District: *Forest Hills Public Schools* Building: *Forest Hills Eastern Middle School*

Teacher(s): *Leah Sevigny, Kathy Mitchell, Nicki Elliott*

Main Contact: *Leah Sevigny* Email: *lsevigny@fhps.us*

Grade Level: *7th and 8th* Subject(s): *HS Earth* Science

First Trimester: Second Trimester: Third Trimester:

First Semester: Second Semester: All Year: *x*

Name of Project: *Environmental Campus Restoration and Plastic Recycling Program*

Project Overview

Give a brief overview of the project you are planning.

We will build on the land use theme we started last year, continuing our lessons on the watershed and building from water to the plants that grow on our campus. Eastern students will investigate re-establishing our campus landscape toward native, non-invasive plants, and subsequently remove spotted knapweed from the campus. In an effort to take our new learning to the community, students will participate in a Garlic Mustard pull at Ada Township Park.

We are also implementing a plastic recycling program. The middle school students will work with the high school AP Environmental Science students to create a sustainable, student-run initiative to make a positive impact on the environment.

Most of the students, staff, and parents in our school community are unfamiliar with environmental issues surrounding the watershed. They are ignorant of sustainability issues surrounding water, plants, weeds, etc. Through school and sports, the building and campus is used by hundreds of people on a daily basis, but no one is doing anything with the grounds. Most people drive by the detention ponds, creek, and fields, but do not make a connection to our watershed. Consequently, we hope to reach the entire community through these educational efforts.

We are also implementing a plastic recycling program. The middle school students will work with the high school AP Environmental Science students to create a sustainable, student-run initiative to make a positive impact on the environment.

While recycling is not a new idea, it was not built into the master systems-plan at Eastern, and has never been fully implemented as an enduring expectation. This portion of the project may not be unique, but there is certainly a need to put a system in place.

Both recycling and eliminating invasive plant species improve the quality of our groundwater, so we are pleased to embrace two projects that specifically relate to Groundswell's mission, "Creating lifelong stewards of the Great Lakes via the Grand River watershed."

Eastern Middle School students will look at both how our school campus affects groundwater and how helping our local parks clean the river and pull invasive plants benefits the community as a whole. They should understand the relationship between their efforts, the watershed, the quality of Lake Michigan and its effect on their lives.

Our students will exhibit stewardship of our land by eradicating spotted knapweed from the Eastern campus and pulling Garlic Mustard at Ada Township Park. They will also show good stewardship by working in the lunch room in shifts at the recycle area to ensure other students empty their beverage containers of liquid before throwing them away. The only way this recycling effort will be successful is for students to share the responsibility.

There will be 200 involved in the land use projects (watershed, water testing, invasive species), and 430 middle and high school students will be involved in the recycling efforts.

Effective Practice: MEANINGFUL SERVICE

Service learning actively engages participants in meaningful and personally relevant service activities.

What community need will you address and how did you determine the need?

Eastern Middle School students will look at both how our school campus affects groundwater and how helping our local parks clean the river and pull invasive plants benefits the community as a whole. They should understand the relationship between their efforts, the watershed, the quality of Lake Michigan and its effect on their lives.

What service will you provide to address the need?

Our students will exhibit stewardship of our land by eradicating spotted knapweed from the Eastern campus and pulling Garlic Mustard at Ada Township Park. They will also show good stewardship by working in the lunch room in shifts at the recycle area to ensure other students empty their beverage containers of liquid before throwing them away. The only way this recycling effort will be successful is for students to share the responsibility.

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Effective Practice: LINK TO CURRICULUM

Service learning is intentionally used as an instructional strategy to meet learning goals and/or content standards.

How is this project related to your curriculum?

Our project connects to the earth science curriculum we teach in 8th grade Foundations of Science. Students first need a clear understanding of HSCEs E4.1A and E4.1B.

- *E4.1A—Compare and contrast surface water systems (lakes, rivers, streams, wetlands) and groundwater in regard to their relative sizes as Earth's freshwater reservoirs and the dynamics of water movement (inputs and outputs, residence times, sustainability)" and*
- *E4.1B Explain the features and processes of groundwater systems and how the sustainability of North American aquifers has changed in recent history.*

What are the educational goals?

Then they can use the information they learn from this project to deeply grasp content expectation E4.1C and the FHPS curriculum lifelong understanding related to it.

- *E4.1C—Explain how water quality in both groundwater and surface system is impacted by land use decisions.*

- *Lifelong Understanding—Problems related to water resources requires an understanding of the components of the hydrosphere and the impact created by human activity.*

Curriculum Crafter Connections www.curriculumcrafter.com

Strand: *Earth SCI: (Earth Systems)*

TLW: *Describe the impact of humans on Earth's systems as renewable and nonrenewable resources are utilized and explain how energy exists in multiple forms which can be transformed and transferred from one reservoir to another. (Instructional Sequence 11)*
GIST: Energy – Natural Resources and Human Impacts.

Additional State Standards and Benchmarks
List standards and benchmarks met by this project.

Strand: *Earth SCI: (The Fluid Earth)*

TLW: *Explain how water moves through the atmosphere, hydrosphere, and geosphere and how water resources are important to and impacted by humans. (Instructional Sequence 7)*
Gist: Hydrogeology

Effective Practice: REFLECTION

Service learning incorporates multiple challenging reflection activities that are ongoing and that prompt deep thinking and analysis about oneself and one's relationship to society.

What form(s) of reflection will you use with the students to help them identify what they have learned and accomplished?

Classroom discussions, videotaped observations, public presentations

Effective Practice: DIVERSITY

Service learning promotes understanding of diversity and mutual respect among all participants.

What types of diverse perspectives and experiences will be explored as part of your project?

(i.e.: cultural, generational, abilities/disabilities, learning styles, etc)

Sadly, many of our families use lawn-care/landscaping practices that do not support sustainability of our ecosystem. Through this year's "Land Management" project, and the continuation of last year's "Water Management" project we hope students and families will be educated in options that are have a positive impact on our watershed.

We are hoping that through education, students will deepen their understanding and become lifelong environmental stewards.

Effective Practice: YOUTH VOICE

Service learning provides youth with a strong voice in planning, implementing, and evaluating service learning experiences with guidance from adults.

How will students gain ownership of the project?

Students at Eastern will create a plan for how to make the recycling program work effectively. They will create videos for the students and staff, to train everyone what is expected (for example, only the proper trash should be thrown in the recycling bins.)

Students will also have a voice in the invasive species portion of the grant. After learning about various invasive plants and different ways to deal with them, they will create a plan for what to focus on first and how to go about it.

Finally, students will write articles for our newsletter informing parents of what we are doing through Groundswell and the impact the project is having on the school.

Effective Practice: RECIPROCAL PARTNERSHIPS

Service learning partnerships are collaborative, mutually beneficial, and address community needs.

Who will you partner with for this project?

- *Mark Fitzpatrick, Director, Ada Township Parks (mfitzpatrick@adatownshipmi.com 616-676-0520)*

Mark has been instrumental in giving our project direction. He gave us feedback in the brainstorming stage, which helped us determine out project. He will help us identify and map invasive plants on our campus and will help advise us as to eradication options.

Our students, families, and staff can volunteer for various stewardship initiatives with the Ada Township Parks, such as invasive weed pulls and river cleanups. Specifically, volunteers are participating in the 15th annual River Clean-Up Day September 18, and all students are going to Ada Township Park in the spring of 2011 to pull Garlic Mustard.

Potential Future Partners

- *Kathy Reed, Director, Howard Christensen Nature Center (hcnc@kentconservation.org 616/675-3158)*

  Kathy offered to put us in touch with a person who does prescribe burns at Howard Christensen Nature Center. We would like to learn more about the process and determine if that is an appropriate method for us to eliminate spotted knapweed.

- *Schupan Recycling, Waste Management, or another recycling partner*

We don't know at this point if we need a partner for the recycling effort. This is something we will look into further.

How will students benefit from this partnership?

Students will be what can be recycled and how to properly recycle them at school, in order to expand their recycling efforts in their homes.

How will the partner benefit from this collaboration?

The students will help the partners by increasing recycling efforts, implementing proper recycling techniques, reducing waste, and educating the community on how to do all of these as well.

Effective Practice: PROGRESS MONITORING

Service learning engages participants in an ongoing process to assess the quality of implementation and progress toward meeting specified goals, and uses results for improvement and sustainability.

How will you assess the student learning goals?

Students need show mastery of Michigan High School Content Expectations (HSCEs) in hydrology. We'll expect to see 100% of the students earn 75% or higher on the questions related to these HSCEs on the semester exam.

Another way we'll measure success is through an end-of-project writing, in which we'll assess students' attitudes about the watershed and our responsibilities concerning it. Our hope is that 80% or more of the students can report acceptable ways they will continue to be environmental stewards in the future.

From our previous project, Water Management, we'll measure results of water testing to document changes in water quantity and quality over time.

How will you assess your service goals?

We'll also continue to monitor numbers of volunteers from Eastern with Ada Township Parks for invasive weed pulls and Grand River water cleanup, with the expectation that over time these numbers will increase.

As for invasive plants, we'll create and keep maps with location and amount of invasive plants present. Over the course of the next three to five years, we'll monitor change.

In regards to recycling, we will measure results by noting overall trash collection levels, expecting to see a decrease by 1/3 the amount of "throw away" trash we have currently.

Effective Practice: DURATION AND INTENSITY

Service learning has sufficient duration and intensity to address community needs and meet specified outcomes.

How will you prepare students for this experience?

- *Learn about invasive species in our area from Mark Fitzpatrick, director of Ada Township Park*
- *Identify and map invasive species on the Eastern campus*
- *View Mysteries of the Great Lakes*
- *Learn from the Eastern facilities development team regarding water management/quality on the Eastern campus*

What are some sample possible activities students might do as part of this project?

- *Institute a plastic recycling program at Eastern*
- *Take part in classroom activities through the Cranbrook Institute of Science Water on the Go program, "I Live in a Watershed"*
- *Conduct water testing on site in detention ponds and Little Egypt Creek, which leads to the Grand River*
- *Pull spotted knapweed throughout the Eastern campus*
- *Participate in place-based learning at Ada Township Park to assist in removing invasive species*
- *Share our experience with other Groundswell schools in a student showcase*

For more information about **Groundswell** go to www.groundswellmi.org
For more information about the **Great Lakes Stewardship Initiative** go to www.glstewarship.org