

YOUTH FOR CLIMATE AND WATER ACTION

WATER QUALITY MONITORING

Lake Champlain

Grade Level:

9-12

Timing:

approx 90 minutes + ½ or full-day field trip

Subjects:

Environmental Science, Biology, Earth Science, Chemistry

Driving Question:

How has the environmental history of my region influenced the health of water bodies today?

Summary:

Students learn about the past and present of their local water ways and predict future implications and suggest solutions based on data and discussion. Students are community-based science water quality monitors, collecting data at local lakes, rivers or streams. These data are analyzed and synthesized for students to gain a deeper understanding of issues impacting waterbodies in their community. This lesson can be implemented as a class, or individually.

Regional Connection:

In the Lake Champlain Basin, climate change is already impacting freshwater ecosystems and resources. Intense storm events, flooding, nutrient runoff, salt contamination, invasive species and harmful algal blooms are all problems that are degrading water resources in local communities. While much attention is individually given to environmental issues impacting our lakes, rivers and streams, there is a need to contextualize water quality issues in relation to the amplifying and overarching effects of climate change.

NYS Science Learning Standards (NYSSLS)

HS-ESS3-5. Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.

Climate Literacy Principles, Water Literacy Principles:

Over time, societies develop water management systems and practices to meet the needs of diverse water users. Climate change manifests in water-related issues, including: flooding, severe storms, drought and water quality issues.

Learning Objectives

- +Reflect on nearby waterways and issue impact
- +Conduct water sampling
- +Analyze data and synthesize results
- +Make predictions for future scenarios and solutions



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Water Quality Monitoring Field Trip

With the class, make predictions about what the group will discover during the field trip and water testing. Separate students into three groups and have them conduct trials for turbidity, dissolved oxygen, % dissolved oxygen saturation, pH, and Chloride.

Students will be taking photos and videos during the field trip. Use the datasheet provided below.

Test Name	Test 1	Test 2	Test 3	Average
Turbidity				
Dissolved Oxygen				
% DO Saturation				
pH				
Chloride				

Post Field Trip Data Analysis:

Have the students answer the following questions:

4. a) What trends do you notice between your group's data and other groups?
b) If there are differences between your data and other groups, what might have caused these differences?
5. What do the class results tell you about the water monitoring site?
6. Does the data support your hypothesis? Explain why or why not.
7. Why is long-term data important and how can it help us solve local and regional issues?
8. Create a hypothesis for what you would expect to see if you were to sample this waterbody again in 10 years.

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and wins for go
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