

A. Trace the Hudson River on Google Earth

Through this curriculum you'll explore water quality at three locations in New York State. You'll first conduct virtual visits using the computer as your guide. Later in the year, you'll actually visit some of the sites.

Start by using Google Earth to get familiar with the path of the Hudson River. Your teacher will help you begin. Locate your school, either by name or by street address. Place a yellow thumbtack marker on your school so you can easily find it again later. Then locate the Hudson River and the George Washington Bridge. Use the slider bar on the right side of the screen to practice zooming in and out, and moving the screen around. Always keep your school and the Hudson River in sight.

Start your Hudson River exploration by moving downstream to its mouth (where the river meets the Atlantic Ocean). Now follow the River slowly, changing the scale if necessary as you move upstream. Notice where there are cities and where there are fields or woods. Move slowly to the north, following the twists and turns of the River.

Can you find the "beginning" or **source** of the Hudson River? It's tricky. At some point, the Mohawk River twists off to the left (west). **Don't follow it.** Continue to move north. The Hudson will narrow and squeeze between hills. After you pass a light blue reservoir, move even more slowly. You're in the right neighborhood. Type **Lake Tear of the Clouds** in the **Fly to** box on the left side of the Google Earth screen. This lake and the mountains around it are the source of the Hudson River.

B. Hudson River Watershed

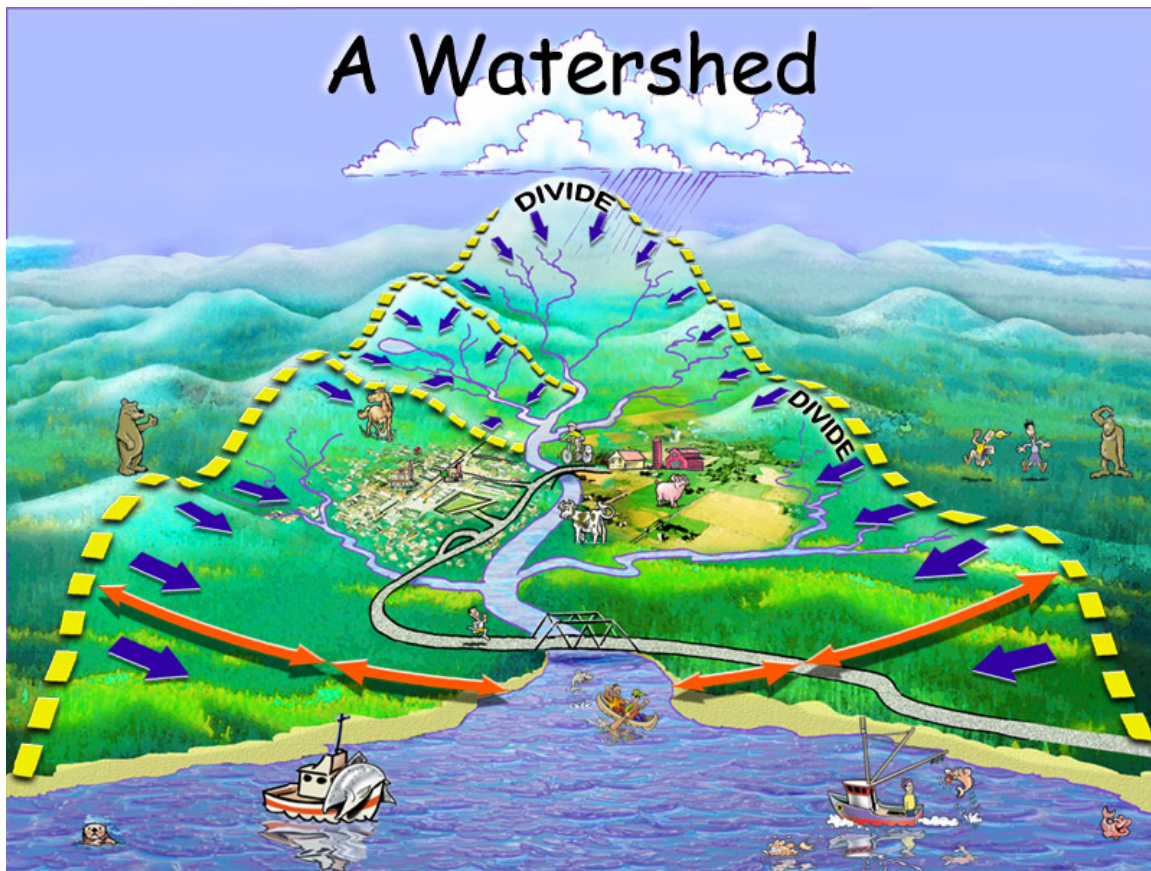
Many streams, rivers and lakes flow into the Hudson River. Together, the land drained by all of these water bodies is called the Hudson River Watershed. Download this watershed map into your Journal for reference:

<http://www.dec.ny.gov/education/63069.html>

The drawing below represents any watershed that has a river flowing downhill to the ocean. The watershed boundaries are shown by yellow dotted lines along the mountain ridges above the river. The blue arrows show the direction that rainwater and snowmelt flow. Answer the questions below in your Journal:

Examine the human activities depicted in the drawing below. List and describe each of them, including ways that each might influence the river or ocean's water quality.

Based on your experience, what other human activities might be added to the diagram? Describe how each of them might influence water quality, either positively or negatively.



Source: http://www.recycleworks.org/images/watershed_800.jpg

To see another way of depicting a watershed, look at the map of the Hudson River Watershed at <http://www.dec.ny.gov/education/63069.html>. Re-trace the route of your virtual trip up the Hudson. Notice that this map uses color to highlight land on both sides of the river. Every drop of rain and snow that falls on the lands colored green or brown ultimately flows into the Hudson River. The grey areas on the edges are parts of other watersheds, flowing into other major waterways.

C. Take a Hudson River Photographic Tour

Visit <http://www.dec.ny.gov/lands/25606.html> to see a slide show of key features along the Hudson River. Look at all the slides and locate any place names on the watershed map in your Journal. Especially focus on Slides 7, 10 and 11 that explain the difference between the upper and lower parts of the Hudson River. In your Journal, follow the directions and answer the question at the end:

Use the Hudson River Watershed map to locate the city of Troy. Draw a line running across the Hudson River at that point. The line represents the Troy dam (officially named the Federal Dam). This dam is considered the dividing line

between the upper and lower portions of the Hudson River. From your viewing of the slide show, why do you think this dam is considered important?

D. Water Quality Monitoring sites in the Hudson River Watershed

To get to know the three water quality sites in the Hudson River Watershed, you'll locate them on Google Earth. They are:

- Cascade Brook, in Black Rock Forest, a relatively pristine protected area about 50 miles north of New York City
- The Hudson River, at the New Jersey end of the George Washington Bridge
- The Harlem River, running between Manhattan and the Bronx, along its western shore.

As you do so, mark each location with a yellow thumbtack icon and name each one so that you can easily find it again. Start with Cascade Brook. Copy and paste the following GPS coordinates into the **Fly To** box on the left and click on the magnifying icon to the right of the box. When the location appears, click on the yellow thumbtack icon at the top of the page and then copy and paste its name into the box that appears on the right of the screen.

Cascade Brook

41 23.633N 73 59.813W

Repeat the above procedure with the two other sites:

Hudson River

40 51.118N 73 57.556W

Harlem River

40 49.488N 73 56.079W

The next time you open Google Earth, the thumbtacks and labels will appear.