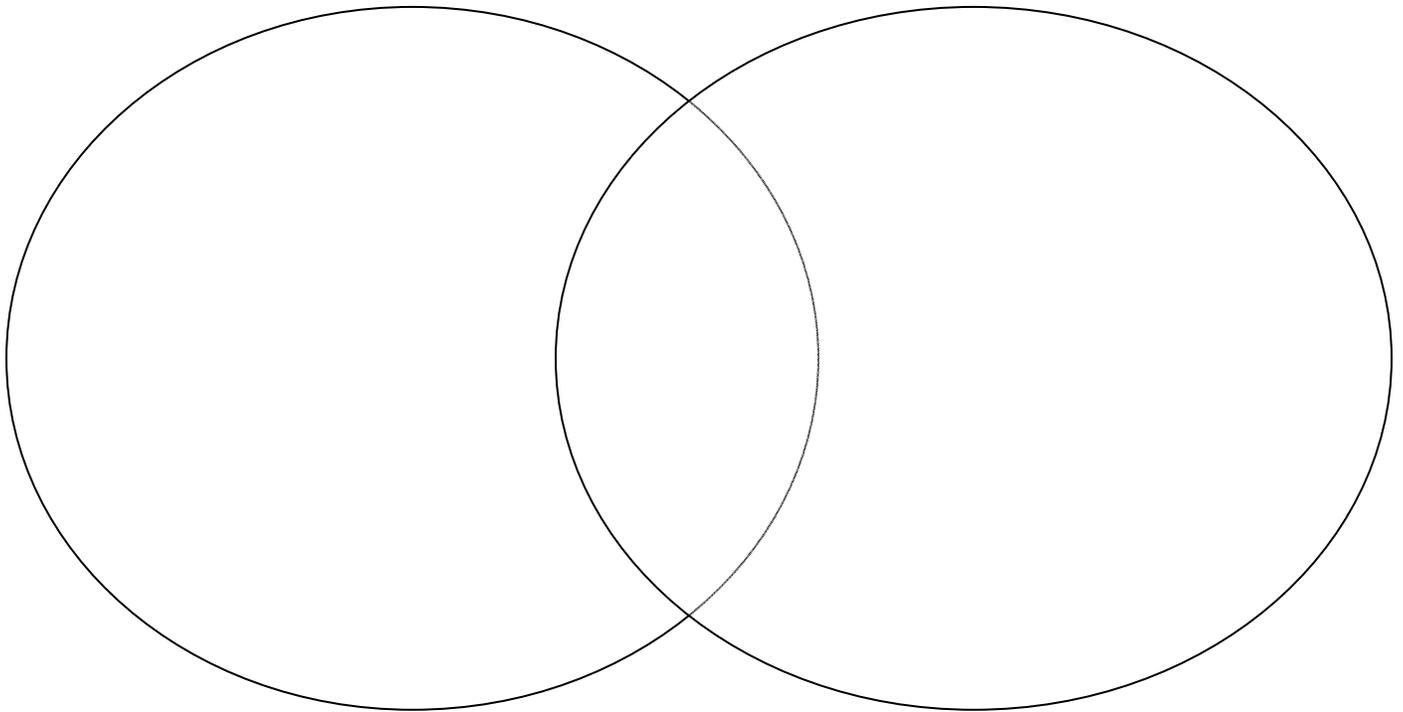
- Students will share their observations with the teacher and complete a Venn diagram on chart paper.

Venn Diagram

Lesson 3

Fort Orange, 1635

Union Depot, 1879



- Upon completion of the Venn diagram, the teacher will facilitate a brainstorming discussion of technological advances achieved from 1635 to 1879 as observed in both prints. Next, the teacher should list these advances on chart paper and display the chart paper analysis for the duration of the unit.

Lesson 4: Writing a Feature News Article for the *American Citizen*

Students will read each of the primary documents. Students will then analyze the documents and use the information gained to write a news article related to Fulton’s first steamboat trip on the Hudson River.

Instructional Materials

- Primary documents, including Fulton’s account of the *Clermont*’s first trip from New York City to Albany and the eyewitness account of a passenger
- “The 5 Ws” graphic organizer
- The *American Citizen*

About the *American Citizen*

David Denniston established the *American Citizen and General Advertiser* on March 10, 1800, in New York City. The name was shortened for the September 30, 1802 issue to the *American Citizen*. The newspaper remained in print until November 19, 1810; it was succeeded by the *New York Morning Post*.

New York, August 20

To THE EDITOR OF THE AMERICAN CITIZEN

Sir,

I arrived this afternoon at 4 o’clock, in the steam boat, from Albany. As the success of my experiment gives me great hope that each such boats may be rendered of much importance to my country, to prevent erroneous opinions, and to give some satisfaction to the fiends of useful improvements, you will have the goodness to publish the following statement of facts:

I left New York on Monday at 1 o’clock, and arrived at Clermont, the seat of Chancellor Livingston, at 1 o’clock on Tuesday, time 24 hours, distance 110 miles; on Wednesday I departed from the Chancellor’s at 9 in the morning, and arrived at Albany at 5 in the afternoon, distance; 40 miles, time 8 hours; the sum of this is 150 miles in 32 hours, equal near 5 miles an hour.

On Thursday, at 9 o’clock in the morning, I left Albany, and arrived at the Chancellor’s at 6 in the evening; I started from thence at 7, and arrived at New –York on Friday at 4 in the afternoon; time 30 hours, space run through 150 miles, equal 5 miles an hour. Throughout the whole way my going and returning the wind was ahead; no advantage could be drawn from my sails—the whole has, therefore, been performed by the power of the steam engine.

Letter to the Editor of The American Citizen

Courtesy of New York State Library

Primary Source Readings

Fulton's Account of the *Clermont's* first trip from New York City to Albany

Observations of a passenger

A visiting Frenchman by the name of Michaux was one of only two new passengers who mustered the courage to book passage on the return trip to New York City. Fear that the boiler would explode scared off any other would-be voyagers. Michaux described his journey in a letter to a friend:

“The vessel was lying alongside the wharf: a placard announced its return to New York for the next day but one, the 20th of August, and that it would take passengers at the same price as the sailing vessels - three dollars.

So great was the fear of the explosion of the boiler that no one, except my companion and myself, dared to take passage in it for New York. We quitted Albany on the 20th of August in the presence of a great number of spectators. Chancellor Livingston, whom we supposed to be one of the promoters of this new way of navigating rivers, was the only stranger with us: he quitted the boat in the afternoon to go to his country residence which was upon the left bank of the river. From every point on the river whence the boat, announced by the smoke of its chimney, could be seen, we saw the inhabitants collect; they waved their handkerchiefs and hurrahd for Fulton, whose passage they had probably noticed as he ascended the river.”

Source: <http://www.eyewitnesstohistory.com/pffulton.htm>

- Students complete a graphic organizer to answer “the 5 Ws”: who, what, when, where, why/how.
- Students use the completed graphic organizer to write a news story related to the maiden voyage of Fulton's steamboat.
- Students share the completed news article with the class.

The 5 Ws

	Robert Fulton	Passenger on the <i>Clermont</i>
Who?		
What?		
When?		
Where?		
Why/How?		

Lesson 5: Measuring Distance Using Scale

- Students will justify their answers and solution processes.

This activity is conducted by the whole class, with students working in a cooperative learning group setting. Two to four students will work together in each group.

- The teacher introduces the concept of map scale by using different-sized Hershey bars as visual aids.
- Each cooperative learning group receives a map to measure the distance from Lake Tear of the Clouds to New York City.
- Students place string or yarn on top of the river's course.
- Using the map's scale, students determine the length of the river between ports, and then the total length. Then they record these measurements on the chart.

Instructional Materials

- Map of New York State
- Rulers
- String/yarn
- Chart: "The *Clermont's* Ports Along the Hudson River"
- Regular/mini Hershey bars

For example:



If the length of one  candy bar is _____ inches, and we want to draw a map where 1 inch = _____ miles, then how long will the line be from Lake Tear in the Clouds to New York City? Use the candy bar to draw the accurate distance to scale.

The *Clermont*'s Ports Along the Hudson River

Locations on the Hudson River	Distance (miles)
<i>New York City to Verplanck's Point</i>	
<i>Verplanck's Point to West Point</i>	
<i>West Point to Newburgh</i>	
<i>Newburgh to Wappinger's Creek</i>	
<i>Wappinger's Creek to Poughkeepsie</i>	
<i>Poughkeepsie to Hudson (city of Hudson)</i>	
<i>Hudson to Albany</i>	
TOTAL	miles from NYC to Albany

Lesson 5: Calculating Distance Over Time

- Students will construct tables, charts, and graphs to display and analyze real-world data.

This activity is conducted by the whole class, with students working in cooperative learning groups. Two to four students will work together in each group

- Teacher reviews the formula of distance divided by rate equals time.
- Using the data from the completed chart, “The *Clermont*’s Ports Along the Hudson River,” students use calculators to compute the time traveled between ports along the Hudson River. Then they record this data on “The *Clermont*’s Distance Over Time” chart.

Instructional Materials

- Completed chart: “The *Clermont*’s Ports Along the Hudson River”
- Chart: “The *Clermont*’s Distance Over Time”
- Calculator

The *Clermont's* Distance Over Time

$\frac{\text{distance}}{\text{rate}} = \text{time}$

Locations on the Hudson River	Distance (miles)	5 mph (miles per hour)	Time Traveled (hours)
<i>New York City to Verplanck's Point</i>			
<i>Verplanck's Point to West Point</i>			
<i>West Point to Newburgh</i>			
<i>Newburgh to Wappinger's Creek</i>			
<i>Wappinger's Creek to Poughkeepsie</i>			
<i>Poughkeepsie to Hudson (city of Hudson)</i>			
<i>Hudson to Albany</i>			
TOTAL	miles from NYC to Albany		hours traveled between NYC and Albany

Lesson 6: Creating a Broadside

- Students will experiment and create art works in a variety of mediums (drawing, painting, sculpture, ceramics, printmaking, video, and computer graphics), based on a range of individual and collective experiences.

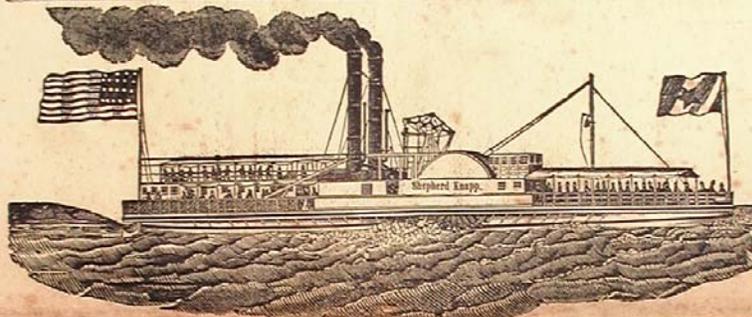
This activity will be completed by students working independently.

- Discuss with the class what a broadside is and how businesses use broadsides to advertise their goods and services.
- Have students analyze the sample of a broadside. Students should consider:
 - Is all of the text the same size?
 - Is all of the text bold?
 - Is all of the text in the same font?
 - Is the text spaced out or close together?
 - Why does the broadside include a picture?

Instructional Materials

- “Robert Fulton and the *Clermont*” K-W-L chart
- Venn diagram
- Analysis of technological advances on chart paper
- “The 5 Ws” graphic organizer / news article
- “The *Clermont*’s Ports Along the Hudson” chart
- “Steamboat Fares” chart
- Access to computer and art materials

CATSKILL, HUDSON
—AND—
ALBANY!
Arrangements for 1846!



The Proprietors of the Steamboat *HOPE*, for the better accommodation of the Travelling Public between

CATSKILL AND ALBANY,
Have Purchased the New and Splendid Steamer
SHEPHERD KNAPP

The *Shepherd Knapp*, Capt. **PETER G. COFFIN**,
WILL LEAVE
CATSKILL DAILY, at 6 O'CLOCK, A. M.,
—AND—
HUDSON at 7 o'clock, A. M., for **ALBANY**.
RETURNING, LEAVE
ALBANY AT 3 P. M., LANDING AT THE INTERMEDIATE LANDINGS.

For **FREIGHT** or **PASSAGE**, Enquire of **P. G. COFFIN & Co.**, one door north of Charles McArthur's Store, Hudson, or the Agent on the Dock, Catskill, or **Wm. CARLE**, on the Pier, Albany.

HUDSON, APRIL 20, 1846.

- Have students design a broadside/brochure to promote steamboat travel in the early 1800s. Student-created broadsides might include:
 - Name of business and/or boat
 - Address
 - Schedule of departing and arriving
 - Prices
 - Pictures
 - Hours of operation
 - Payment (barter?)
 - Slogan
 - Discounts for bulk purchases
 - Competition – Why is your business better?

Instructional Materials

- “Robert Fulton and the *Clermont*” K-W-L chart
- Venn diagram
- Analysis of technological advances on chart paper
- “The 5 Ws” Graphic Organizer / News Article
- “The *Clermont*’s Ports Along the Hudson” chart
- “The *Clermont*’s Distance Over Time” chart
- “Steamboat Fares” chart
- Sample broadside
- Access to computer and art materials

Steamboat Fares

Locations on the Hudson River	Fare
<i>New York City to Verplanck's Point</i>	\$2.00
<i>New York City to West Point</i>	\$2.50
<i>New York City to Newburgh</i>	\$3.00
<i>New York City to Wappinger's Creek</i>	\$3.25
<i>New York City to Poughkeepsie</i>	\$3.50
<i>New York City to Hudson (city of Hudson)</i>	\$5.00
<i>New York City to Albany</i>	\$7.00

***There was no fare less than \$1.00 for any fraction of 20 miles.**

Source: <http://www.hmmm.org/diglib/oldsteam/prt-chapter2.html>

Broadside Activity
Culminating Read-Aloud

- Students will support inferences about information and ideas with reference to text features such as vocabulary and organizational patterns.

Teacher reads aloud to students and discusses *Hudson: The Story of a River* (see Suggested Resources and Materials for citation). As a final activity, have students complete the attached word search.

Robert Fulton's *Clermont* Word Search

N S D T A D E E A O E L N T T
O I T K A D A L E C I O E N T
I W Q E A O B Y R G R K X O O
T Z N R A A B E L T R K B M U
A L T O N M M M H I C A Z R R
T I W Y S M E R A Z N Q B E I
R V F C O W I N X E Q E V L S
O I W C Z V X Y G H T I D C M
P N O A E F A R E I R S A O H
S G L R T N L O X N N I U O F
N S B Z B T M W O W U E S K P
A T T K C A T S E K O M S O O
R O Z P A D D L E W H E E L O
T N O T L U F C A P T A I N L
A C M Y H D S T T C D E W X S

Source: <http://puzzlemaker.school.discovery.com>

ALBANY
CLERMONT
FARE
LIVINGSTON
SLOOP
STEAMENGINE
TRANSPORTATION

BARGE
COMMERCE
FULTON
NORTHRIVER
SMOKESTACK
TOURISM
WATT

CAPTAIN
DAYLINE
HUDSONRIVER
PADDLEWHEEL
STEAMBOAT
TRADE

MODIFICATIONS FOR SPECIAL EDUCATION AND ELL STUDENTS:

- Students may consult with the regular education teacher regarding additional resources and support. - During resource room period, students may work with their special education or ELL teacher to further explore sources.
- Remedial reading and ELA teachers should be aware of the assignments. They may also provide further assistance to students.
- Media center and library staff will pull additional resources and compile them for students.
- Additional time may be allotted when submitting assignments.
- Assignments will be broken down into different stages to accommodate students.
- Visual assistance (flowcharts, pictures, illustrations) may also help students with the assignments.

VOCABULARY

advertisement	experiment	sloop
anxiety	fare	smokestack
barge	import	steamboat
broadside	invention	steam
captain	model	submarine
cargo	paddlewheel	trade
engineer	propeller	
export	prototypes	

SUGGESTED RESOURCES AND MATERIALS

Baron, Robert and Thomas Locker. 2004. *Hudson: The Story of a River*. Golden, CO: Fulcrum Publishing.

Everett, Felicity and Struan Reid. Illustrated by Peter Dennis. *The Usborne Book of Explorers*. London: Usborne Publishing, Ltd.

Flexner, James T. 1993. *Steamboats Come True: American Inventors in Action*. New York: Fordham University Press.

Gillis, Jennifer B. 2004. *Lives and Times: Robert Fulton*. Chicago: Heineman Library.

Macaulay, David. 1993. *Ship*. Boston: Houghton Mifflin Company.

Sale, Kirkpatrick. 2002. *The Fire of His Dream*. New York: Touchstone.

Sansevere-Dreher, Diane. 1992. "Henry Hudson." In *Explorers Who Got Lost*. New York: A Tom Doherty Associates Book.

Sutcliffe, Alice Crary. 1909. *Robert Fulton and the Clermont*. New York: The Century Company.

Wineburg, Sam. 2007. *Reading Like a Historian Toolkit*. Austin, TX: Holt, Rinehart and Winston.

WEBSITES

Fulton's Own Account of His First Trip to Albany

<http://www.historycentral.com/documents/Fultonship.html>

Fulton's First Steamboat Voyage, 1807

<http://www.eyewitnesstohistory.com/pffulton.htm>

Old Steamboat Days on the Hudson River (Chapter 2: "The First Steamboat")

<http://www.hrmm.org/diglib/oldsteam/prt-chapter2.html>

Photo of Robert Fulton

http://www.pbs.org/wnet/historyofus/web04/features/bio/B07_2.html

Steamboat on the Hudson

<http://pbskids.org/bigapplehistory/early/topic17.html>

Maps and images – Industrial Revolution

<http://www.pbs.org/wnet/historyofus/tools/browser4b.html>