

# I Spy Water

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## Description:

Students walk through their neighborhoods every day, but how well do they actually know them? In this activity, students will go on a scavenger hunt to find fire hydrants, storm sewer drains, and other neighborhood water infrastructure. By mapping their findings, they will have a better sense of their community's water supply and sewer systems.

## Objectives:

- Understand the infrastructure behind delivering water and removing wastewater from our homes.
- Raise awareness of neighborhood resources and realize how communities depend on it.
- Utilize navigation and mapping skills.

## Recommended for:

2<sup>nd</sup> – 12<sup>th</sup> grade students

## Materials:

- Paper
- Pencil
- Ruler
- Map of neighborhood/block
- *Neighborhood Water Map*
- Clipboards

## Background Information:

Water travels to each building and to the 115,000 fire hydrants in New York City through a network of aqueducts, tunnels, and pipes, which consists of 6,200 miles of water mains.

Once used, wastewater from storm drains, toilets, and sinks is collected by another

network of pipes: the 6,600 miles of New York City sewers.

## Method:

- You may want to run through this activity first, in order to create an answer key of all the water features in your school neighborhood.
- Create a map using the “Neighborhood Water Map” worksheet or find a map of your school neighborhood. If you do not have a map, you can create one by using Google maps. Add an empty box for a legend.
- Explain the activity and review what water features (i.e. fire hydrants, storm drains, water manhole covers, water towers, water sampling stations, sewer manhole covers, storm water manhole covers, etc.) they should look for in the designated area. Complete the “Neighborhood Water Features” matching game worksheet prior to this activity to familiarize your students with water features.
- Divide your students into pairs. If you want to make it competitive, the pair that finds the most water features wins.
- Pass out the maps while reviewing the title, compass, legend, and street names.
- Slowly guide the students in pairs around the school neighborhood and record all of the water features they see on the map. Have them orient the map in the direction they are walking in so they can easily record their findings. Make sure you leave enough time for this part of the activity so that your students can stop and draw all of the water features they observe as they walk along both sides of the street.
- Review and discuss the findings back in class.

## Discussion:

- How many water features were you able to find?
- What is the importance of each feature?
- What do you think might happen if sewer pipes did not work effectively?
- What might impact the proper function of sewers? What can we do to help?
- Infer where water mains and sewer pipes run in your neighborhood. Draw them on your map.
- Using your map, how does water enter and leave your school?
- How might a fully open fire hydrant impact your school building?
- Are streets flat? Sloped? Why?
- What would our lives be like if these features did not exist?
- Have you noticed these same features around your home? Repeat this activity in your neighborhood.

## Extension Activities:

- Students might notice that manhole covers have different designs and markings. Ask students to draw and compare the different kinds of manhole covers they find. Research dates and abbreviations; a good book is *Designs Underfoot: The Art of Manhole Covers in New York City* by Diane Stuart.
- Although this activity focuses on water and sewer infrastructure on the ground, students can also look up and note the water towers on top of buildings. Explain what water tanks are and how the New York City water supply system can deliver water up to the sixth floor of most buildings by the force of gravity. Therefore, buildings over six stories have water tanks on the roof.

Ask the students to count the number of floors a building has to identify buildings with water tanks. You may not be able to see a building's water tank since some are hidden behind walls.

- To get an engineer's view, there is a picture of all the underground utilities on the DEP website. You can ask the students why the pipes are located where they are. For example, sewers are positioned underneath water pipes to ensure that wastewater cannot get into water mains carrying clean water.
- Discuss the proper disposal of grease and cooking oil at home. How do family members dispose of grease now? What happens to grease once it cools? Talk about how grease, if poured down the drain, can clog sewer pipes and the impact this can have in our homes and neighborhoods. You can demonstrate the proper disposal of cooled grease using a can and a lid. If appropriate, your students can make can labels that illustrate the importance of the proper disposal of grease.
- To see what happens with rain water, have the children pour cups of water on different parts of the sidewalk and street. Watch where the water travels to see how engineers have designed the street to prevent flooding.

### For more information contact:

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Also visit DEP's website at:

[www.nyc.gov/dep](http://www.nyc.gov/dep)