

Mannahatta: Island of Many Hills

Adapted from Mannahatta Education WCS 2009

Class Size: Up to 32

Time: 2 class periods of 45 minutes

Objectives: To gain a greater understanding of how Manhattan's topography has changed through time by creating a 2D image into a 3D model

SWBAT:

Materials:

Print-outs

Foam boards

Markers

Glue Sticks

Scissors/exacto knives

Activity 1: LINK on Mannahatta

Have students break into their small groups of 4-6 and work on a LINK of Mannahatta. This will allow students time to reflect on the past weeks activity leading up to this topography/model lesson and the following days field trip.

Briefly discuss any differences between LINKs and focus on topography (hills) for next activity

**Suggested Intro:*

(5 minutes)

Tell students that today they are going to make a model of how the island of Mannhatta was shaped 400 years ago! They will make their model based on a contour map of Mannhatta in 1609. Ask if students know what a contour map shows (it shows contour lines that represent different elevations; the closer the lines are together, the steeper the land, and the further they are apart, the flatter the land). (Optional: show students an example of a contour map, and let them take a look at what the lines represent.) Show students the contour map of Mannhatta 1609, and ask what they notice about it. Ask how such a map might be useful. Explain that they will work in groups, and each group will use one section of this map to work on making a model of one section of the island. When all the groups are done, they will put their sections together to form a big model of the whole island of Mannhatta!

**Activity 2: Modeling the Island (45-60 minutes)*

It is very important to walk through these steps as written, when all the materials are given out at once confusion insues.

- Divide students into groups
- Next, pass out the 1609 contour map sections. Each student should receive their own copy of the map section their group is working with. (That is, you should have four copies of section 1 so that all four students in that group receive their own section)
- Review the maps with the students. Ask them to note the scale bar and north arrow. Ask what the highest elevation is (180 feet) and the lowest elevation (0, or the shoreline). Tell students that they will each pick one elevation to work on in their model.
- Pass out markers. Tell students that each color represents one elevation of land. The students who are working on the 0 feet elevation line should all receive one color (e.g. yellow); the students who are working on the 60 feet elevation line should all receive another color (e.g. orange); the students who are working on the 120 feet elevation line should all receive another color (e.g. red); and the students working on the 180 feet elevation line should all receive a fourth color (e.g. purple). Now, each student should color in EVERYTHING inside of their respective elevation lines.
- Once students have completed coloring their piece, pass out scissors, foam (or other modeling material), and glue. Explain that each student will now cut out her piece of paper along the line of the elevation she has colored in. She will then glue her cut-out elevation to the piece of foam,

and trace around it with the marker. She will then cut out her foam along the traced line, so that that the piece of foam is the same size as the cut-out piece of paper. Once all the students in the group have cut out their foam pieces, they will layer their pieces on top of each other, from lowest elevation to highest, and glue them together,

- Circulate among students as they work.
- Once groups have completed their sections, ask them to bring them all together and piece them together to create one big model of the island of Mannahatta!



****Wrap-up discussion:***

(10 minutes)

Ask students to examine the model they have created as a class. Ask them how they think the topography of the island has shaped the ecological communities on the island (for example, prompt them to discuss how water flows, and how they might be able to see stream valleys in the topography). Show students the orthophoto image of Manhattan today. Which areas of the island have changed the most since 1609? Why do students think the topography has changed so much from 1609 to today? What are some of the effects of a changed topography?

Extension activities:

• Students go further back in time to study the effects glaciers had on the topography of Manhattan. What are the processes that shape the topography? How does topography shape ecological communities? See if students can connect what they have learned about Mannahatta's topography to the different species that lived on the island (referring back to the Muir Web lesson).

• Students build a topographic model of Manhattan today, and compare it to their model of 1609 Mannahatta.

*Directly from Mannahatta Edu