

Lesson 1: Tracing Mannahatta

Objectives:

- Students develop their skills in reading and using maps, and come to understand how old maps can be used to study history and ecology.
- Students learn how layering information in a visual way can help them understand relationships among things in the environment.

Vocabulary: coastline, wetlands, streams, beaches

Materials:

- Mannahatta 1609 images*
- British Headquarters map sections (one set/group)**
- Modern Manhattan image sections (one set/group)**
- 8 1/2x11 transparency pieces (6 pieces/group)
- Dry erase markers
- Scotch tape
- Paper towels



Orthophoto with tracings overlaid

New York State Elementary Learning Standards *Key Ideas and Performance Indicators*:¹

- History of the United States and New York *Performance Indicator SS1.E.4C*: Students view historic events through the eyes of those who were there, as shown in their art, writings, music, and artifacts.
- Geography *Performance Indicator SS3.E.1B*: Students draw maps and diagrams that serve as representations of places, physical features, and objects.
- Science *Key Idea MST4.LE7*: Human decisions and activities have had a profound impact on the physical and living environment.
- Analysis, Inquiry and Design *Key Idea MST1.SI1*: Scientific Inquiry: The central purpose of scientific inquiry is to develop explanations of natural phenomena in a continuing, creative process.

Introduction: Mannahatta review

(5 minutes)

Pass out the images of Mannahatta 1609. Ask students to remember the differences they have noticed between Mannahatta in 1609 and modern Manhattan. What were some of those differences? What are some of the different habitats that existed on Mannahatta in 1609? Make sure students understand that the image of Mannahatta is computer-generated, based on scientific research. Do they have any idea how the scientists who worked on discovering Mannahatta's ecology did so, without traveling back in time? One of the ways they were able to figure out what the island looked like long ago was through using old maps of the island. Today, we are going to use the same method the scientists used to determine where natural features from hundreds of years ago were on the island, compared to where things are on the island today.

¹ From www.nylearns.org/standards. NY State learning standards encompass standards, key ideas, performance indicators and major understandings.

* This image is the same as the one used in the introductory lesson.

** All images are available on our website, at www.wcs.org/mannahatta. Images are available in full color at 11"x17", but can also be printed in black and white and/or at 8 1/2"x11".

Activity: Tracing Mannahatta

(30 minutes)

Divide students into groups of three. Give each group one set of British Headquarter map images, one set of modern Manhattan images, a set of four dry erase markers (each marker a different color), and six pieces of plastic transparencies. First ask students to look at the British Headquarters map, and see if they can fit the three pieces of the map together. Explain that this map was made in 1782 by the British military, who were trying to defend Manhattan against the Americans during the revolutionary war. Review what students know about Manhattan's cultural history at that time. Ask students to identify different elements on the map (the city streets, ponds, farms, beaches, etc.) Engage students in a discussion about why the military would be interested in mapping the island.

Next, ask students to examine the modern orthophoto of Manhattan, and see if they can fit the three pieces of this image together. What are some of the differences between this modern-day image of the island, and the one from 1782? Ask students to find well-known landmarks like Central Park and the Empire State Building. (If students look closely, they will see that this image was created before 2001, as the World Trade Center towers are still visible.) Ask students to notice similarities between the two maps (e.g. they are at the same scale).

Tell students they will now use the British Headquarters map to find some of the natural features that were on the island before it was completely covered by the buildings and streets of New York City. They will be searching for four natural features: *coastlines*, *beaches*, *streams*, and *wetlands*. Discuss how to identify each of these features on the map, and decide as a group which color to use for each feature (if students have made maps before, review concepts of symbology and color.) Each group member should work with one of the three map images. Demonstrate for students how to fit two pieces of plastic transparency over the single 11x17 image of the map, and demonstrate how to trace a feature. Each student will be responsible for finding all four natural features within their section of the map, and for tracing those features using the appropriate colors. As students work on their tracings, walk among the groups and help them out, and ask questions that provoke discussion of natural history of the island. Distribute paper towels as necessary so students can correct mistakes.

Wrap-up discussion: Layering the old over the new

(10 minutes)

When students have completed their tracings, have them tape their tracings onto the appropriate sections of the modern orthophoto. Ask them to examine the image they have produced, and see where the natural features of the island would have been in relation to the modern city. Ask them to find certain landmarks and see what natural features were there. Ask them to notice how much the coastline of the island has changed. Has any of the island remained the same from 1782? Can they imagine how some of the island's natural features could be reincorporated into the landscape in the future?

Extension activities:

- Students research other old maps of Manhattan, and compare them to the British Headquarters map (the New York Public Library has an excellent collection of old maps of New York City).
- Students research old maps of their city/borough/neighborhood, and look for any natural features. Do those features still exist? If so, how have they changed? If not, why do you think they have disappeared?
- Students research early written documentation of Manhattan. How were the natural features of the island described by early settlers?

If you plan to continue with *Lesson 2: Weaving a Mannahatta Muir Web*, save the tracings layered over the modern images for use in that lesson.