



Teacher(s): *Lynnelle L. Rehkopf*

Main Contact: *Lynnelle Rehkopf* Email: *Lrehkopf@rockfordschools.org*

District: *Rockford Public Schools*

Building: *East Rockford Middle School*

Date: *11/28/11*

Grade Level: *7*

Subject(s): *Science, Math*

First Trimester:

Second Trimester:

Third Trimester:

First Semester:

Second Semester: *X*

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**Name of Project:** *Native Plant replacement*

## **Project Overview**

*Give a brief overview of the project you are planning.*

*Hydroponic systems are used to create sustainable classroom gardens. With hydroponic systems students grow herbs, tomatoes and lettuce throughout the year indoors in the classroom. The produce can be used in the school, home or community. Chefs from area restaurants, food service cooks, parents or students demonstrate the use of the produce in creative ethnic salads and dishes. As a result, students and teachers utilize a 21st Century process to develop a healthy sustainable food source without dirt or soil in their own community. In addition to having the equipment to accomplish this, seventh graders will identify an invasive plant within a given area for removal. Students will use a hydroponic system to grow native plants to replace the space the invasive plant was growing.*

## **Effective Practice: MEANINGFUL SERVICE**

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

*Students will learn to apply knowledge and skills acquired in science, math, language art and social studies. Students will also help to re-establish an ecosystem in the Rockford community.*

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

*The community need we are addressing is the problem of invasive species; we address this by removing the plants and replacing with native.*

### **What service will you provide to address the need?**

*Labor will be the service used to remove the invasive species. Students will also grow and monitor the growth of native plants.*

## Effective Practice: LINK TO CURRICULUM

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

### Science

1. Find seed and grow plants
2. Research plants that can grow well in the following settings: Michigan, classrooms, hydroponics
3. Write plant information and growing/harvesting instructions
4. "What has happened to heirloom seeds? Do we want to grow heirloom seeds?"

### Math

1. Determine project costs
2. Manage budgets and funds

### How is this project related to your curriculum?

*Part of 7<sup>th</sup> grade curriculum is learning about and identifying invasive species in Michigan. We also study the plant life cycle.*

### What are the educational goals?

*The Students will:*

1. Explore 21st Century problems-sustainability, invasive species
2. Develop a solution to 21st Century issues related to:  
*Food production, sustainability, water and resource management*
3. Explore 21st Century jobs and careers - including Horticulture, natural resource development
4. Build and develop new employability and life skills
5. Provide meaningful service to their school and families in their community

## Curriculum Crafter Connections [www.curriculumcrafter.com](http://www.curriculumcrafter.com)

**Strand:** 07SCI: (Science Processes)

**TLW:** *Demonstrate an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems by identifying evidence of chemical change.*  
(Gist: Chemical Change)

**Strand:** 07SCI: (Earth Science)

**TLW:** *Explain how human activities have consequences on the environment.*  
(Gist: Human Impact on the Environment)

### Additional State Standards and Benchmarks

List standards and benchmarks met by this project.

K-7 Standard S.IP: Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.

K-7 Standard S.IA: Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using appropriate technology.

K-7 Standard L.OL: Develop an understanding that plants and animals (including humans) have basic requirements for maintaining life which include the need for air, water, and a source of energy. Understand that all life forms can be classified as producers, consumers, or decomposers as they are all part of a global food chain where food/energy is supplied by plants which need light to produce food/energy. Develop an understanding that plants and animals can be classified by observable traits and physical characteristics. Understand that all living organisms are composed of cells and they exhibit cell growth and division.

Understand that all plants and animals have a definite life cycle, body parts, and systems to perform specific life functions.

E.ES.M.4 Human Consequences- Human activities have changed the land, oceans, and atmosphere of the Earth resulting in the reduction of the number and variety of wild plants and animals, sometimes causing extinction of species

L.EC.06.11 Identify and describe examples of populations, communities, and ecosystems, including those within the Great Lakes region.

## 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?**

1. *Journaling*
2. *Reflective Essays*
3. *Directed Writing*
4. *Student Portfolios including:*
5. *Hydroponic process: designs, drawings, photographs, essays, brochures, web sites, videos*
6. *Classroom Presentations*
7. *Community and School Board 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)

*Students will work with other organizations to obtain resources and knowledge about their project. Interactions will increase along with diversifying perspectives and experiences with others not limited to the education field.*

## 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 will identify the invasive species that need to be removed, method for removal and labor to do so. Students will also grow the native plants in the classroom and replant them in the identified area.*

## Effective Practice: RECIPROCAL PARTNERSHIPS

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

**Who will you partner with for this project?**

*Business: Horizon Hydroponics: <http://www.hhydro.com>  
1614 Leonard Street Northwest Grand Rapids, MI 49504 (616) 791-1664  
Hours: Sun Closed; Mon-Fri 11am-7pm; Sat 12-5pm*

Contact: Jesse Lincoln [JesseMLincoln@gmail.com](mailto:JesseMLincoln@gmail.com)

### **How will students benefit from this partnership?**

1. pioneer growing plants produce indoors throughout the year
2. apply academic skills to solve real life problems
3. address the needs of the community and provide solutions to community issues
4. develop relationships with private businesses and employers

### **How will the partner benefit from this collaboration?**

*Horizon Hydroponics will receive credit for assisting our students with their product; more people will become aware of their business leading to more business opportunities.*

## **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?**

*Academic goals and math and science will be measured through assessments in the subject areas.*

### **How will you assess your service goals?**

Service will be measured through:

1. the amount of produced grow with the hydroponics system
2. the number of hours students contributed to the service project
3. the number of interactions or contacts with the people receiving the produce

## **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?**

*Students will study plant cycles, needs of living things, invasive species, and native plants in Michigan. Students will also study agriscience.*

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

*Interview local environmental organizations such as the DNR, Isaac Walton Organization. Students will also have to build, construct, assemble the hydroponic systems and start the hydroponic growing process.*

## **SUSTAINABILITY**

*The three arms of sustainability are environmental stewardship, economic growth, and social progress. Think planet, profit, and people.*

### **Describe how your project addresses the issue of sustainability?**

*Seeds will be able to be collected to run the program for following years. Hydroponic equipment can also be used to grow other plants in coming years. More native plants could be placed in the community or the project could be increased to growing different plants to be used in our community gardens.*