

Teaching for the Watershed:

No child left outside of waders



Jessica Vander Ark, Director of Environmental Education,
West Michigan Environmental Action Council (WMEAC)

The Power of Place

Place-based education promotes learning that is rooted in what is local—the unique history, environment, culture, economy, literature, and art of a particular **place**—that is, in students' own “**place**” or immediate schoolyard, neighborhood, town or community.

<http://www.gettingsmart.com/>



Next Generation Science Standards (NGSS)

Enabling students to **learn** science by **doing** science.



Locations

Scout it out!

- Within 5 miles of school
- Safe access to water
- No dropoffs, dangerous terrain
- Bathrooms (onsite/offsite)
- Rain / Shelter
- Map it for the school and volunteers
- Coordinate with those who oversee the property

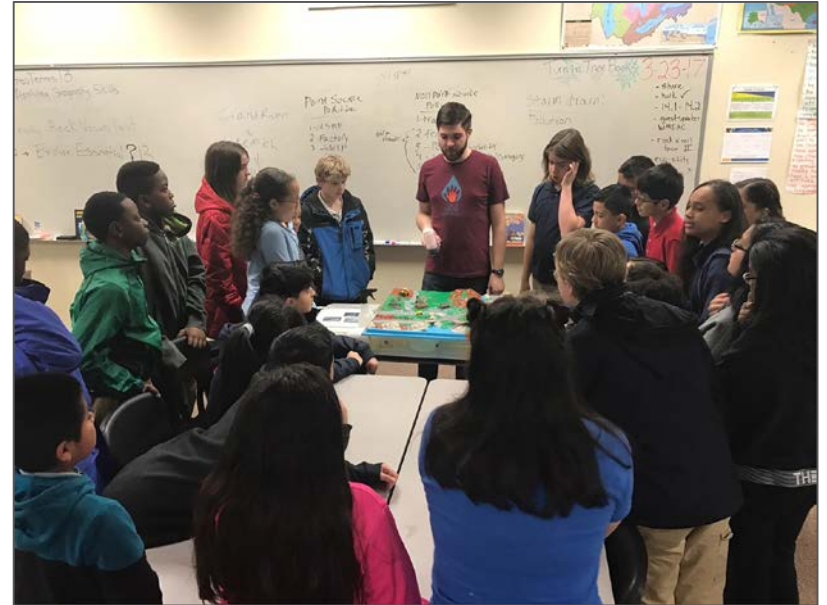


Classroom Experience

- What is a watershed?
- Differences between point and nonpoint source pollution
- How pollutants affect the watershed.

Fertilizers

- Herbicides and pesticides
- Oil and gasoline
- Sediment (from constructions, crops, erosion)
- Salt
- Bacteria from livestock and pet waste
- Litter



Get them **EXCITED** for the stream study

Look before you jump in: How to prepare

Permission slips - Most need them, some don't

Parent notice - What to wear, what not to wear

Prepare educators with program expectations

- Be engaged
- Learning experience not a play day
- Handling behavioral issues



Welcome to your watershed.



Fieldwork Experience

Basic water chemistry

Stream Health Assessment

Biodiversity scavenger hunt

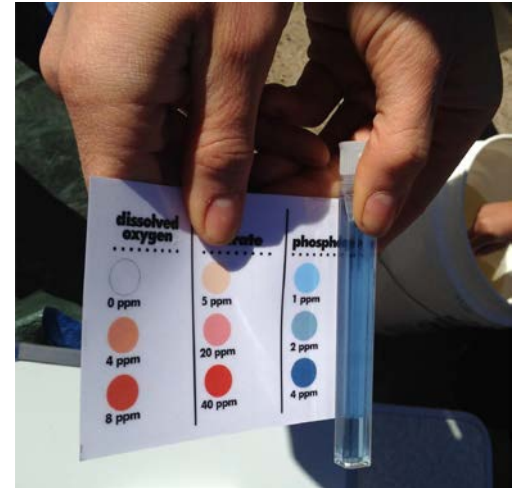
Students enter stream to find aquatic macroinvertebrates (as safety allows)



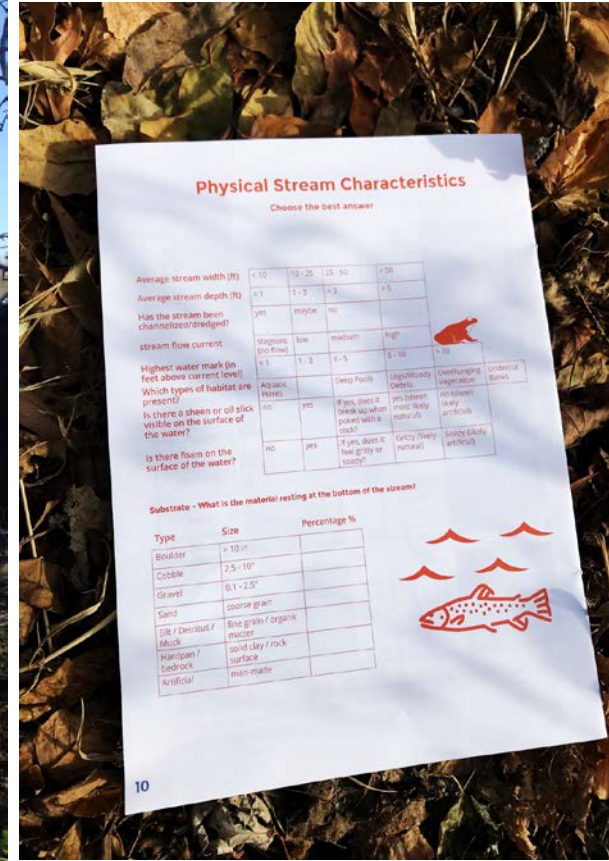
Water Chemistry



- Dissolved Oxygen
- pH
- Nitrates
- Phosphates
- Turbidity
- Temperature

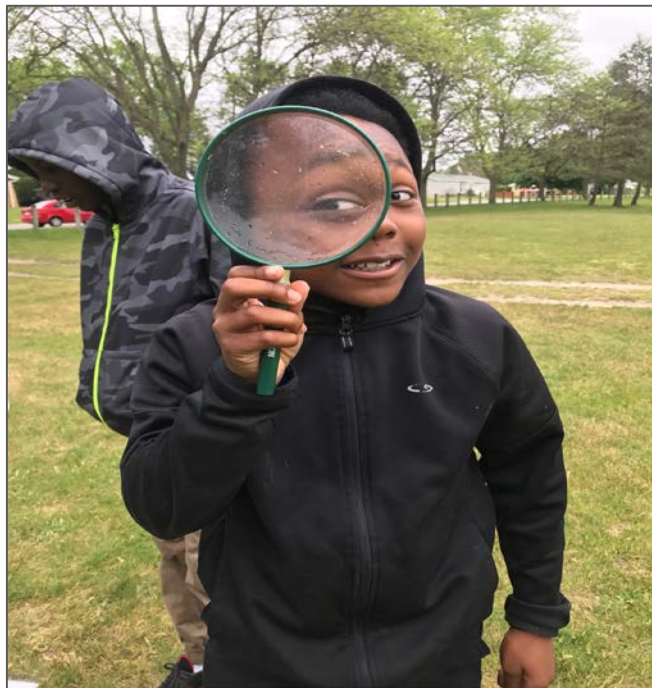


Stream Assessment - Riparian Zone & Substrate



Biodiversity Scavenger Hunt

Students survey around the site location to find out how diverse the local area is.



Wader Experience - Getting immersed

Students put on waders to search for macroinvertebrates and investigate their local stream quality.



Finding Aquatic Macroinvertebrates

Insects in their **larval** or **nymph** form; crayfish, clams, snails, and worms that live part or most of their life cycle attached to submerged rocks, logs, and vegetation.



Using 'macros' as an indicator of water quality



Invasive Species ID & Pull





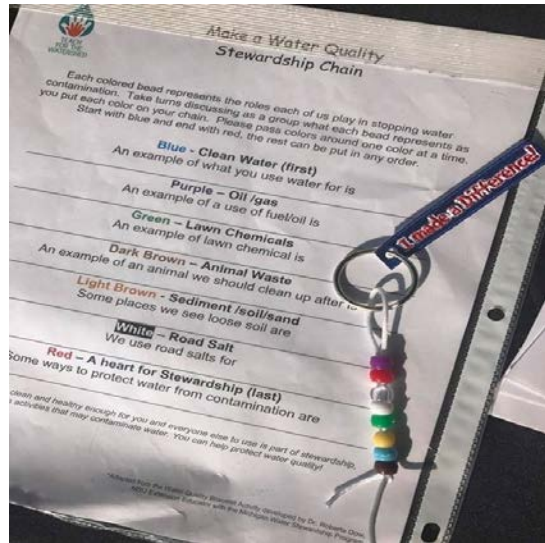
Clean-ups River, Stream & Community

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Rain Garden Project



Festival Activities



Students in action!



Students in Action!



Add



Working with Educators



Place-Based Education Hubs

Groundswell

West Michigan Great Lakes Stewardship Initiative (WMGLSI)

Watershed Organizations

Macatawa Area Coordinating Council

Lower Grand River Organization of Watersheds



Stewardship opportunities



Educational Workshops

- Green Infrastructure
- Rain Barrels
- Composting
- Stormwater Pollution
- and More!





Teach for the Watershed Mentors

Program Training & Orientation

Learning about content area

Background checks

Simple stations that are user friendly

wmeac.org/internships





Everyone can do something.

-Mother Theresa



wmeac.org/volunteer

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