

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

Elementary-Level Learning Experience

Come Explore with Henry Hudson: Exploration and Connections

NYSED LEARNING STANDARDS

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

Social Studies Standard 2: World History KI 1, PI 1-3; KI 2, PI 1-4; KI 3, PI 1; KI 4, PI 1-3

Social Studies Standard 3: Geography KI 1, PI 1, 2, 4, 5; KI 2, PI 1-3

Social Studies Standard 4: Economics KI 1, PI 1 & 4

SOCIAL STUDIES CORE CURRICULUM

Grade 3 – Communities Around the World

The location of world communities

Grade 4 – Local History and Local Government

Native American Indians of New York State

Three worlds (Europe, the Americas, Africa) meet in the America

SKILLS

Thinking Skills - Drawing inferences and making conclusions

Research and Writing Skills - Interpreting information

Interpersonal and Group Relation Skills - Identifying values conflicts

Sequencing and Chronology Skills - Sequencing major events on a timeline

Maps and Globe Skills - Reading maps, legends, symbols, and scales

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

CONCEPTS

Change

Environment

Culture

Places and Regions

MODULE CONTEXT: The 400th anniversary of Henry Hudson’s exploration marked a watershed event that defined New York State. Humans like all living beings, depend on their environment to provide for their basic needs of food, shelter, and clothing. The environment can also provide goods other people need. Henry Hudson and his crew depended on the environment in the new land they explored to provide for some of their basic needs. They also found many natural resources, which they were able to exchange in trade. Robert Juet, Henry Hudson’s first mate, recorded a European’s observation about the Hudson River region.

FOCUS QUESTIONS:

- Who were the first inhabitants of New York State and how did they live?
- Why is Henry Hudson an important person in New York State history?

- How did geography and the natural environment influence European and Native American settlement patterns in the Hudson Valley?

CLASSROOM ACTIVITIES:

- In the 1600s, the Dutch West India Company was very powerful and successful. The Company's goal was to make money. The Company traded goods such as spices, sugar, fur, and slaves. The Dutch West India Company was an offshoot of the Dutch East India Company, which funded Henry Hudson's voyage to North America in 1609. If Hudson could find a secret shortcut to Asia, the Company thought, they would make even more profits. Although Hudson failed at his mission, his reports of fur trading opportunities inspired merchants. About fifteen years later, the Company sent about thirty families to North America as colonists and workers. They called the colony they founded "New Amsterdam." Later renamed New York, it would grow into one of the greatest cities in the world.

This picture shows the official seal of New Netherland.

A picture of a beaver with wampum beads around it was put on the seal.



Source: The Museum of the City of New York and the General Government Archives, The Hague, the Netherlands.

Name _____

Date

Dutch West India Company: Reading Comprehension

- **Directions:** Have students read the paragraph above and answer the questions in complete sentences.

What was the goal of the Dutch West India Company?

1. Name the company that funded Henry Hudson's voyage.

2. What was the purpose of Hudson's voyage?

3. Hudson failed at his assigned mission. Why wasn't Hudson's voyage a complete failure to the Dutch East India Company?

4. Why did the Dutch West India Company make a seal for the colony of New Netherland?

Come Explore with Henry Hudson: Exploration and Connection

This elementary grades 3- 5 group activity engages students in a series of researching, writing, role-playing, and classroom presentations activities. The students play roles as captain/crew and as stockholders in the Dutch East India Company. When assigning roles take into mind that the difficulty level of the roles differ.. The classroom teacher is the Chairman of the Dutch East India Company.

- **Procedure:** Before the class begins this cooperative group activity, the teacher should organize students into small groups of captains and crews ahead of time. All students should have opportunities to examine the excerpts from the Journal of Robert Juet.
- **The Mission:** Students are hired to find a Northwest Passage to India following Henry Hudson's third voyage. Students will each receive a mission packet of primary and secondary source information to use to find the information necessary to complete the jobs and include in their individual mission documentation. Students must complete the mission documentation in order to provide proof of the success or failure of the voyage.
- **Mission Documentation Jobs:**
 - **Captain:** Oversees the crew and drafts a letter of recommendation to the Dutch East India Company about the mission's findings. The captain explains whether explorations to this new place should or should not continue. Recommendations must be explained using details from the crew's reports and mission documentation. The captain and the crew must sign the letter to verify findings and group participation.

- **First Mate**: writes journal entries for at least 3-5 days describing the area explored, its weather, the natural resources available, descriptions of local inhabitants, trade transactions, problems encountered, etc.
 - **Cartographer**: creates maps showing the route traveled as well as maps of any places explored.
 - **Manifest Officer**: writes two cargo lists describing food and clothing taken on the voyage, what has been brought to use for trade, and what will be brought back from the exploration.
 - **Limner**: creates a broadside (ad/poster) to tell people about the completion of the voyage and its important findings.
 - **Cabin Boy/Girl**: creates 5-8 drawings with written descriptions of interesting things they've seen on the voyage (e.g. landscapes, plants, animals, people, food, dwellings, trade items, etc).
- Upon completion of the exploration, groups must appear before the head of the Dutch East India Company and its stockholders to present each individual's mission information. If the Company and its stockholders are pleased with the information presented by the captain and crew, it may vote to bestow a reward. (Examples of a reward could be a Certificate of Merit, medals of honor, gold coins [foil wrapped chocolate or plastic coins], jewels, etc.).

Teacher Note: The version of Robert Juet's Journal that is printed below has been modernized. You can access the original 1625 version at the end of this section.

Reminder: *Use the journal entries by Robert Juet to find more information about the voyage to help you document your jobs.*

On Saturday the first and twentieth of March, 1609, after the old Account, we set sailed from *Amsterdam*; and by the seven and twentieth day, we were down at the *Texel*: and by twelve of the clock we were off the Land, it being East of us two leagues off. And because it is a journey usually known, I omit to put down what passed, till we came to the height of *The North Cape of Finmarke*, which we did perform by the fifth of May (stilo nouo) being Tuesday ...

Sept.3.

The morning misty until ten o'clock, then it cleared, and the wind came to the south-south-east, so we weighed and stood to the northward. The land is very pleasant and high, and bold to fall withal. At three o'clock in the afternoon, we came to three great rivers. So we stood along the northernmost, thinking to have gone into it. So we weighed and went in, and rode in five fathoms, ooze ground, and saw many salmons, and mullets, and rays very great. The height is 40 degrees 30 minutes.

Sept 4: A very good harbor

In the morning as soon as the day was light, we saw that it was good riding farther up. So we sent our boat to sound, and found that it was a very good harbor; and four and five fathoms, two cables length from the shore. Then we weighed and went in with our ship. Then our boat went on land with our net to fish, and caught ten great mullets, of a foot and a half long a piece and a ray as great as four men could haul into the ship. So we trimmed our boat and rode still all day. At night the wind blew hard at the north-west, and our anchor came home, and we drove on shore, but took no hurt, thanked be God, for the ground is soft sand and ooze. This day the people of the country came aboard of us, seeming very glad of our coming, and brought green tobacco, and gave us of it for knives and beads. They go in deer skins loose, well dressed. They have yellow copper. They desire clothes, and are very civil. They have great store of maize or Indian wheat, whereof they made good bread. The country is full of great and tall oaks.

Sept.5: Dried currents, mantles of feathers, furs, hemp, and red copper

In the morning as soon as the day was light, the wind ceased and the flood came. So we heaved off our ship again into five fathoms water, and sent our boat to sound the bay, and we found that there was three fathoms hard by the southern shore. Our men went on land there, and saw great store of men, women and children, who gave them tobacco at their coming on land. So they went up into the woods, and saw great store of very goodly oaks, and some currants. For one of them came aboard and brought some dried, and gave me some, which were sweet and good. This day many of the people came aboard, some in mantles of feathers, and some in skins of divers sorts of good furs. Some women also came to us with hemp. They had red copper tobacco pipes, and other things of copper they did wear about their necks. At night they went on land again, so we rode very quiet, but durst not trust them.

September 9: Treacherous Savages

Fair weather. In the morning, two great canoes cam aboard full of men; the one with bows and arrows, and the other in show of buying of knives to betray us; but we perceived their intent. We took two of the one of them to have kept them, put red coats on them, and would not suffer the other to come near us. So they went on land, and two other came aboard in a canoe: we took the one and let the other go; but he, which we had taken, got up and leapt overboard. Then we weighed and went off into the channel of the River, and anchored there all night.

Sept.11: Good Harbor

Was fair and very hot weather. At one o'clock in the afternoon, we weighed and went into the river, the wind at south-south-west, little wind. Our soundings were seven, six, five, six, seven, eight, nine, ten, twelve, thirteen and fourteen fathoms. Then it shoaled again, and came to five fathoms. Then we anchored and saw that it was a very good harbor for all winds, and rode all night. The people of the country came aboard of us, making show of love, and gave us tobacco and *Indian* wheat, and departed for that night; but we durst not trust them.

Sept.12: Canoes Full of Men, Oysters and Beans and Copper Pipes

Very fair and hot. In the afternoon at two o'clock we weighed, the wind being variable, between the north and the north-west; so we turned into the river two leagues and anchored. This morning at our first rode in the river, there came eight and twenty canoes full of men, women and children to betray us; but we saw their intent, and suffered none of them to come aboard us. At twelve o'clock they departed. They brought with them oysters and beans, whereof we bought some. They have great tobacco, I pipes of yellow copper, and pots of earth to dress their meat in. It flow southeast by south within.

Sept.14: Very High and Mountainous Land

In the morning being very fair weather, the wind south-east, we sailed up the river twelve leagues, and had five fathoms and five fathoms and a quarter less, and came to a strait between two points, and had eight, nine and ten fathoms; and it trended north-east by north one league, and we had twelve, thirteen and fourteen fathoms; the river is a mile board; there is very high land on both sides. Then we went up north-west, a league and a half deep water; then north-east by north five miles; then north-west by north two leagues and anchored. The land grew very high and mountainous; the river is full of fish.

Sept.15: Very Loving People

The morning was misty until the sun arose, then it cleared; so we weighed with the wind at south, and ran up into the river twenty leagues, passing by high mountains. We had a very good depth, as six, seven, eight, nine, ten, twelve, and thirteen fathoms, and great store of salmon in the river. This morning our two savages got out of a port and swam away. After we were under sail they called to us in scorn. At night we came to other mountains, which lie from the river's side; there we found very loving people, and very old men, where we were well used. Our boat went to fish, and caught great store of very good fish

Sept. 19: Grapes, Pompions (Pumpkins), Beaver and Other Skins

The nineteenth was fair and hot weather. At the flood, being near eleven o'clock, we weighed and ran higher up two leagues above the shoals, and had no less water than five fathoms we anchored and rode in eight fathoms the people of the country came flocking aboard, and brought us grapes and pumpkins, which we bought for trifles; and many brought us beavers' skins, and otter skins, which we bought with beads, knives and hatchets. So we rode there all night.

Sept.25: Oaks, Walnut, Chestnut Trees, Ewe Trees, Cedar Trees

The five and twentieth was fair weather, and the wind at south a stiff gale. We rode still, and went on land to walk on the west side of the river, and found good ground for corn, and other garden herbs, with great store of goodly oaks, and walnut trees, and chestnut trees, yew trees, and trees of sweet wood in great abundance, and great store of slate for houses, and other good stones.

Sept. 30: Small Skins, a Pleasant Place to Build a Town On.

The thirtieth was fair weather, and the wind at south-east a stiff gale between the mountains. We rode still the afternoon. The people of the country came aboard us, and brought some small skins with them, which we bought for knives and trifles. This is a very pleasant place to build a town on. The road is very near, and view good for all winds, save an east northeast wind. The mountains look as if some metal or mineral were in them; for the trees that grew on them were all blasted, and some of them barren with few or no trees on them. The people brought a stone aboard like to emery, (a stone used by glaziers to cut glass,) it would cut iron or steel; yet being bruised small, and water put to it, it made a color like black lead glistening; it is also good for painters' colors. At three o'clock they departed, and we rode still all night.

Thursday, Oct.1: October

The first of October, fair weather, the wind variable between west and the north. In the morning we weighed at seven o'clock with the ebb, and got down below the mountains, which was seven leagues; then it fell calm and the flood was come, and we anchored at twelve o'clock. The people of the mountains came aboard us, wondering at our ship and weapons. We bought some small skins of them for trifles. This afternoon one canoe kept hanging under our stern with one man in it, which we could not keep from thence, who got up by our rudder to the cabin window, and stole out my pillow, and two shirts, and two bandoleers. Our master's mate shot at him, and struck him on the breast, and killed him. Whereupon all the rest fled away, some in their canoes, and so leaped out of them into the water. We manned our boat and got our things again. Then one of them that swam got hold of

our boat, thinking to overthrow it but our cook took a sword and cut off one of his hands, and he was drowned. By this time the ebb was come, and we weighed and got down two leagues-by that time it was dark; so we anchored in four fathoms water, and rode well.

Oct.2: Treacheries of the Savages; A Skirmish and Slaughter of the Savages

The second, fair weather. At break of day we weighed, wind being at northwest, and got down seven leagues then the flood was come strong, so we anchored. Then came one of the savages that swam away from us at our going up the river, with many others, thinking to betray us. But we perceived their intent, and suffered none of them to enter our ship. Whereupon two canoes full of men, with their bows and arrows, shot at us after our stern, in recompense whereof we discharged six muskets, and killed two or three of them. Then above a hundred of them came to a point of land to shoot at us. There I shot a falcon at them, and killed two of them, whereupon the rest fled into the woods. Yet they manned off another canoe with nine or ten men, which came to meet us; so I shot at it also a falcon, and shot it through, and killed one of them. Then our men with their muskets killed three or four more of them. So they went their way. Within a while after, we got down two leagues beyond that place and anchored in a bay clear from all danger of them on the other side of the river, where we saw a very good piece of ground; and hard by it there was a cliff that looked of the color of white green, as though it were either a copper or silver mine; and I think it to be one of them by the trees that grow upon it; for they be all burned, and the other places are green as grass; it is on that side of the river that is called *Manna-hata*. There we saw no people to trouble us, and rode quietly all night, but had much wind and rain.

Oct. 4: The Great Mouth of the Great River

The fourth was fair weather, and the wind at north north-west we weighed and came out of the river, into which we had run so far. Within a while after, we came out also of *the great mouth of the great river*, that runs up to the northwest, borrowing upon the more northern side of the same, thinking to have deep water, for we had sounded a great way with our boat at our first going in, and found seven, six, and five fathoms. So we came out that way, but we were deceived, for we had but eight feet and a half water; and so to three, five, three, and two fathoms and a half; and then three, four, five, six, seven, eight, nine and ten fathoms; and by twelve o'clock we were clear of all the inlet. Then we took in our boat, and set our mainsail and spritsail, and our topsails, and steered away east south-east, and south-east by east, off into the main sea; and the land on the southern side of the bay or inlet did bear at noon west and by south four leagues from us.

Oct. 5: The Half Moon Sets Sail to England

The fifth was fair weather, and the wind variable between the north and the east. We held on our course south- east by east. At noon I observed and found our height to be 39 degrees 30 minutes. Our compass varied six degrees to the west. We continued our course toward England without seeing any land by the way, all the rest of this month of October;

Nov. 7: The Half Moon Arrives in Devonshire

Stilo novo, being Saturday, by the grace of God, we safely arrived in the range of Dartmouth in Devonshire, in the year 1609.

New York State Library Call Number V, 9108, q p.98

Purchas, Samuel. *Purchas His Pilgrims.... 1625. London: Printed by William Stansby for Henrie Featherstone.*

**Captain's Mission Packet*

Congratulations!

You have just been hired by the Dutch East India Company to be a captain (one who commands, leads, or guides others, especially the officer in command of a ship). As captain, you must oversee the crew and draft a letter of recommendation to the Dutch East India Company about the mission's findings. Tell about the place you found. Explain whether explorations to this new place should or should not continue. Your recommendations for further exploration should be explained using details from the accompanying mission documentation and your crew's reports. The captain and everyone on the crew should sign the letter to verify the findings and confirm each person's participation.

First Mate's Mission Packet

Congratulations!

You have just been hired by the Dutch East India Company to be a First Mate (an officer below the captain on a commercial ship).

As First Mate, you are charged with keeping a written record of your explorations. Your records will be in the form of (at least three) journal entries describing the area explored, the area's weather, and natural resources. Your journal will also provide descriptions of local inhabitants, trade transactions, and any problems encountered.

First Mate's Primary and Secondary Sources

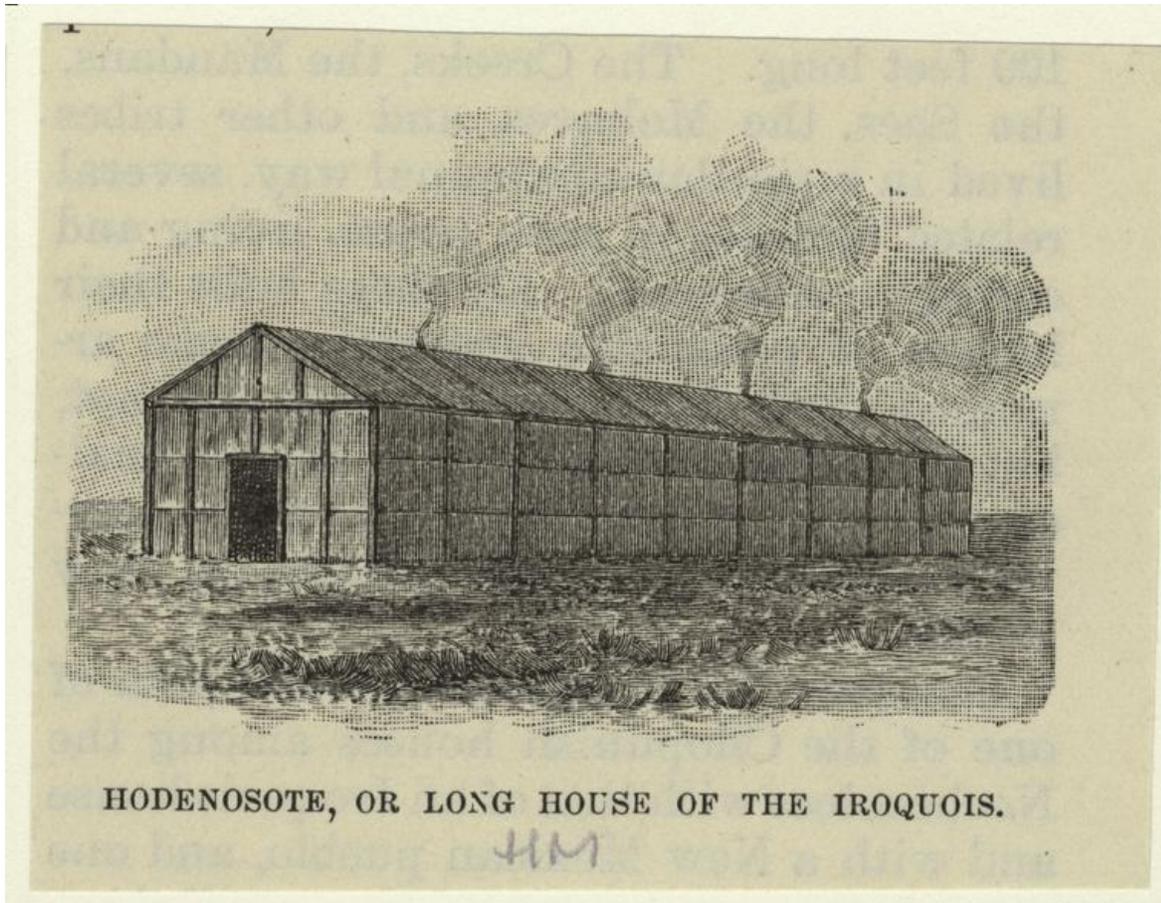


Dress of the Inhabitants of Hudsons River New York, when first discoverid.

[View Details: Dress of the inhabitants of Hudson River New York, when first discovered.](#)

New York Public Library IMAGE ID: 806878

Think: What can you discover about the native people's clothing, food, transportation, and weapons?



[View Details: Hodenosote, or long house of the Iroquois.](#)
IMAGE ID: 806852 © 2002 [The New York Public Library](#)

Think: From this image, what can you conclude about Iroquois houses?

Cartographer's Mission Packet

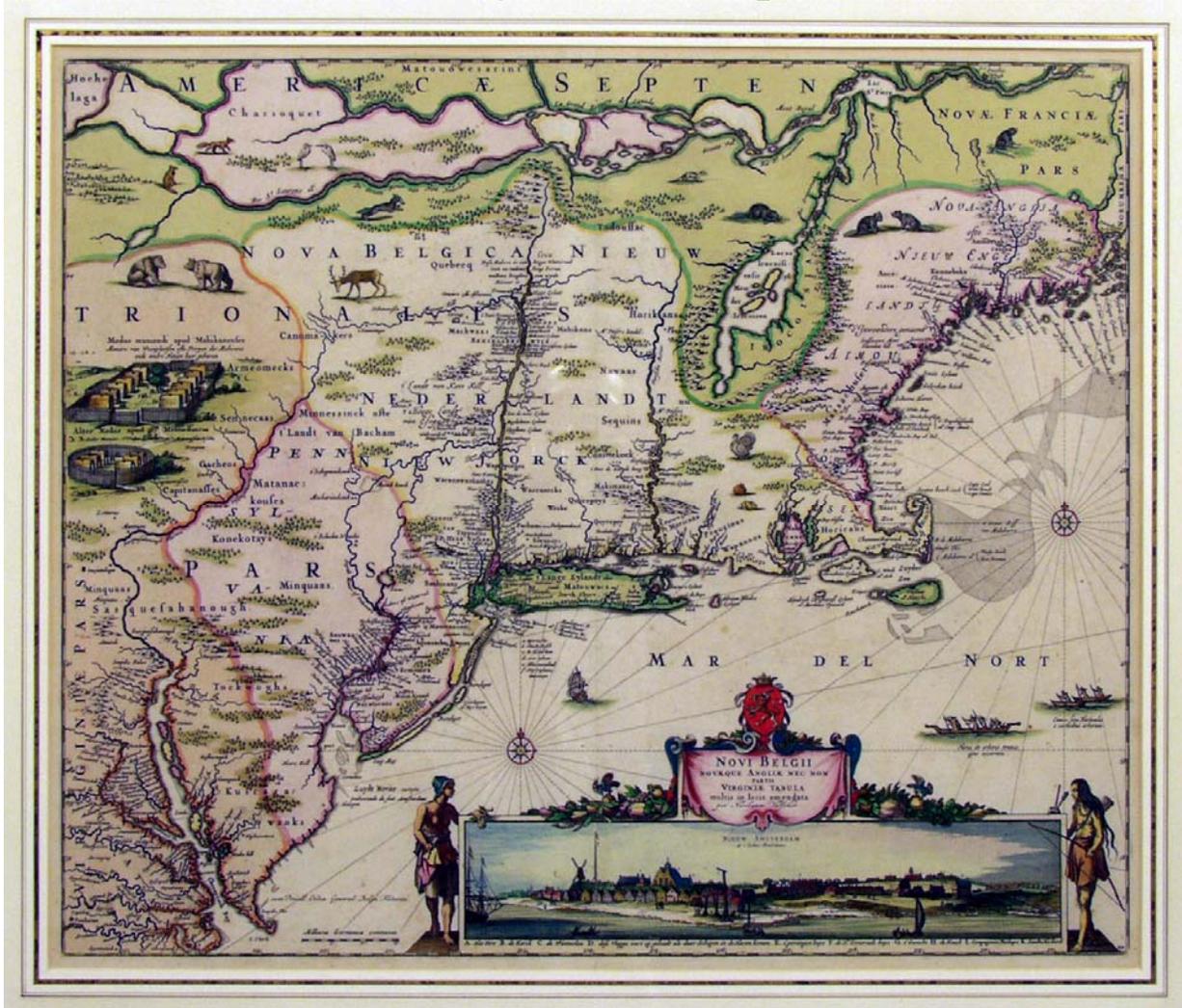
Congratulations!

You have just been hired by the Dutch East India Company to be a Cartographer (a person who makes maps). As a cartographer, you must show the routes you sailed on your voyage. You may hand copy one or more of the maps given in your mission packet, but be sure to add arrows or lines to show where you have sailed. You will need to make two maps. One map will show the voyage from the Netherlands going north and then west to the new land. The second map should show the area explored in the new land. You may decorate the map with anything you feel is important to add (animals, plants, people, boats, etc). Remember to give the map a title, key, labels as needed, and a compass rose.

Remember: (Early maps were not that accurate so it is

Think: It is okay if yours map is not perfectly drawn. Just do your best).

Primary Source Maps



Source: New York State Library 1651-1655
Map of Novi Belgii

**Novi Belgii, Novaeque Angliae nec non partis Virginiae
Visscher, Nicolaes, 1618-1679.**

Author: [Visscher, Nicolaes, 1618-1679.](#)

Title: [Novi Belgii, Novaeque Angliae nec non partis Virginiae /](#)

**tabula multis in locis emendata a Nicolao Joannis
Visschero.**

Imprint: [Amsterdam: s.n., 1651-1655].

Physical description: **1 map : hand-colored. ; 48 x 57 cm.**

General note: **Inset view: Nieuw Amsterdam op t Eylant Manhattans.**

General note: **State 2 according to Campbell.**

Other forms: **Also available in electronic format.**

Local note: **MSC map accession number: 8578.**

Local note: **Restricted access. Original map stored in library vault. 24
hours notice required for access.**

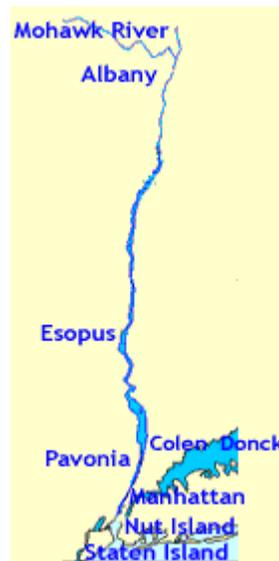
Held by: **MSC**

Important information:

Mar del Nort is what the Atlantic Ocean was called in the 1600's.

Nederlandt is what the land Hudson "found" was named.

Map of Hudson's Third Voyage



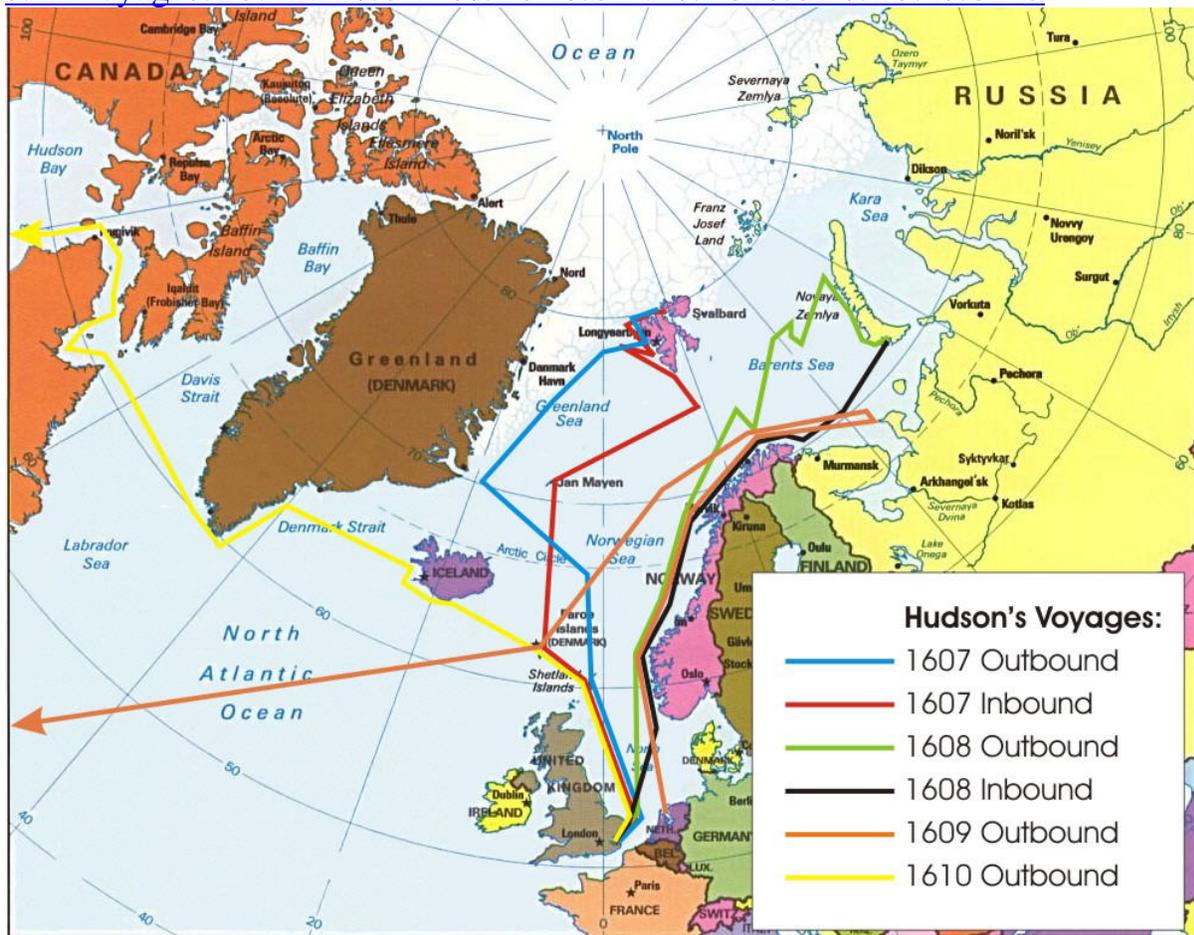
Map of Hudson River Area

Written & researched
by Ian Chadwick,

Text, maps & design
copyright Ian Chadwick
© 1992-2006

http://images.google.com/imgres?imgurl=http://www.ianchadwick.com/hudson/images/voyage03.jpg&imgrefurl=http://www.ianchadwick.com/hudson/voyage_03.htm&h=1139&w=600&sz=69&hl=en&start=1&tbnid=9Km05rpjfvKH3M:&tbnh=1

[50&tbnw=79&prev=/images%3Fq%3Dmap%2Bof%2BHudson%2527s%2Bthird%2Bvoyage%26svnum%3D10%26hl%3Den%26lr%3D%26sa%3DG](http://www.ianchadwick.com/hudson/images/voyage03.jpg)



Please note: you are only interested in the 1609 voyage starting in the Netherlands, heading north and then west!

Written & researched
by Ian Chadwick,

Text, maps & design
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http://images.google.com/imgres?imgurl=http://www.ianchadwick.com/hudson/images/voyage03.jpg&imgrefurl=http://www.ianchadwick.com/hudson/voyage_03.htm&h=1139&w=600&sz=69&hl=en&start=1&tbnid=9Km05rpfvKH3M:&tbnh=150&tbnw=79&prev=/images%3Fq%3Dmap%2Bof%2BHudson%2527s%2Bthird%2Bvoyage%26svnum%3D10%26hl%3Den%26lr%3D%26sa%3DG

****Manifest Officer's Mission Packet.****

Congratulations!

You have just been hired by the Dutch East India Company to be the Manifest Officer (a person who keeps records of the cargo on the ship). As a Manifest officer you must make a cargo list describing what you will be bringing back from the new land. You may find your information from the primary and secondary sources below. Based on your knowledge of Hudson's voyage and social studies, you may use your imagination for some of the cargo you carry. In your ship's manifest you must list the

- **food and drink for the crew**
- **clothing**
- **items you brought for trading**
- **items received in trade.**

Manifest Officer Primary and Secondary Sources
example of a ship's cargo

1626
Hoyhe Hooghhe Heeren

SRYKS
ARCHIEF

Giek il ggeste t'hoop t'wopen van Amsterdam
ontgheing ende il d' 23^{de} septem. met vrede vrede
lant geygelt met de Heere Mauritius. rapporten
dat end welck dat bleve il te veldweg l' 14^{de}
gans veldweg gelyc oer lundig atone g'ant
g'elyc t' veldweg l' 14^{de} veldweg l' 14^{de}
de veldweg l' 14^{de} veldweg l' 14^{de}
g'elyc alle lundig g'ant met g'ant. ende g'ant
auguste g'ant. dat was g'ant minstekke
van g'ant lundig. als t'ant. g'ant. g'ant.
lundig. lundig. lundig te veld.

Het Corgesien van t'afte s'hy is

- 7246 lundig veld
- 178 1/2 othel veld
- 675. othel veld
- 18. lundig veld
- 36. lundig veld
- 33. lundig
- 34. lundig veld.

Wase g'ant lundig. te veld g'ant.

Giek ende

g'ant lundig g'ant. met de lundig
te veld lundig.

In Amsterdam den 5^{de} novem a^o 1626.

Wase Hoo. Mee. Dientwillighe

J. Scheyden

Editor's Note:

Translation of document on previous page

High Mighty Sirs:

Here arrived yesterday the ship
The Arms of Amsterdam which sailed from
New Netherland out of the Mauritius
[Hudson] River on September 23;
they reported that our people there
are of good courage, and live peaceably.
Their women, also, have borne children there,
they have bought the island Manhattes
from the wild men for the value of sixty guilders,
is 11,000 morgens in extent.

They sowed all their grain in the middle of May,
and harvested it in the middle of August.

Thereof being samples of summer grain,
such as wheat, rye, barley, oats,
buckwheat, canary seed, small beans, and flax.

The cargo of the aforesaid ship is:

7246 beaver skins, 178.5 otter [half-otter?] skins,

675 otter skins, 48 mink skins,

36 wild-cat skins, 33 mink, 34 rat skins.

Many logs of oak and nut-wood.

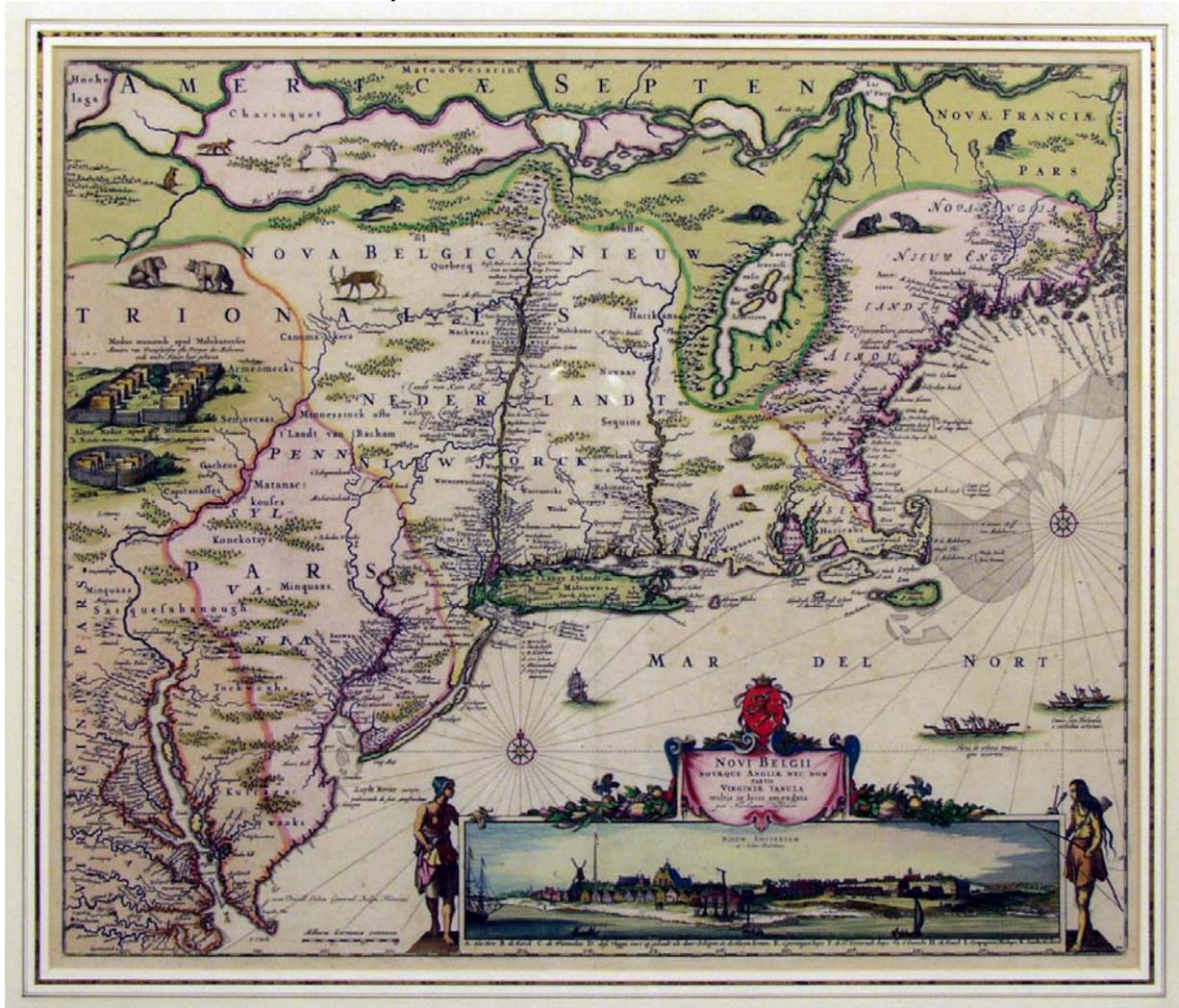
Herewith be ye High Mighty Sirs,
commended to the Almighty's grace,
In Amsterdam, November 5, Anno 1626.

Your High Might.'s Obedient,

P. Schagen

Letter written in Amsterdam, Holland, November 5, 1626, by
Pieter Jansen Schagen, a deputy, to the States General at The

Hague (translated). This is the only record of the original Dutch "purchase" of Manhattan.



Look at the map above.

Think: *What source of food and drink are found here in the new land?*

Hudson's mission was to find a northwest passage to Asia. Several geographers in the 1600's thought that, because of the constant sunshine at the pole, the Arctic really got warmer the further north you went. The geographers believed the sun would melt the ice at the poles. They also believed that if you continued to sail due north, eventually you'd reach open water. Hudson had previously made two voyages north so he knew to expect the cold weather however; he hoped it would become warmer as he sailed on northward.

Think: Based on this information, what clothes do you think the crew would have packed for their trip?

Picture of Dutch Trade Ducats



Copyright © American Gold Exchange 1998 – 2006
<http://www.amergold.com/vault/DutchDucats.shtml>

During the Renaissance, Holland was the commercial capitol of Europe. These old Dutch coins were intended to be used by the Dutch to trade with the rest of the world at a time when the Dutch East India Company was the dominant force in the famous “Spice Routes” to the Far East. Trade Ducats were carried in the great wooden ships across dangerous seas to the Orient and Americas in return for silks, spices, jewels, and furs.

Think: Based on this information, which of the items listed above could Hudson get in the new land he explored?

****Limner's Mission Packet****

Congratulations!

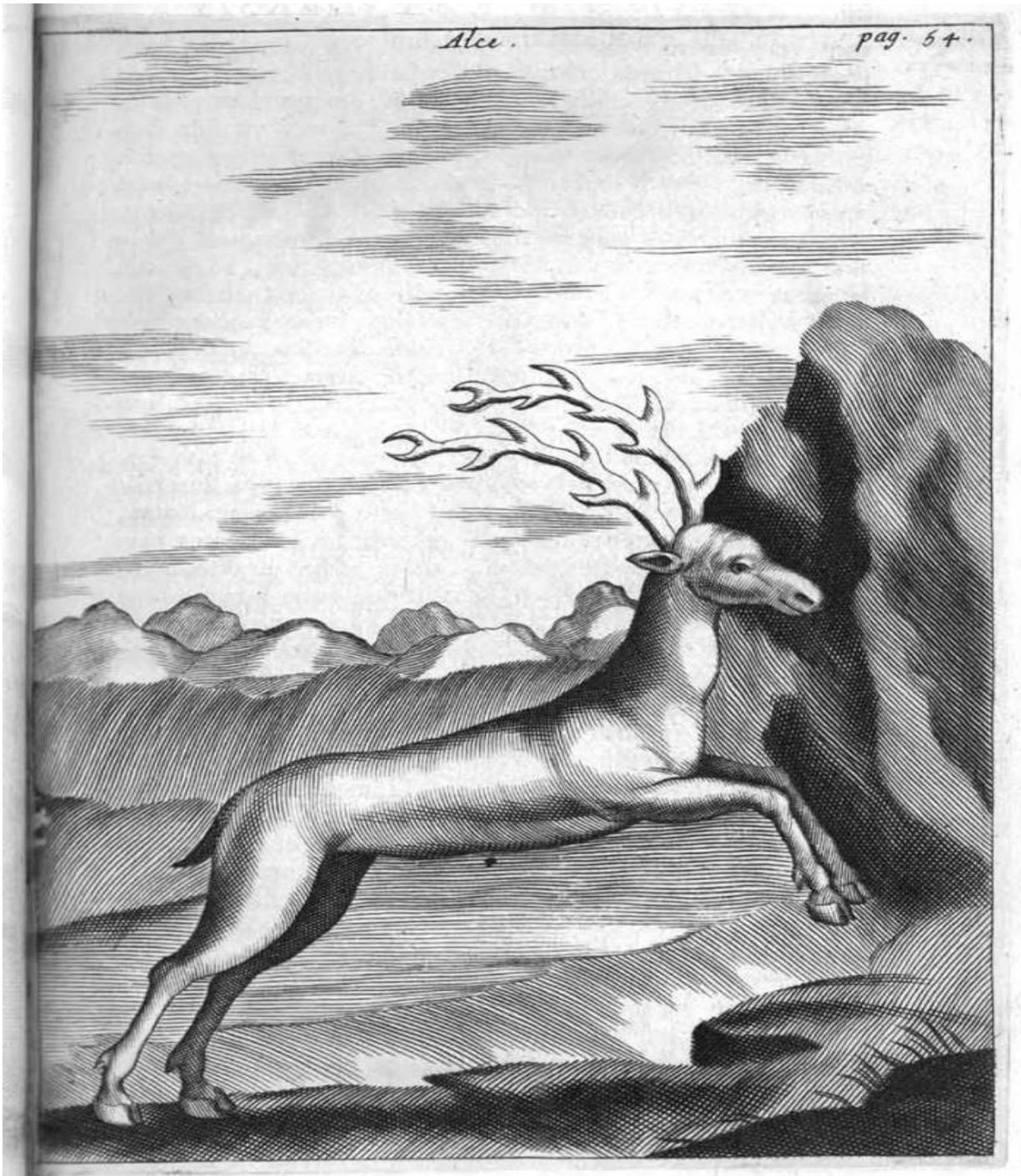
As a limner you must create a broadside (ad/poster) to tell people about the completion of the voyage and any important findings. Broadsides are filled with detail and many have beautiful illustrations. Speak with the other crew members to find out what details you should include, and then design a broadside that highlights the important facts about your voyage.

**Cabin Boy/Girl's Mission Packet*

Congratulations!

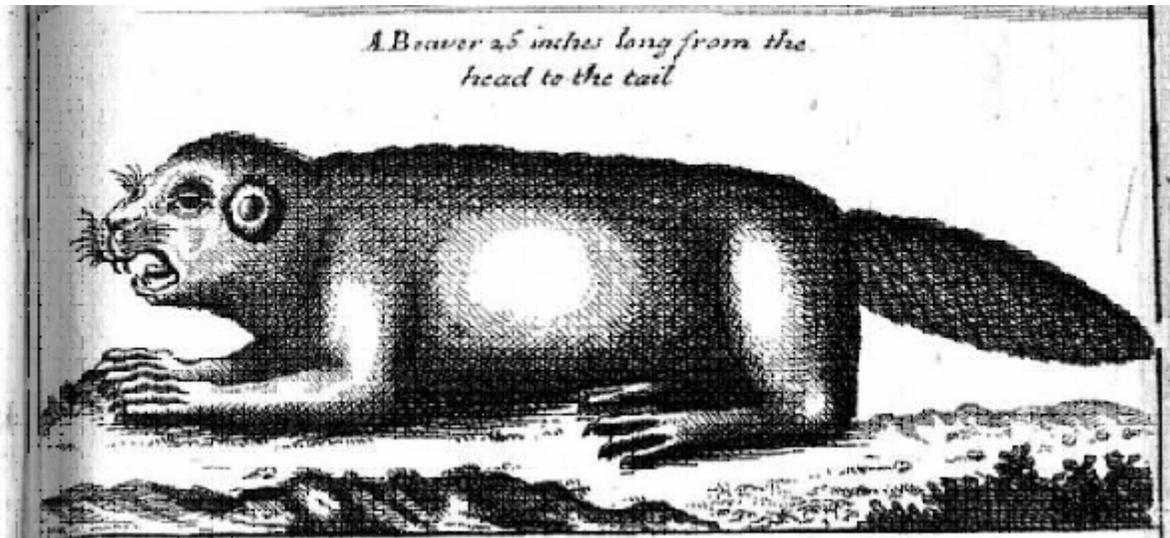
You have just been hired by the Dutch East India Company to be a Cabin Boy/Girl (a young person employed as a servant for the officers and passengers on a ship). Several of the crew have reported to the captain that you are a good artist. As Cabin Boy/Girl, the captain has charged you with creating 5-8 drawings of different things you have seen on the voyage. Each picture should include a written description of what you've drawn, where it was found, and why it's important (e.g. landscapes, plants, animals, people, food, dwellings, trade items, etc.).

Cabin Boy/Girl's Primary and Secondary Sources
Deer

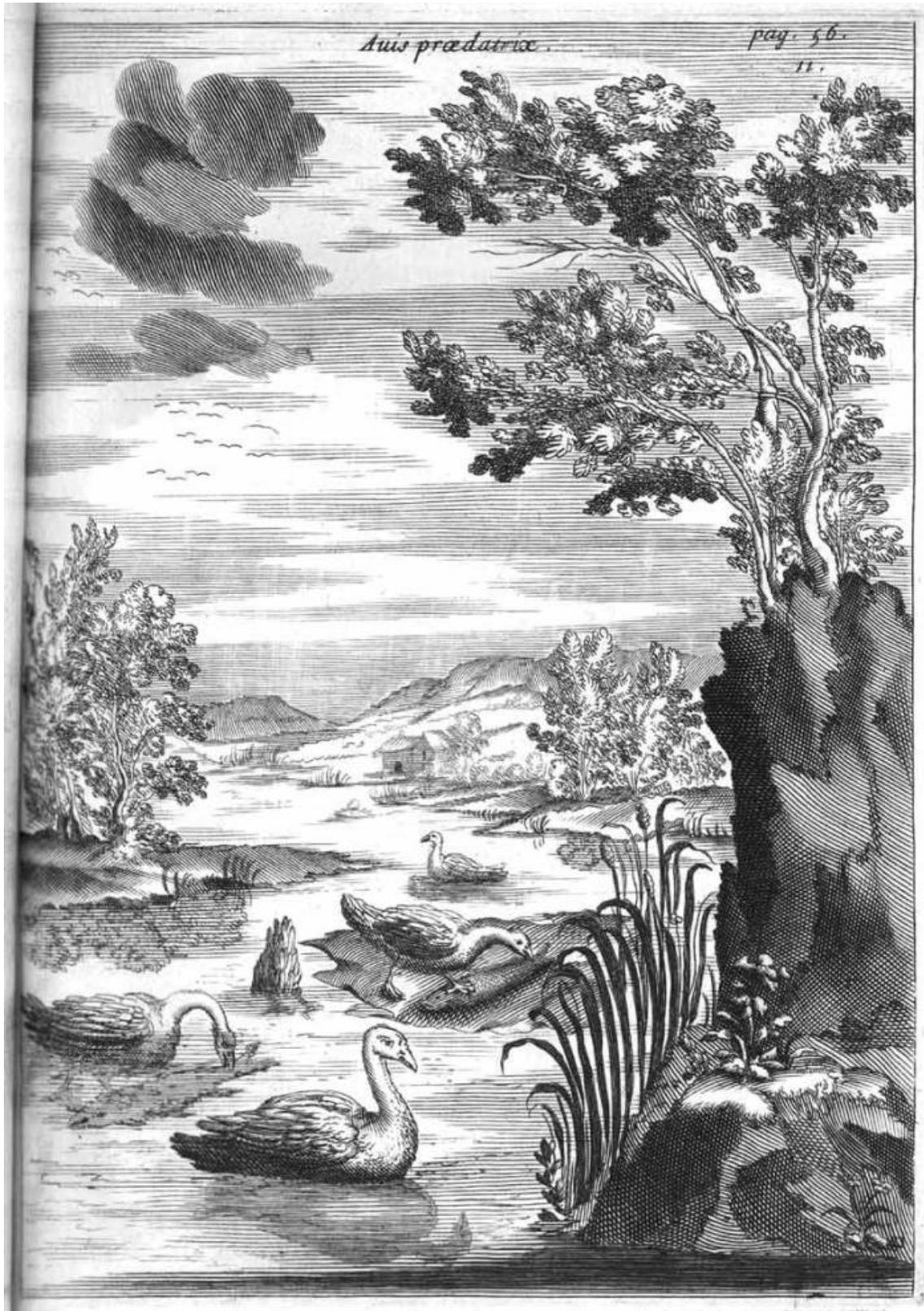


<http://content.wisconsinhistory.org/cdm4/document.php?CISOROOT=%2Faj&CISOPTR=18137&REC=24&CISOBX=castor>

Beaver



Waterfowl



ADDITIONAL CLASSROOM ACTIVITIES

Background Information:

Human beings, like all living things, depend on their environment to provide for their basic needs of food, shelter, and clothing. Henry Hudson and his crew depended on the environment in the new land they explored to provide for some of their basic needs. They also found many things they would be able to use in trade. Robert Juet was Hudson's First Mate on the Half Moon. Juet recorded his observations about the new land in his journal.

Directions: Using information from the Journal of Robert Juet's fill in the chart below.

| Native People's Food | Native People's Dress | Native People's Shelter | Native People's Transportation | Natural Resources Found |
|-----------------------------|------------------------------|--------------------------------|---------------------------------------|--------------------------------|
| | | | | |

Directions: Cut out the sentence strips below and arrange them in order from the earliest date to the latest date. Not all sentences have dates so you will have to think. Paste the sentence strips on a sheet of drawing paper to make a timeline of Henry Hudson’s third voyage. You may color or add appropriate pictures and drawings to make your timeline look more interesting.

-Sentence Strips-

On April 4, 1609 Henry Hudson sailed from Amsterdam to find a northeast passage to Asia.

When he could not sail around the North Pole, Hudson turned west and headed across the Atlantic Ocean to look for a northwest passage to Asia.

November 7, 1609 the Half Moon arrives in England.

August 28, 1609, Hudson reaches the mouth of a wide river (now known as the Hudson River) and decides to sail it to look for a passage to Asia.

Hudson sails back down river discouraged because he could not sail farther north on the river.

October 4, 1609 the Half Moon leaves North America.

In May, Hudson tried to sail around the North Pole, but failed.

Natives greet Hudson and trade tobacco, oysters, and beans for knives and beads on September 4, 1609.

Hudson sails north until the river becomes too shallow on September 23.

January 8, 1609, Hudson is hired by the Dutch East India Company to find a northeast passage to Asia by going around the North Pole.

Directions: Using your timeline, sequence the following sentences from 1-10 in the order in which they happened.

_____ On April 4, 1609 Henry Hudson sailed from Amsterdam to find a northeast passage to Asia.

_____ When he could not sail around the North Pole, Hudson turned west and headed across the Atlantic Ocean to look for a northwest passage to Asia.

_____ November 7, 1609 the Half Moon arrives in England.

_____ August 28, 1609, Hudson reaches the mouth of a wide river (now known as the Hudson River) and decides to sail up it to look for a passage to Asia.

_____ Hudson sails back down river discouraged because he could not sail farther north on the river.

_____ October 4, 1609 the Half Moon leaves North America.

_____ In May, Hudson tried to sail around the North Pole, but failed.

_____ Natives greet Hudson and trade tobacco, oyster, and beans for knives and beads on September 4, 1609.

_____ Hudson sails north until the river becomes too shallow on September 23.

_____ January 8, 1609, Hudson is hired by the Dutch East India Company to find a northeast passage to Asia by going around the North Pole.

Modifications for K-2:

- Review the months of the year.
- Only the sentences with months (below) will be sequenced.
- K-2 Students can work in small groups of 4-5 students to draw a picture for one of the events below. [Group jobs: **Supply Person**- gathers paper, crayons, scissors, & paste, **Artist**-draws the picture, **Paste Person**-cuts the sentence and pastes it on the picture, **Picture Holder**-holds the picture in front of the class, **Sequence Person**-will try to put one of the pictures/sentences in order.]
- Allow the Picture Holder from each group to bring the picture to the front and hold it facing the rest of the class.
- Have Sequence Person volunteer to try to find the picture and date that happened first and move that Picture Holder child to the beginning of the line.
- Continue picking Sequence Person volunteers to order the remaining pictures until all pictures/sentences have been sequenced correctly.
- If you'd like, you may mix up the picture order and repeat with class volunteers so that more students have the opportunity to sequence.

Modifications for Special Education:

- Review the months of the year.
- Only the sentences with months (below) will be sequenced.
- Students can work independently or in small groups as detailed above to draw pictures for the events on the sentences below.
- Students will neatly copy the appropriate sentence on their picture.
- Students will arrange their pictures/sentences in the correct order.
- The teacher will select one picture/sentence from several students.
- Allow that student to bring the selected picture to the front and hold it facing the rest of the class.
- Have children in the class volunteer to sequence the students in front of the room.
- Choose different sentences and drawings and repeat as many times as desired.
- Have students tape or glue their pictures in the correct sequence to make their own timeline.
- **Optional:** When students have correctly sequenced their sentences to create a timeline, they can write the sentences in order to make a sequenced paragraph of Hudson's Third Voyage.

Modifications for ELL:

- Review the months of the year.
- Write the months in both English and the student’s native language.
- Use a calendar to sequence the months in the sentences.
- Explain the sentences when necessary and have students draw pictures.
- Tape the pictures/sentences together to make a timeline.

(Sentences for K-2, Special Education, and ELL students)

Hudson explores the river in **September**. Natives greet Hudson and trade tobacco, furs, oysters, and beans for knives and beads.

January 1609, Hudson is hired to sail for the Dutch East India Company.

October 4, 1609 Hudson’s ship the Half Moon, leaves North America.

August 28, 1609, Hudson reaches the mouth of a wide river (now known as the Hudson River)

November 7, 1609 the Half Moon arrives back in England.

VOCABULARY:

| | | | |
|----------------|--------------------------|------------------|-------------------------|
| anchor cable | cartographer | gale | merchant |
| bandoleer | colony | Half Moon | Native American Indians |
| beak | commercial ship | inhabitants | natural resources |
| bilge | Dutch West India Company | Iroquois | port |
| cabin boy/girl | exploration | Iroquois | rudder |
| cable | fathom | leagues | trade |
| cannon | figure head | limner | wampum |
| captain | first mate | manifest officer | |

DIRECTIONS: Ask the class to examine the “Come Explore” vocabulary list. Introduce the Predicting Vocabulary study guide to the class. Divide the class into small groups or pairs. Assign each pair a vocabulary word from the list and ask them to complete the Predicting Vocabulary for their word.

Predicting Vocabulary

Vocabulary Word: fathom

1. Write the sentence in which it appears in the text:

So we sent our Boate to sound, and found that it was a very good Harbour, and foure and five fathomes, two Cables length from the shoare.

2. Based upon how it is used in the text, **predict** what the word means:

It has to do with depth of water.

3. Consult an “expert” – or look up the meaning of the word:

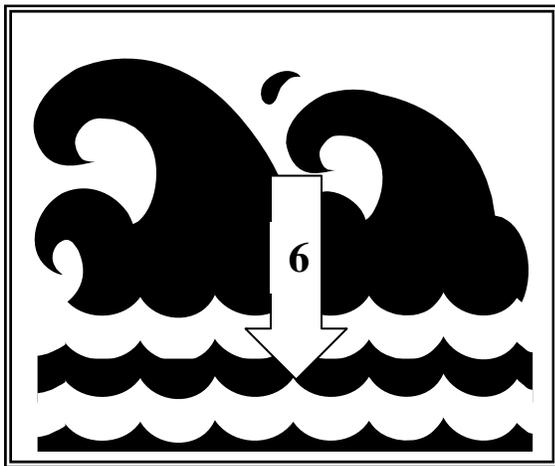
Definition:

A measure of six feet; measure of depth (Oxford)

4. Write your own sentence using the word – showing that you understand:

The ship sank six fathoms to the bottom of the lake.

5. Describe the best way for you to remember the meaning of this word and draw a picture to help you remember it.



_____ **six feet** _____

_____ **depth of water** _____

Teachable moments stress that documents should be analyzed from the perspective of their original, historical and cultural contexts, but they can also be viewed from contemporary perspectives. It is important that our students develop the ability to interact and engage with a broad range of instructional materials. Please exercise discretion as you create your commemorative lessons.

Predicting Vocabulary from Come Explore with Henry Hudson

Vocabulary Word: _____

1. Write the sentence in which it appears in the Journal of Robert Juet:

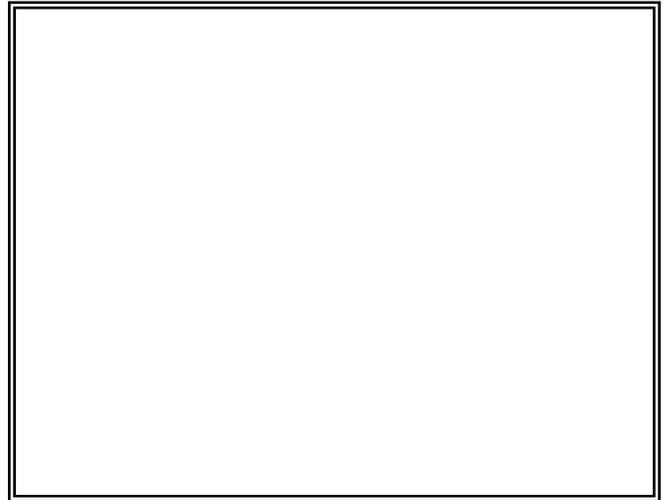
2. Based upon how it is used in the text, **predict** what the word means:

3. Consult an “expert” – or look up the meaning of the word:

Definition:

4. Write your own sentence using the word – showing that you understand:

5. Describe the best way for you to remember the meaning of this word and draw a picture to help you remember it.

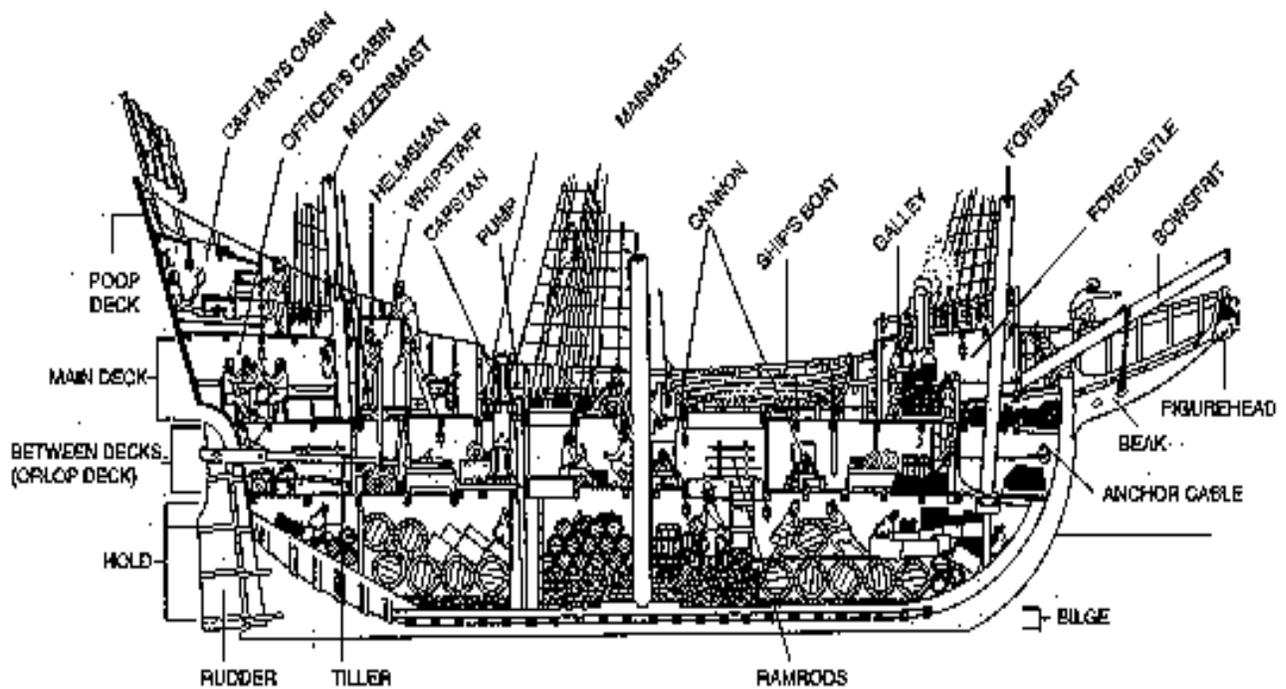


INTERDISCIPLINARY CONNECTIONS:

Mathematics:

Mathematics, Science, & Technology Standard 1: Analysis, Inquiry, and Design

| Facts About the Half Moon | |
|----------------------------------|---|
| Length on Deck: 85 feet | Original Construction: carvel-fitted planks |
| Length on Keel: 64.5 feet | Original Construction Date: 1608 |
| Height: 78 feet | Replica Construction Date: 1989 |
| Beam: 17.3 feet | Masts: fore, main, mizzen |
| Draft: 8.5 feet | Sail Area: 2,757 square feet |
| Crew: 15-20 | Anchors: 4 |
| Class: Yacht | Cannons: 2 starboard, 2 larboard, 2 stern chasers |
| Displacement: 112 tons | Flags: foremast, United Provinces; |
| Storage: 80 tons | mainmast, United Provinces; Mizzenmast, |
| Rigging: square and lateen sails | City of Amsterdam; Jackstaff, VOC Amsterdam. |



New Netherland Museum

<http://www.hudsonriver.com/history/halfmoon.htm>

Directions: Use the Facts About the Half Moon to answer the questions. Show all work.

1. On the Facts About the Half Moon chart it lists 2 starboard, 2 larboard, and 2 stern chaser cannons. How many cannons are on the Half Moon?

Answer _____

2. How many more **Cannons** than **Anchors**? [Hint: Use your answer from number one to help figure it out.]

Answer _____

3. Using the **Sail Area** on the chart, write the number of square feet in expanded form.

Answer _____

4. What is the difference in feet between the **Length on Deck** and the **Height** of the ship? *Show your work:*

Answer _____

5. How many years have passed between the **Original Construction** of the Half Moon and the **Replica Construction** of the Half Moon?
Show your work:

Answer _____

6. You have traded beads and knives with the Indians for new cargo. You now have 35 tons of water, 32 tons of food, 5 tons of furs, 2 tons of green tobacco, and 5 tons of Indian wheat. If your ship can carry 80 tons of cargo will you be able to safely set sail?

Show your work and then fill in the equation.

Equation: _____ \bigcirc 80 tons

Explain on the lines below, how you will determine if it is safe to set sail with this load of cargo.

7. If there are 15 crewmembers and 5 rooms for beds, how many crew members must sleep in each room?

Show your work:

Answer _____

8. Use the Facts About the Half Moon chart to find the measurement in feet of the following items. Then, round each amount to the nearest whole number.

Keel _____ feet *rounds to* _____

Beam _____ feet *rounds to* _____

Draft _____ feet *rounds to* _____

9. You have been commissioned to build 3 ships exactly like the Half Moon.
How many feet of deck will you need to make?

Show your work:

Answer: _____

10. If you have a crew of 20 and $\frac{1}{5}$ of the crew sleeps while the rest work, how many of the crewmembers are working **and** how many are sleeping?

Show your work:

Answer: _____ *crew working*

Answer: _____ *crew sleeping*

11. You have a full load of cargo in storage. Given the storage amount on the Facts About the Half Moon chart, if $\frac{1}{4}$ of your cargo in storage is damaged by water, how many tons are left in storage?

Show your work:

Answer: _____

What percent of your cargo was lost to water damage?

Answer: _____

12. You have 2,757 square feet of sail. There are 3 masts. If each mast holds the same amount of sail, *approximately* how many square feet of sail will each mast hold?

Show your work:

Answer: _____

The Arts:

The Arts Standard 1: Creating, Performing, and Participating in the Arts Visual Arts, PI 1(a), 1(b), 1(e)

The Arts Standard 4: Understanding the Cultural Dimensions and Contributions of the Arts

- Have students research the kinds of ships that Hudson might have used and draw pictures of sailing vessels and technologies that were used by 17th century Europeans.
- Assign a project such as creating murals depicting the land that Henry Hudson explored on his third voyage of discovery.

English Language Arts:

English Language Arts Standard 1: Language for Information and Understanding

English Language Arts Standard 2: Language for Critical Analysis and Evaluation

- Robert Juet, an officer on the Half Moon, wrote an account of that ship's landing in New York Harbor and its crew's first meeting with the Native Americans there. (You can see how words and spelling have changed since Juet's day!) Edit the following sentences that are excerpts from Juet's Journal for correct spelling, grammar, and punctuation. Write the corrected sentences in your best handwriting.

- 1. The fourth, in the morning, as sooneas the day was light, wee aw that it was good riding farther up.**

This day the people of the Countrey came aboard of us, seeming very glad of our coming, and brought greene Tabacco, and gave us it for Knives and Beads.

2. They goe in Deere skins loose, well dressed.

3. They desire Cloathes, and are very civill.

4. At night they went on Land againe, so wee rode very quiet, but durst not trust them.

Directions: Write an acrostic poem about Henry Hudson's exploration. An acrostic poem is a poem in which the first letter of each line begins with a letter of the person or thing you are writing about. The lines may consist of words or phrases that describe something about the main word.

Example of an Acrostic Poem:

Determined to find a new passage to India,
Unique opportunity available
Two daring sea captains.
Can you see yourself exploring for the Dutch East India Company?
Henry Hudson dares to try.

Suggested Words for your poem:

Henry Hudson, Half Moon, Explore, Explorer, Voyage, Northwest Passage, Hudson River, Netherlands, Trade, Robert Juet, Dutch East India Company

Modifications for K-2 students:

- Have a contest to see who can make the longest word family lists for the words: trade, river, (Half) Moon, East, and/or sail.
- Write as many words as students can think of that either begins with the same letter or have the same vowel sound as the given suggested word.
- Cut and paste pictures that either begin with the same letter or have the same vowel sound as the given suggested word.

Mathematics, Science & Technology

Mathematics, Science & Technology Standard 4: Science The Living Environment

- Robert Juet, who served as first mate on the *Half Moon*, proved to be a keen observer of the weather on Henry Hudson’s 1609 voyage of discovery. *Juet’s Journal* remains an important source of information on Hudson’s watershed discovery. Have students create graphic organizers that show the weather patterns from early September through early November 1609.

Science

Modifications for grade K-2 students:

Students pretend to be explorers. They will take a nature walk or a field trip and each student will draw/write about interesting things he/she has “discovered”. After the walk or field trip, each job below may be done as a center in which students will:

- Make a broadside (ad/poster) to tell people about the discoveries made

- Draw lines on a given map to show the places traveled
- Make a picture book about the explorations with pictures/drawings and short written observations of the land, people, and resources (plants and animals found on the nature walk or field trip).
- Orally present their exploration findings

Modifications for students with special needs:

Students can make picture/ story books that show Henry Hudson, the Half Moon, a map with labels of important places, the native people, and natural resources with captions or students may make a picture/ story book that shows an exploration of a field trip, or the local community and its various services, landmarks, etc. or

- Students may go on a field trip then:
- Make a broadside (ad/poster) to tell people about the discoveries made
- Draw lines on a given map to show the places traveled
- Make a book about the explorations with pictures/drawings and short written observations of the land, people, and resources (plants and animals found on the field trip).
- Orally present their exploration findings to the Head of the Dutch East India Company.

Modifications for ELL students:

Students can make picture/ word books that show either Henry Hudson, the Half Moon, a map with labels of important places, the native people, and natural resources with caption words in both English and their native language or a picture/ word book that shows an exploration of their local community and various services, landmarks, etc.

Physical Education

Health, Physical Education, and Family and Consumer Sciences Standard 1:
Personal Health and Fitness Physical Education, PI 1 & 3

Activity 1:

Crow's Nest Climb or Cargo Net Climb- Students will climb a rope hand over hand as a sailor would climb the mast/rigging to get to the crow's nest, or students can climb a cargo net as a sailor would climb the ship's rigging.

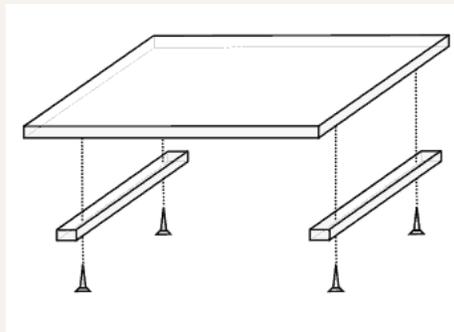
Activity 2:

Trade Relay- Teams of students will run a relay race carrying and exchanging different items between three designated places to simulate the movement of cargo on trade ships.

Activity 3:

Deck Walk- Students attempt to stay on a Rola-Bola board as a sailor would try to remain upright on a storm tossed deck.

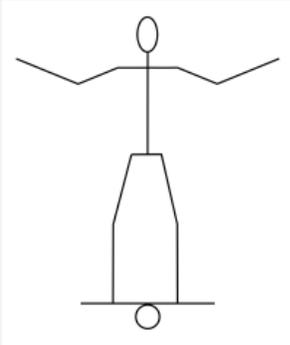
Build and Learn to Rola Bola



Rola Bola Construction/Needs

- 6" diameter roller, 11 to 12" in length
 - minimum schedule 40 PVC (obtained from plumbing supply stores)
 - over 200 pounds or doing 2 people tricks requires a stronger tube
- The board needs to be 11 to 12" wide and 32" long
 - 5/8" plywood or a Number 1 (no knots) 1x12x32"
 - Once you get comfortable 24 to 28" is plenty long.
- Construction
 - 2 - 1x2x10" board stops screwed and glued 1" in from each end of the board
 - Do not paint the bottom of the board - the bare wood gives a real nice grip on the roller - all you need if you use proper technique.

Beginning Rola Bola



Place the board on the floor.

No roller! Just stand on the board in front of a mirror if possible.

- Posture checklist:
 - knees bent, always
 - spine straight, hips level
 - eyes straight ahead
 - feet almost parallel and a little wider than your shoulders
- Step 1 (Board on the floor!)
 - Keeping your knees bent, move slowly from side to side.
 - Do not move your feet.
 - Be sure to keep your spine in a vertical line.
 - You should get to the point that you can move your body quickly from one side to the other with only your knees adjusting.
 - If you do not have a mirror, look down the front of your body as you move laterally from one foot to the other.
 - The shoulders and especially the hips must not be adjusting.
 - Keep the knees bent being careful not to lock them.
- Step 2
 - Place the board on the roller next to a chain link fence, or a friend.



- The roller should be on a clean, smooth, hard surface - no carpet.
 - Carpet resists movement of the roller (slower, easier - right?).
 - Unfortunately, when it finally yields to the imbalance it "jumps".
 - Your eyes will get big and round.
- (Note to the spotter: Do not hold the student and try not to "help" them balance.)
- Holding onto the support for dear life, set your feet on the board a little wider than your shoulders.
- Muscle yourself to a level board position.
- Go through the posture checklist.
- Move as little as possible trying to keep the board level.
- The slower you move, the faster you will learn.
- Do not release from your support.
- Just lighten the pressure; extreme uncontrolled wipe-outs can result if your confidence gets ahead of your skill level.
- Get off the board. Think through what just took place.
- Step 3
 - Muscle your way back up to the centered position.
 - Keeping light contact with your support, let the board drift to one side.
 - Placing all your weight on that foot (the one farthest from the roller), the end of the board should snap down on the floor stopping harmlessly.
 - Repeat until this can be done without holding on to the support.

From now on, do not grab the support unless death is eminent. Do not solo (move away from the support) until you can stop and start without grabbing the support.

Refer to this section after you have tried to rola bola.

Stopping

The board did not stop. It went faster! You did not get or keep your weight on the correct foot. You must commit completely to this move or the board can achieve escape velocity!

Twisting

The board keeps twisting on the roller, why? The hips are rotating. The less mass moving the more stable you become.

Drifting

Once you start drifting to one side, you cannot stop. You must take all your weight briefly off of the side you are drifting towards. If you do this, you will move back to the center.

Over confidence

Very serious injury WILL occur when you get over confident. Goof-up in haste - repent at leisure. ;-)

The techniques outlined above were designed to enhance your learning. After you have mastered the rola bola, play with your posture, hip/shoulder movements

<http://www.wejuggle2.com/rolabola.html>

Modifications for special needs students:

- Write a class acrostic poem with everyone's help. Practice reciting the poem for fluency.
- Play "Pop Up". To play the teacher tells students they will be listening for words with the same vowels sound, beginning or ending sound, etc. as a word from the suggested words above. When students hear the required sound they must pop up out of their seat and sit down again. Keep score of who pops up first each time or just play for fun.
- Write an alliterative sentence using one of the suggested words. (Example: Henry Hudson had the Half Moon hidden in a harbor.)

Modifications for ELL students:

- Use any of the modifications above

SUGGESTED RESOURCES AND MATERIALS:

- Capobianco, Mary and Gale Derosia, in consultation with Nancy McCure, New Netherland Project. *Daily Life in New Netherland: Fourth Grade Curriculum Packet Using Primary Documents*. Delmar, NY: State Archives and Records Administration.
- Capobianco, Mary and Gale Derosia, in consultation with Nancy McCure, New Netherland Project. *The New World Through Dutch Eyes, Fourth Grade Curriculum Packet Using Primary Documents*. Delmar, NY: State Archives and Records Administration.

- Everett, Felicity and Struan Reid, illustrated by Peter Dennis, *The Usborne Book of Explorers*. London: Usborne Publishing, Ltd.
- Goodman, Joan, Elizabeth, illustrated by Fernando Rangel. 1999. *Beyond the Sea of Ice: the Voyages of Henry Hudson*. New York: Mikaya Press
- Juet, Robert. *The Third Voyage of Master Henry Hudson*. In Jameson, J. Franklin, ed. 1909. *Narratives of New Netherland 1609-1664*. New York: Charles Scribner's Sons.
- Lashkin, David. 1996. *Braving the Elements: The Stormy History of American Weather*. New York: Anchor Books.
- Macaulay, David, 1993. *Ship*. Boston, MA: Houghton Mifflin Company.
- Mattern, Joanne, illustrated by Patrick O'Brien. 2000. *Explorers and Explorations: The travels of Henry Hudson*. Austin, TX: Steck-Vaughn.
- Molzahn, Arlene, Bourgeoisie. 2003. *Henry Hudson: Explorer of the Hudson River*. Enslow Publishers.
- Monmonier, Mark. 1999. *Air Apparent: How Meteorologists Learned to Map, Predict and Dramatize Weather*. Chicago: The University of Chicago.
- Sansevere-Dreher, Diane, 1992. "Henry Hudson," *Explorers Who Got Lost*. New York: A Tom Doherty Associates Book.
- Santella, Andrew. 2002. *Henry Hudson*. London: Franklin Watts.
- West, Tracey. 1995. *Voyage of the Half Moon*. New York: Silver Moon Press.

ELEMENTARY TRADE BOOKS:

- Barron, Robert, C. (Illustrated by Thomas Locker). 2004. *Hudson: A Story of A River*. Golden, CO: Fulcrum Publishing.
- Goodman, Joan Elizabeth. (Illustrated by Fernando Rangel). 1999. *Beyond the Sea of Ice: The Voyages of Henry Hudson*. New York: Mikaya Press.
- Lourie, Peter. 1998. *Hudson River: An Adventure from Mountains to the Sea*. Honesdale, PA: Boyds Mills Press.
- Mattern, Joanne. (Illustrated by Patrick O'Brien). 2000. *Explorers and Explorations: The Travels of Henry Hudson*. Austin, TX: Steck-Vaughn.
- Molzahn, Arlene Bourgeoisie. 2003. *Henry Hudson: Explorer of the Hudson River*. Berkeley Heights, NJ: Enslow Publishers.
- Santella, Andrew. 2002. *Henry Hudson*. London: Franklin Watts.
- West, Tracey. 1995. *Voyage of the Half Moon*. New York: Silver Moon Press.
- Witchcraft, Melissa. 2000. *The Hudson River*. London: Franklin Watts.

PRIMARY RESOURCES:

Robert Juet's Original Journal

<http://www.emsc.nysed.gov/ciai/socst/robertjuetsjournal.html>

WEBSITES:

PBS Kids: Big Apple History – Henry Hudson

<http://pbskids.org/bigapplehistory/early/topic1.html>

Video clip of the Half Moon on the Hudson - video runs a little over one minute. Also includes photo of Henry Hudson and some historical documents

<http://pbskids.org/bigapplehistory/early/topic1.html>

'Til the River Runs Clear. This film describes the history of Pete Seeger's historic *Clearwater* sloop. The Web site is a combination of information about the sloop and the Hudson River.

<http://www.thirteen.org/clearwater/forEducators.html>

Information on the Replica of the Half Moon

<http://www.hudsonriver.com/history/halfmoon.htm>

The New Netherland Institute

http://www.nnp.org/nni?Research%20&%29Education/Maps_files/descriptions.htm#top

Stuyvesant - photo, short video clip and historical documents.

<http://pbskids.org/bigapplehistory/early/topic11.html> - New Amsterdam - photo, short video clip and historical documents.

Dutch West India Company

<http://pbskids.org/bigapplehistory/early/topic5.html>

“The First Jews in the New World”, runs just under two minutes

<http://www.pbs.org/wnet/heritage/episode7/video/index.html>

Click on Flushing for video clip on Old Quaker Meeting House

<http://www.thirteen.org/queens/map.html>

Suggested lesson on the Hudson River from NTTI (National Teachers Training Institute – WNET/Thirteen, NYC), includes suggested activities and web resources. The video clip from Bill Moyers below can be used with this lesson
http://www.thirteen.org/edonline/ntti/resources/lessons/h_hudson_river/index.html

Bill Moyers, “America’s First River - 90 second video clip
<http://www.pbs.org/now/science/udson.html#>

Department Environmental Conservation – Science/Mathematics Grades 3-5
Lessons
<http://www.dec.ny.gov/education/25386.html>