



# WATER QUALITY WEDNESDAYS

## SCIENTIFIC METHOD

Companion worksheet for the Village of Patchogue Waterway Stewardship Program and Water Quality Wednesdays Project to learn about the scientific method, stormwater management, and the local water quality of Patchogue Bay and River in Suffolk County.  
<https://waterqualitywednesdays.weebly.com/>

Name: \_\_\_\_\_

Date: \_\_\_\_\_

The Scientific Method is used by scientists to create questions that can be answered in a systematic way. Scientists start by observing an existing problem, thus determining the purpose for their experiment. They conduct some background research to see if the problem has been answered or to gain a foundation for their experiment. They create a hypothesis, or an educated guess. Then, they design and conduct an experiment that can support or disprove their hypothesis. Next, the results are analyzed to determine the major findings. Finally, the analysis is compared to the hypothesis to come to a conclusion. Often times, more questions are asked during the experiment and the scientific process starts over again. Follow the WQW experiment and fill in the steps of the scientific method.

### Step 1: Observation/Background Research

Cornell Cooperative Extension (CCE) scientists observed that Patchogue's water quality has been declining in recent years as urbanization increased.

Background Research: Population increases and aged septic tanks have led to declined water quality on Long Island. Population increases rose after the 1970s, leading to worsening water quality and declining fish markets. Long Island has an overwhelming amount of on-site wastewater treatment systems in use, having as many as the entire state of New Jersey. Aging on-site wastewater treatment systems (i.e. cesspools) leak nitrogen, an important nutrient, into the groundwater which eventually leads to rivers and bays.

"The Subwatersheds Wastewater Plan" *Reclaim our Water*, 2019, <https://reclaimourwater.info/TheSubwatershedsWastewaterPlan.aspx>

### Step 2: Hypothesis

Write a hypothesis scientists could use for this experiment. This should focus on water quality and its affect on local organisms in the waterbody. There is more than one right answer.

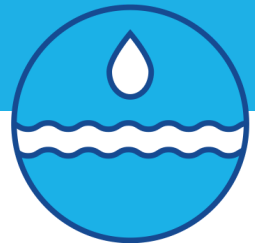
---



---



---



**Step 3: Experiment**

Describe the following experiment components.

Materials needed: \_\_\_\_\_

Parameters measured: \_\_\_\_\_

Species selected: \_\_\_\_\_

\_\_\_\_\_

Methods: \_\_\_\_\_

\_\_\_\_\_

Ranking: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Step 4: Analysis and Results of Data**

List what physical parameters affected each species group and any other important findings.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Step 5: Conclusion**

Was the hypothesis supported or not?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



PAUL PONTIERI, Mayor  
PATCHOGUE STORMWATER  
MANAGEMENT PROGRAM

