

It's hands-on, it's real life, it's

X-STREAM SCIENCE

Free inquiry-based learning opportunity lead by local experts to connect students to their watershed through real world science.



It's Experiential

Students get outside to participate in hands-on, scientific inquiry by collecting biological, chemical and physical data on the water and surrounding land. Content is curriculum connected and place based.

It's Monitoring

Water quality, quantity and land use data is collected, analyzed and stored to to be used and compared over time. This data will help students and decision makers make good choices to help our watersheds.



What are we testing?

BIOLOGICAL

Benthic Macro-Invertebrates

BMI (water bugs!) live and thrive in various conditions. By finding what BMI are in your stream we can learn about the long-term water quality there.

CHEMICAL

Phosphates, Nitrogen

Too much of a good thing? What levels of these building blocks of life are in the water, and is it higher than 'normal'?

LAND USE

Surrounding Land Use, Riparian Area Vegetation

Water contamination is often coming from the land around and upstream of our site. This data will help us understand immediate impacts to water quality and assess the habitat value.

PHYSICAL

Water Quantity, pH

Temperature, Dissolved Oxygen, Conductivity, Dissolved Solids, Turbidity, A snap shot in time, that over time will help us see changes in the stream across seasons and years.



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It's lead by the questions:

- What is the HEALTH of our local stream environment?
- How are different LAND USES changing WATER QUALITY?
- How do HABITAT variables affect aquatic LIFE SYSTEMS?
- What CHANGES can we see OVER TIME?

X-Stream Science has 3 parts:

1. In-class preparation presentation

Watershed experts will provide an overview of the reasons for monitoring, the parameters we will study and the scientific protocols students are expected to follow.

2. Stream-side Experiential Learning

All equipment, materials and guidance will be provided for this half or full-day outdoor experience. Students collect benthic macro invertebrate samples, as well as physical and chemical water and land data.

3. In-class data analysis and debrief

What is affecting the stream? How does this affect our environment and community? Students will analyze and reflect on the data, then upload it to the website. This could be a starting point for additional activities.

Additional components are possible as add-on activities for longer-term inquiry projects.

Cross-Curricular Competencies; apply attitudes, skills and knowledge in:

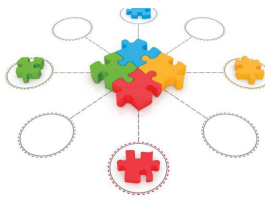
ID & Apply Career and Life Skills



Team Work & Good Communication



Manage Information



ID & Solve Complex Problems



Think Critically



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