Toolkit for Schoolyard Habitat Program Development

The Schoolyard Habitat Partnership is a partnership between the Maryland Association for Environmental and Outdoor Education, US Fish and Wildlife Service, and the NOAA Bay Watershed Education and Training Program from 2003-2009.

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Toolkit for Schoolyard Habitat Program Development

Goal

To provide a framework for environmental educators to improve their schoolyard habitat program offerings, including resources for:

developing schoolyard habitats;
improving teacher training;
connecting to the state curriculum; and
evaluating and improving the effectiveness of their program.

Audience

Providers of environmental education teacher training and schoolyard habitat programs

Objectives

- Participants will describe positive and negative impacts of project partners, funding resources, and competing interests.
- Given a specific example, participants will identify at least one way a project can be significantly enhanced by working with the school system's building services branch.
- Participants will identify at least one agency or professional organization that will assist them in schoolyard habitat project support.
- Participants will describe the specific applications and barriers of schoolyard habitats in K-12 formal education.
- Given their existing teacher-training structure, participants will construct a needs assessment strategy and performance objectives.
- Participants will develop an assessment strategy for an objective.

Toolkit for Schoolyard Habitat Program Development

The *Schoolyard Habitat Program Development Toolkit* is designed to train environmental education program providers to more effectively assist teachers and schools develop sustainable, integrated schoolyard habitat projects.

The need for schoolyard habitat support falls primarily into two categories: on-the-ground project support and curricular-connection support. In this toolkit these two categories are spilt into the following units:

Part One: Project Planning Support

- Unit One: Finding Funding and Leveraging Resources
- Unit Two: Working Within the School System
- Unit Three: Coordination with Restoration Professionals

Part Two: Curricular Support

- Unit One: Supporting Schoolyard Use in Formal K-12 education
- Unit Two: Providing Exceptional Teacher-Training Opportunities
- Unit Three: Evaluating and Improving Program Offerings

These two categories mirror the two reasons why schoolyard restoration projects are important. First, schoolyards are available public green spaces that provide an excellent opportunity for increased wildlife habitat value and improved water quality. Even very small or very urban schoolyards can provide opportunities to improve the ecosystem. Second, schoolyards can support many of the concepts in the Maryland State Curriculum. Multiple embedded experiences provide a base for a critical connection to the natural world. A diverse, accessible, and ecologically sound schoolyard provides the platform for these experiences.

Providing project and curricular support to schools is both time- and staff-intensive; for many reasons it may not be possible for all schools to receive all the support that is needed. Yet it is still important to recognize the type and extent of support that is needed for schoolyard projects to thrive. This toolkit provides a framework for that support and a suggestion of some best practices.

Schoolyards and their programmatic potential have been growing in prominence over the last 20 years throughout Maryland and the country. Schoolyard habitats have been created to address issues such as climate change, carbon footprint, water quality, and critical habitat restoration for endangered species. Schoolyards also provide excellent localized opportunities for students of all ages to interact with nature, study their environment, and see the impacts of their actions.

Recently schoolyards have been highlighted in Statewide Environmental Literacy Plans and initiatives like the Maryland Partnership for Children in Nature and legislative efforts like No Child Left Inside.

Many environmental education providers have schoolyard habitat programs and those programs are continually evolving and re-defining themselves. In order to remain current and relevant to the teachers, students, and community, we must constantly challenge ourselves as environmental educators to critique and improve our offerings.

For more information on Schoolyard Habitat visit the websites:

- MAEOE: http://www.maeoe.org/habitat/
- USFWS Chesapeake Bay Field Office: http://www.fws.gov/chesapeakebay/schoolyd.html
- National Wildlife Federation: http://www.nwf.org/schoolyard/

Toolkit for Schoolyard Habitat
Program Development

Part One: Project Planning Support

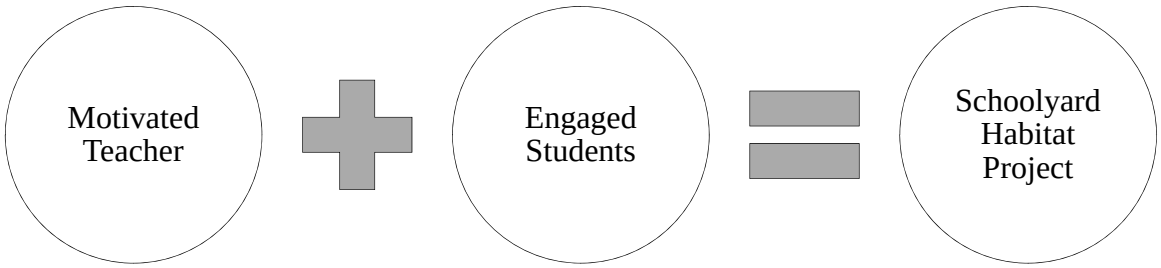
Unit One
Finding Funding and Leveraging Resources

Objective

Participants will describe positive and negative impacts of project partners, funding resources, and competing interests

Introduction

In the beginning schoolyard projects were very straight forward, simple equations:

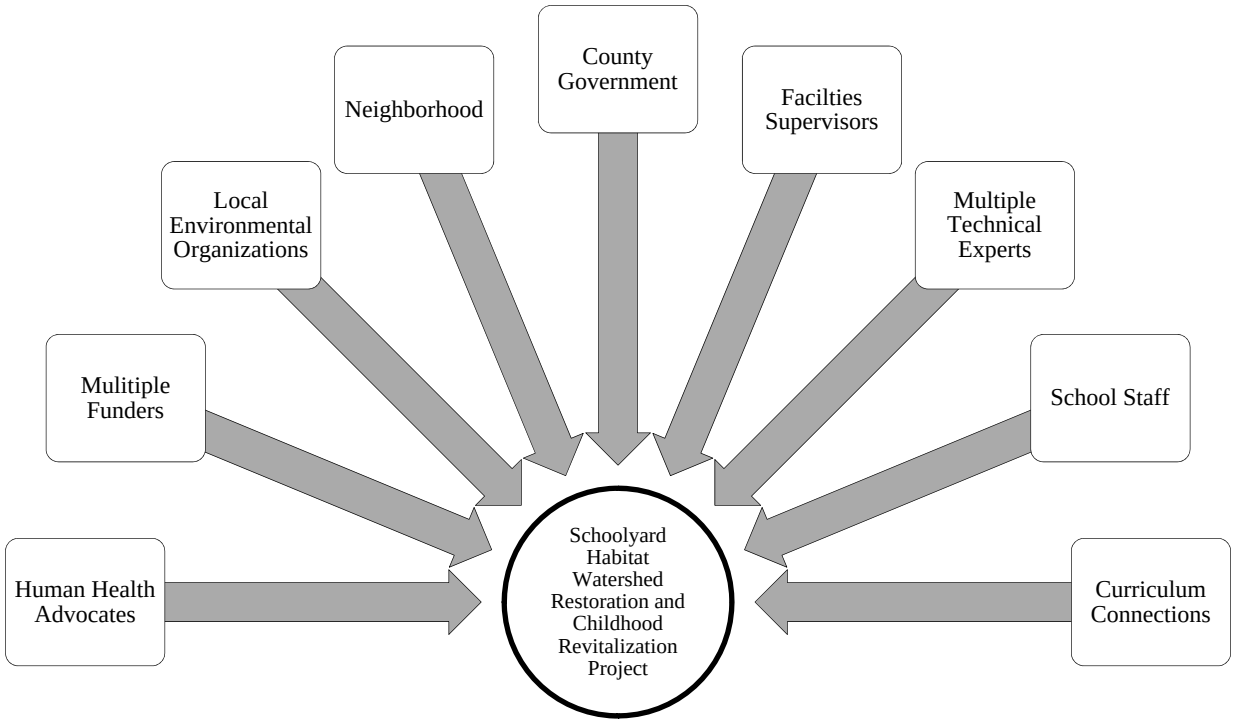


As these projects grew in numbers and prominence there emerged a need for more support to create more ecologically sound projects with long term maintenance and use. To address these needs, more and more partners and stakeholders have been drawn into the process of creating schoolyard habitat projects. The advantage that support people can offer the school is the ability to see the larger picture of the community, watershed, county, and region.

There are now several existing frameworks for providing step-by-step project support for the creation of a schoolyard habitat project. All these templates have the same basic four-step process: assess the site, develop the project plan, implement the plan, and maintain the project. See the *Toolkit for Conservation Landscaping in Community Spaces* for a more detailed discussion on individual project guidance.

As the technically sound nature of these schoolyard projects has continued to evolve, the number and investment of partners, and the size and scope of these projects have also

grown. No longer a simple equation, schoolyard projects can cost thousands of dollars, cover several acres and incorporate very lofty goals. Funding, partners and competing uses of space can all be elements that create a stronger and more comprehensive project however, the management of these interests can also be potential stumbling blocks to a successful and cohesive project plan.



Engaging each of these stakeholders provides opportunities for creating a stronger and better funded project. However as more stakeholders become invested in the project, the possibility for partners to overshadow the project goals increases, including the possibility of limiting student involvement. It is important for project managers to constantly evaluate the process and maintain fidelity to the project goals.

Finding Funding

Almost every project is confronted by the issue of funding. There are essentially two different funding issues. The first is project-based funding. This is the funding to support the purchase of plants, mulch, shovels, etc. Project-based funding is accessible with a little research into the traditional funding sources for projects as well as some less traditional foundations and organizations that are increasingly interested in the health and well being of children and communities.

Here are a few sources for project-based funding and grant writing:
http://www.maeoe.org/habitat/funding/index.php
http://school.familyeducation.com/school-fundraising/38482.html
http://k12grants.org/fund_raise.htm
Ideas for finding corporate sponsors:
http://www.idealist.org/if/idealist/en/FAQ/QuestionViewer/default?section=17&item=28

The second funding issue is the long-term program support in terms of personnel and long-term maintenance. It is frequently a more significant challenge to fund the people who can help coordinate and implement large-scale support and resources for schoolyard action. Ultimately funding these positions should be in the operating budgets of the school systems, but that is not a fiscal reality in many areas. For many environmental education professionals, schoolyard habitat program development is the extra or additional part to their already full jobs. To address funding systemic schoolyard programs consider:

What specific support is needed for schools and school systems?
How can counties, agencies, and organizations support each other?
What additional partners could be brought to the table?
What are some strategies to broaden partnerships?

Leveraging Resources

As more partners external to the school become involved in a schoolyard project, the project has a potential to become dominated by these outside interests. It is important to balance the goals of supporting a school project that is embraced by the individual school against the goals of a larger environmental initiative in which partner organizations may dominate the decision-making process.

The task is to weigh and balance all of the potential competing interests in a school project because schools need assistance from the outside to help leverage resources and increase the good.

Consider this scenario:
Happy Valley Middle School is a run-down 40-year old building in the middle of downtown. The school system has found funding to build a new Happy Valley Middle school on top of the old ball field on the same city block. The old building will be used for office space. A team of about 4 teachers had a small native songbird and butterfly habitat and a few raised beds that they used as an outdoor classroom for their students. Your program had worked with these teachers and helped them design the project. It has been established and well used for about 5 years. It is near the 'learning cottages' and a few of the other members of the staff were always convinced that rats lived in the habitat. The school designers at the county level have ordered school design #324B which was a great design for the last middle school they built. They have ordered any existing vegetation be removed from the old ball field because they don't want to have any leaves or vegetation

debris and all the storm water from the site will be diverted directly to an underground filter. The central office doesn't want a wetland or standing water on the site, because they are convinced that the urban area would not accept it as a part of their community. The principal is new, young and ambitious. He had visited some schools in Europe once and loved how many of the schools had peaceful gardens where there was opportunity for peaceful reflection.

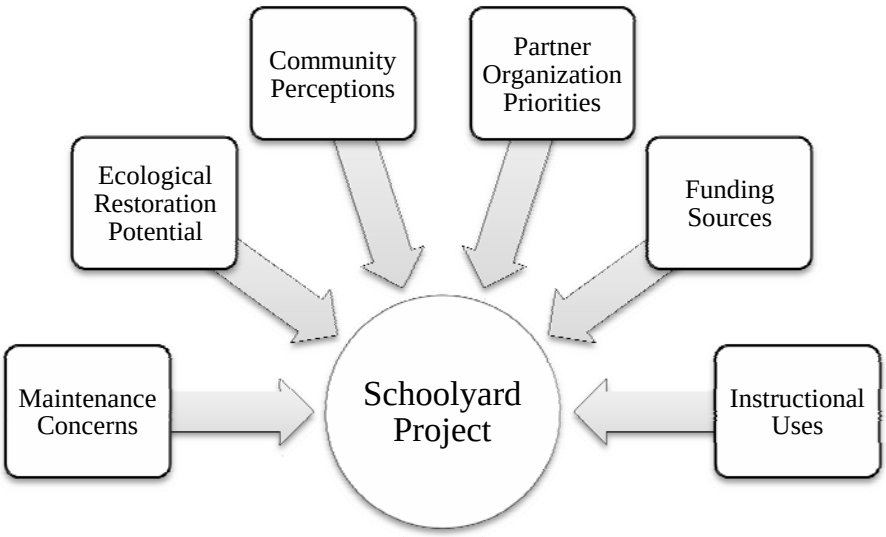
What are the problems? What are the possibilities?
Where are some realistic funding resources they could find?
Who are some possible allies who have not been engaged?

Conclusion

As a project evolves, it is an educational opportunity for all the partners involved. When balancing divergent interests in a project, it is a challenge to remain focused on the objectives of a project, while at the same time being open to revising the project to meet any new opportunities that truly serve the greater good.

Identify a previous project that you have been involved in either as a project leader, partner, or an interested by-stander (the bigger and more complicated the project the better). You will be using this previous project as the basis for your work on the rest of the units in the toolkit.

Considering the many parties involved (including technical experts and funding sources), use the diagram below to indicate the elements that dominated the decision-making process of the habitat project. State how those interests helped or hindered the process. Consider what strategies could lessen the likelihood that one interest or element could overwhelm the process.



Toolkit for Schoolyard Habitat
Program Development

Part One: Project Planning Support

Unit Two
Working Within the School System

Objective
Given a specific example, participants will identify at least three ways in which working with the school system's building services branch will significantly enhance a project.

Discussion

Many teachers and project leaders will go to the maintenance staff as an afterthought, seeking simply their sign-off on the plan, but that approach overlooks an important fact: the school grounds staff is a conduit to an entire division of school services that can offer tremendous opportunity for schoolyard habitat development. The building service branches of school systems manage thousands of acres of land. The goals and objectives of the building services branch can be very different than the curriculum and instruction branch. To work with this branch of schools is to work with a professional group of institutional land managers who are interested in effective solutions to environmental, cosmetic, and human-use issues.

School systems can be complex organizations with divergent goals. Developing projects that are based on shared goals between these branches of the school system can be the basis for innovative projects that show substantial cooperation and collaboration.

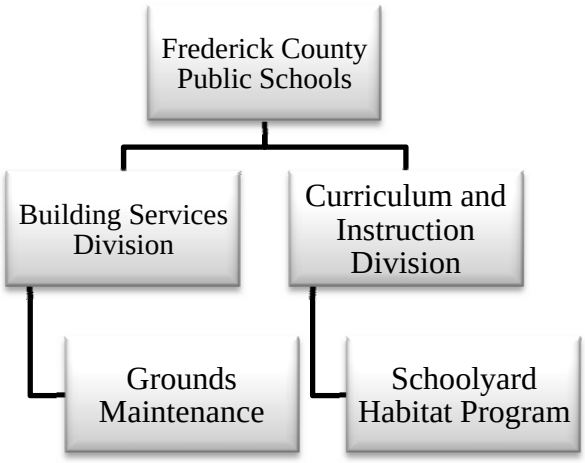
For example consider the Frederick County Greening Initiative & Tree Canopy Goal project:

The Potomac Conservancy initiated a far reaching plan to demonstrate how an entire school system could provide means to significantly increase the forest canopy in a county. The Potomac Conservancy and the Potomac Watershed Group targeted Frederick County Public Schools (FCPS) to use their lands as a means to achieve the larger forestry goals of the Chesapeake Bay Program and the Maryland Forestry Act.

In collaboration with the US Forest Service, the Potomac Conservancy completed a land cover assessment of FCPS and estimated that as of 2005, FCPS school sites contained cumulatively approximately 12% tree canopy cover.
The FCPS Greening Initiative & Tree Canopy Goal, funded by the US Forest Service and Chesapeake Bay Trust has a goal of increasing the tree canopy of FCPS to 20% by 2038.

To assist Frederick County Public Schools in achieving their 20% tree canopy goal, Potomac Conservancy is creating an implementation guide for the school district, complete with at least 20 planting plans and other helpful resources. Between the 2007 and 2009 the partnership developed 6 school site planting plans that total over 20 acres of restored canopy. By spring 2010, the remaining planting plans will be prepared to assist FCPS in efficiently implementing tree planting projects over the next several years. These projects will eventually restore an estimated 100 acres of tree canopy. According to the Pew Center on Global Climate Change eastern forests can sequester between .9 and 4.6 tons of carbon a year. So this increase in Forest cover can represent at least a reduction 90 tons of carbon a year in the FCPS carbon footprint.

To understand how this project emerged consider the following graphic:



FCPS has a strong and growing schoolyard habitat program within the division of Curriculum and Instruction, after a few meetings the partners felt confident that teacher training and curriculum support would be available for this project. When this project was initially being created, the Potomac Conservancy and the Potomac Watershed Partnership invested a tremendous amount of energy into communicating and working with the Building Services Division of FCPS. Through many meetings and discussions the Building Services Division, the Curriculum and Instruction Division and the School Board all became true partners in a project they created together.

Since fall 2007, the project has engaged over 4,500 students and volunteers in planting nearly 1,500 native shrubs and trees on Frederick County public school grounds in over 6 school communities, and this is just the beginning of a project that will significantly increase the forest canopy of Frederick County Public Schools.

Conclusion:

Schools are managed by a bureaucracy, but not all bureaucracies are created equal. Those working on projects in larger school systems can be surprised by how many offices are invested in the schoolyard; from the office of capitol improvement to the health and safety officers to the grounds department, there are many perspectives on the way a schoolyard should look and function. Smaller school systems may have fewer people and departments but still have similar concerns and less money. Some school systems contract out much of the maintenance of the buildings and grounds. In short there is no one-size-fits-all approach to working with the entire school systems. There is however, the knowledge that any schoolyard project will be stronger if both branches of the bureaucracy are invested in the planning process.

Consider the project you were discussing in unit one: give examples of at least two specific meetings or steps that should have occurred with the building service branch of the school system to improve the outcomes of this project.

Toolkit for Schoolyard Habitat
Program Development

Part One: Project Planning Support

Unit Three
Coordination with Restoration Professionals

Objective

Participants will identify at least one agency or professional organization that will assist them in schoolyard habitat project support.

Introduction

Schoolyards can offer the opportunity for large-scale habitat restoration and watershed protection. To harness the best of the possibilities it is important to consult with experts. Frequently, ecologically sound habitat restoration takes equal parts of experience and science. There are times when the best available science could indicate that a certain water regimen or plant selection would be the most appropriate, however once the project is implemented nature takes over and might have different plans for what works best. True expertise in habitat restoration is developed through a solid knowledge base and real-world trial and error.

Discussion and Links

The technical support provided to schools must be up to date on current restoration knowledge and expertise as well as be knowledgeable of all organizations, agencies and alliances that can provide the best options. Each of these organizations has its own varying strengths and ability to help. Some of the organizations and agencies that can provide assistance are:

Government Agencies:
The following agencies are best known for their wildlife knowledge and habitat restoration expertise:

- US Fish and Wildlife Service:
  - Partners for Habitat Program forms partnerships with private landowners, conservation groups, and agencies to protect and restore important fish and wildlife habitats. http://www.fws.gov/chesapeakebay/partners.html
  - Schoolyard Guide: http://www.fws.gov/chesapeakebay/schoolyd.html

- Maryland Department of Natural Resources
  - Watershed Protection Division and tributary strategies
    http://www.dnr.state.md.us/BAY/tribstrat/wshd_orgs.html
  - Forest Service
    http://www.dnr.state.md.us/forests/

The following agencies are best known for their water quality and engineering expertise:

- Maryland Department of the Environment
  Stormwater guidance including management of stormwater ponds
  http://www.mde.state.md.us/Programs/WaterPrograms/SedimentandStormwater/index.asp

- National Resources Conservation
  Provides technical assistance to land owners for implementing conservation systems. http://www.nrcs.usda.gov/

Many counties have excellent county based support for environmental action and technical guidance for watershed protections as well as tools to gather GIS information.

County Departments of Watershed Protection
County Departments of Forestry
See local county websites and resources.

Other resources:

- Local watershed groups such as Herring Run Watershed Association or South River Federation
- Google Earth Sketch Pro and American Forests CITYgreen both have powerful GIS web based tools that can help with site assessments

In addition to asking for help, there is also the opportunity to increase one's own restoration action knowledge base. The following is a sampling of some professional development opportunities for gaining habitat restoration expertise:

- Maryland Association for Environmental and Outdoor Education
  Annual conference, network of MAEOE Maryland Green Centers
  www.maeoe.org

- Adkins Arboretum
  Annual symposium, native plant sale
  http://www.adkinsarboretum.org/

- Alliance for the Chesapeake Bay:
  Watershed forum and other opportunities
  http://www.alliancechesbay.org/

- Chesapeake Conservation Landscaping Council
  Bi-annual conference
  http://www.chesapeakelandscape.org/

- Environmental Concern:
  Classes on wetland ecology, native plant nursery
  www.wetland.org/

- Irvine Nature Center
  Annual symposium and native plant sale
  http://www.explorenature.org/

- Maryland Interagency Wetland and Watershed Trainings
  MDE Wetland and Waterways Program
  http://www.mde.state.md.us/Programs/WaterPrograms/Wetlands_Waterways/

- National Conservation Training Center
  Classes offered on many conservation topics
  http://training.fws.gov/

- Society of Ecological Restoration
  Annual conference an other opportunities
  http://www.ser.org/

- Crop and Soil Science Society of America
  Journal, web resource, conferences, online "Ask a Soil Scientist"
  www.soils.org/lessons

For more examples of other technical resources for schoolyard projects, visit MAEOE's website: http://www.maeoe.org/resources/

Conclusion

As the pressures increase on the global ecosystem there are many professionals whom are working tirelessly to try to protect and restore the earth's ecosystem services. Learning some of the language, perspectives and innovative ideas that these professionals are working on will help environmental educators provide some of the best options for schoolyards habitat projects.

Using the project example from unit one, identify one agency or professional development opportunity that could have offered additional assistance in creating a better project.

Toolkit for Schoolyard Habitat
Program Development

Part Two: Curricular Support

Unit One:
Supporting Schoolyards Use in Formal K-12 Education

Objective

Participants will describe the specific applications and barriers of schoolyard habitats in K-12 formal education.

Introduction

Unless using the schoolyard becomes an imbedded experience within the curriculum of the school, you have not created a schoolyard habitat**.** You may have created a lovely native planting with some students that was a lot of fun, but you have not created an experience that will connect a community to its environment for years to come. Think critically about schoolyard projects you have been involved in. Think of some projects that may have had terrific merit but still weren't used by the school.

Were these good schoolyard habitat projects?
What could have been done in the creation of the project that could have improved their use?

Discussion

It is important to think critically about the potential of our schoolyard programs.

Schoolyard habitats have the potential of providing exciting hands-on, field-based experiences for students. This real world context is an opportunity for the best teaching methods that can motivate teachers and inspire students to learn and achieve more. Maryland has a proud tradition of innovative environmental education and has continued to promote and develop the integration of the environment throughout the curriculum.

Yet in spite of this there are still many schoolyards with an insufficient level of schoolyard learning integrated into the daily learning activities of the teachers and students.

The 2009 Executive Summary of the Maryland Children and Nature Plan provided the strong statement that not only are schoolyard habitats important but the teacher training to use them is essential to those projects having the optimum benefit for students. The overarching themes and key recommendations of the plan include the following directive:

"Provide the professional development and resources necessary to ensure that Schoolyard Habitat Programs are embedded educational experiences within each school; as an integrated component of the curriculum inextricably linked to the academic achievement of the school."

The significance and longevity of your schoolyard habitat program depends on each individual school project's integration with the curriculum. To be successful these projects must not be considered an 'add on' to the curriculum but a useful and exciting tool for teachers to use to address the State Curriculum.

Being integrated into the curriculum requires more than just students simply having fun. The use of the schoolyard projects must be aligned to your county benchmarks and the Maryland State Assessment Program. This does not mean that students will not have fun, simply selecting schoolyard project activities that meet the needs of the Maryland State Assessment. For more information on the Maryland School Assessment visit this website or contact your county's curriculum and assessments division.
http://www.marylandpublicschools.org/MSDE/testing/msa/

MAEOE's Maryland Green School Award (MGS) program provides a framework that incorporates local environmental issue investigation and professional development with best management practices and community stewardship. This framework provides an excellent demonstration of how schoolyard habitat projects can be utilized to their full potential. This does not mean that all schools with schoolyard habitats need to become certified MGS, but this does mean that the principles that guide the MGS award program can also help guide excellent schoolyard habitat projects. For more information on the Green School Program: http://www.maeoe.org/greenschools/application/index.php

Additional Resources

- Environmental Education Toolkit
  - http://www.marylandpublicschools.org/MSDE/programs/environment/tk
- Chesapeake Academic Resources for Teachers
  - http://chart.chesapeakebay.net/TeachingResourcesMain.aspx
- Other resources for standards based lessons:
  - http://www.maeoe.org/habitat/connections/lessons.php

Teacher-Training Activity

Select twenty or thirty standards from various subject areas and grade levels. Put them on separate pieces of paper and put the papers in a bag. Go to an inspiring outdoor setting, preferably a schoolyard habitat, and pass the bag around. Have each teacher pull a Maryland State Curriculum Objective from a bag and state how the schoolyard they are sitting in could be used to meet that objective.

Extension: Specifically, what roadblocks exist that prevent teachers from teaching outside? List those roadblocks. Discuss where there are perceived and real roadblocks. Discuss ways to prevent, reduce, or address these roadblocks.

Additional Teacher-Training Activities in Appendix

- Green School Worksheet
    - This worksheet walks participants through the steps to becoming a Maryland Green School
- Organizing Questions
    - Based on the research or the State Environment and Education Roundtable, this activity helps create good investigative questions that can help drive training and educational experiences.
- Ecological Identity Tree.
    - This activity provides a template for examining individual and institutional Ecological Identity. It is a reflective assignment that helps connect motivations and actions.

Conclusion

Using the project example from unit one, fill out the chart below indicating how the project is used and could possibly be used.

	Examples of current curriculum integration:	What is in place that makes this integration possible?
1	*(E.g. 7th grade data collection for population density)*	*(E.g. 7th grade curriculum alignment, and teacher attended training for using the habitat)*
2		
	Examples of potential curriculum integration:	What are the stumbling blocks to that potential integration?
1	(E.g. Art class could use the space for still life sketches)	(E.g. Larger school community not engaged with the habitat. It is considered science department property)
2		

Toolkit for Schoolyard Habitat
Program Development

Part Two: Curricular Support

Unit Two:
Providing Exceptional Teacher Training Opportunities

Objective

Given their existing teacher-training structure, participants will construct a needs assessment strategy and performance objectives.

Introduction

Environmental educators are frequently very good at sharing their enthusiasm and love of the natural world with students. The backbone of environmental education is crafting experiences to fill students with wonder and delight; however, all too often environmental education teacher trainings are focused on covering information, handing out activities, bringing in speakers, and creating great presentations. Too often trainings are full of all of the information the instructor wants to share with the audience regardless of the participants' wants or needs.

Exceptional teacher trainings should be experiential by design.

Discussion

In general, participants come to trainings because they want to gain a skill in order to be better at their job. A participant-oriented training is focused on that participant gaining those skills. An instructor-oriented training, on the other hand, is focused on all of the stories and knowledge that the instructor is convinced that the participant needs to hear. The more effective training is participant centered.

At the end of training participants should have gained a skill that they can demonstrate. Two ways to ensure that trainings are effective are to complete a needs assessment and to create well designed objectives.

<u>Needs Assessment:</u>

Few things are more deflating than pouring a lot of effort into a party that no one attends. Finding out the needs of the target audience is essential to an effective (and full) training.

When possible a direct needs assessment of the participants in the form of a survey of experiences and expectations is ideal. This can be done by interviewing individual

teachers, conducting a focus group, or sending a survey (through email or an online survey). When that is not possible, find out as much about the participants as possible by asking others who know the participants.

The needs assessment should identify who the participants are, what they want to learn, and why they would like to know this information. Needs assessments can also be done by talking to supervisors and finding out what skills are necessary that are not currently being demonstrated. After a successful needs assessment, training can then be crafted or adjusted to best meet participants' needs.

Each individual training should be unique and responsive to the needs of the audience. When needs assessments are effectively done, there should never be an exact duplicate of a training given.

When developing a needs assessment focus on the knowledge, attitudes, and skills that the teachers need in order to best use a schoolyard habitat for instruction. Keep those outcomes in mind when crafting the needs assessment questions. Here are some examples of questions:

- What grade do you teach?
- Do you use the outdoors for instruction? If yes, in what ways?
- Does your school have an outdoor classroom or other area that can be used for instruction?
- If you have or will have a schoolyard habitat at your school, in what ways can you imagine using it?
- How could you use the schoolyard habitat to fit with your curriculum (e.g., which standards would be addressed)?
- Are you comfortable teaching outside?
- What materials and skills will you need in order to use the schoolyard habitat for instruction?

Additional Resources:

Two sample list of things to consider in a needs assessment:
http://www.go2itech.org/HTML/TT06/toolkit/assessment/index.html
http://www.euteach.com/euteach_home/euteach_curriculum/euteach_needs.htm

Objectives

Based on the information you received from the teachers, you can develop the training to fit their needs. First create clear, measurable objectives that lead to a participant-oriented rather than instructor-oriented training.

Clear, concise, and well-written objectives help keep your focus on the specific skills that the participants will be gaining. Think of objectives as specific capabilities that you want participants to demonstrate; think of goals as broad statements that you want the workshop to accomplish. Classroom teachers are very familiar with writing objectives: in Maryland, instructional objectives are referred to as indicators of core learning goals. Each of the teachers' lessons must be tied to the students demonstrating the

accomplishment of those indicators. The professional development trainings we offer teachers must measure up to the same level of rigor that classroom teachers are expected to present to their students.

Goals versus Objectives: To understand the elements of a well written objective, consider the difference between the following goal and the two sample objectives.

Goal:
- The training will increase participants' comfort with, understanding of, and enthusiasm for wetland plants

Objectives:
- By the end of the training, participants will be able to successfully differentiate between a grass, sedge, and rush 75% of the time.
- By the end of the training, participants will be able to list four important functions that Marshy Point wetlands serve for the Chesapeake Bay.

For more information on objectives:
Robert Mager is considered the guru on writing instructional objectives. Some descriptions of his work:
http://www2.gsu.edu/~mstmbs/CrsTools/Magerobj.html
http://www.ehow.com/how_2083566_write-training-objectives.html
Effective objectives are also called "SMART" objectives: Specific, Measurable, Achievable, Realistic, Timed
http://www.learnmarketing.net/smart.htm

Conclusion

Go outside and sit in a schoolyard habitat. Think of a teacher training that you have delivered. Take a few moments to write down two or three discrete tasks you imagine the teachers would want to accomplish as a result of taking your training. Use this teacher training for the assessment in this unit and the next unit.

Needs Assessment

What specifics should you know about your participants' needs before the training begins? How can you find these out before the training starts? Name the specific means that you have for learning more about your audience.

Objective

State a SMART objective for your training.

Toolkit for Schoolyard Habitat
Program Development

Part Two: Curricular Support

Unit Three:
Evaluating and Improving Program offerings

Objective

Participants will develop an assessment strategy for an objective.

Introduction

Often professionals hope for evaluations to prove the worth of their offerings. However the true purpose of evaluation is to help professionals analyze the effectiveness of their programs and then improve their trainings.

Teacher-training opportunities should make teachers better at teaching; otherwise it is not training. Not all fabulous educational opportunities are training. Evaluations of teacher trainings should measure how effective the training was at improving the job that teachers do.

Discussion

The following four levels of assessment were created by Donald Kirkpatrick and Jack Phillips and are widely used in the training world.

Level One: Reaction of the Participant
What they thought and felt about the training. This can even include what they intend to do as a result of the training.

Level Two: Learning
A measurement of the actual skills learned or the knowledge obtained. The participant is able to demonstrate a level of mastery of new skills

Level Three: Behavior
A measurement of the effect of the training on the behavior of the participant once they returned to their job.

Level Four: Results
Quantifies how much the training actually impacted the participant's job performance. Some professions measure the results as a 'Return on Investment." In such cases, the participant's work performance is quantifiable and the training ultimately is shown to have saved the organization money

When considering these levels: Brainstorm specific metrics that could be used to measure each level? What are some efficient ways to verify these metrics? Where does the impact on student learning come into play?

A good resource to learn more about program evaluation is: "*My Environmental Education Evaluation Resource Assistant" (MEERA)* is an online "evaluation consultant." MEERA will help you think through and plan out formal and informal evaluations of their program: http://meera.snre.umich.edu/. This site not only gives the step by step process of creating evaluations it also provides examples of how evaluations of teachers and students can be combined to provide feedback on an entire program.

Another way to consider how needs assessments, goals, objectives and assessments all interrelate to create excellent programs is a concept called "Understanding by Design." Jay McTighe and Grant Wiggins have written and presented extensively on this concept. For a basic primer on Understanding by Design visit: http://www.grantwiggins.org/documents/UbDQuikvue1005.pdf

Providing teachers with Continuing Professional Development (CPD) Credits for participating in a training is both an excellent way to recruit teachers to your training as well as to ensure that those trainings are relevant and applicable. Having well defined objectives, linking to benchmark assessments, and implementing a performance assessment plan are all elements that help ensure a training will be awarded CPD Credits. For more information on CDP Credits contact the Maryland State Department of Education or visit: http://www.msde.md.gov/MSDE/divisions/certification/progapproval/prof_development.htm

Conclusion

Good educators are somewhere between scientists and artists, constantly learning, adjusting and recreating themselves and their craft to become more relevant, effective and successful. Developing a good assessment is a tool to help educators create better experiences.

Decide on an objective to measure. Brainstorm an assessment strategy for each of the four levels of assessment for that objective. Although your objective is for teachers, indicate where student learning comes into play.

Assessment Level	Training Objective	Assessment Strategy
Level One: Reaction	*(e.g., Teachers identify the elements of an excellent schoolyard habitat)*	*(e.g., Teachers complete a survey at the end of the training and are asked what they liked and didn't like about the training and how they plan to use the information)*
Level Two: Learning	*(e.g., 90% of teachers list ways that porous surfaces reduce runoff to the local waterway)*	*(e.g., teachers complete a pre/post survey asking them about porous surfaces)*
Level Three: Behavior		
Level Four: Results		

Toolkit for Schoolyard Habitat
Program Development

Appendix

Worksheet for Becoming a MAEOE Maryland Green School:

Step One:
Create a Team and a Vision

Step Two:
Start Accumulating Documentation

Step Three:
"Fine Tune" your Vision and Focus Areas

Step Four:
Apply for MAEOE Maryland Green School Status
Your application should show 2 years of Green School Work
and will be due in April.

This is not the Green School Application
This is only a worksheet to help you think through the process
The application can be found at:
www.maeoe.org

MAEOE
Maryland Green School Requirements Worksheet.

Objective One: Curriculum and Instruction

Demonstrate how your school has incorporated the following into their curriculum and instruction.

- Environmental Issue Investigation
- Professional Development
- Celebration

	Activities	Documentation
Environmental Issue Investigation		
Professional Development		
Celebration		

Objective Two: Operation Design and Maintenance of the School Building and Grounds

Choose four of these:

- Water Conservation and Water Pollution Prevention
- Energy Conservation
- Solid Waste Reduction
- Habitat Restoration
- Building Structures for Learning about the Environment
- Responsible Transportation
- Healthy School Environment

Criteria	Activities	Documentation

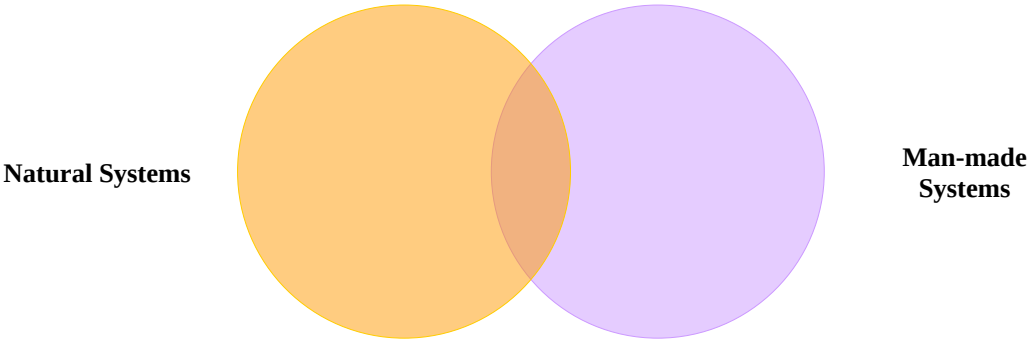
Objective Three: School and Community Partnerships

Demonstrate how your school has the students, school and the larger community all working in partnership.

Activities	Documentation

Developing Organizing Questions

Organizing questions are complex questions that engage the mind and make the world fascinating.



All environmental issues that we face in the world are at their core a result of the interaction of human and natural systems.

- Human transportation systems affect on river systems.
- Construction of windmills impacts migratory bird success.
- Production of energy through fossil fuels impacts global weather systems

Objective:
Participants will generate at least one organizing question from collaborative lists of natural and man-made systems.

Using Organizing Questions:
Every day when reading the news, the interactions between human and natural systems are evident. This easily leads to the development of questions, particularly questions in which we consider changing a variable of the human or natural systems.

For example:
Will planting a rain garden behind the bus loop improve the water quality in our sediment pond?
(This is a natural system of watershed and the human system of transportation)

Some supporting questions that are needed to investigate the organizing question:

What type of plants are needed in this raingarden?
What is the current water quality of the sediment pond?
What are the essential engineering and ecological functions of the pond?
What are the pollutants that are running off the bus loop?

Process:
In groups of 2 or 3 brainstorm either natural systems or man-made systems.

> Note:
> Don't worry about the definition of system. A system is anything that has several parts and is interesting to study. Smaller systems can be a part of larger systems. For example: A car is a system and it is a part of the larger transportation system. A severe storm is a system that is part of the larger system of climate. Just brainstorm all the systems you can think of and then you have more to work with once you start developing questions.

Then work with a team that had been brainstorming the other system to yours and develop a few questions that follow the basic pattern of: How does _____ impact _____?

Select one question that is your favorite and share with the group. Consider what supporting investigations would be needed to find the answer to those questions.

Ecological Identity Tree

Introduction to Ecological Identity:

If someone asks you why you work as hard as you do for the environment you might respond: "I have always loved spending time outside" or "I get really angry when I see beautiful places destroyed." As true as these responses might be they only reflect the surface reasons for our connections, decisions and beliefs about the environment and our role as stewards.

Mitchell Thomashow in Ecological Identity: Becoming a Reflective Environmentalist and Bringing the Biosphere Home, encourages people to explore deeply our reasons for why we believe what we believe about ecology and why we feel compelled to act the way we do.

The phrase "ecological identity" has come to refer to the way that we perceive our connection to the ecosystem. It is because of our ecological identity that changes in our environment affect us so deeply. As people who communicate with others about the environment, it is important that we deeply understand our own perspective in order to be able to communicate clearly with others. Even though we may have similar jobs, we each have different histories, motivations and aspirations.

Directions:

On a blank piece of paper sketch a tree.

Include: Roots, leaves, branches, and a trunk. On each of these parts of the tree write words or phrases that correspond with your environmental behavior, action and values.

Some Suggestions:

Branches and leaves: *Your Environmental Choices*

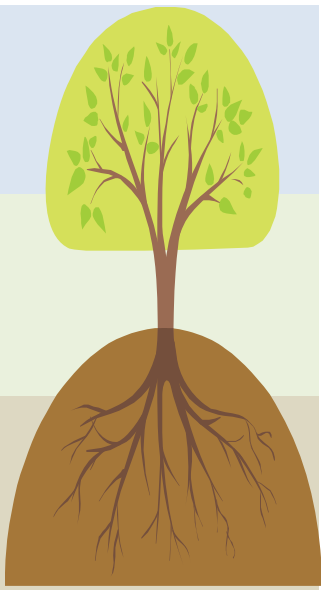
Where you have worked or volunteered
New ways you are challenging yourself
Things you do solo
Consumer choices
Political beliefs
Time with family and friends

Trunk: *Core Values*

The value (s) that connect your history to your current choices

Roots: *Your Environmental History*

Childhood places and memories
Mentors or Teachers
Places you've seen protected
Past actions and events
Essays, novels or poems
Places you've seen disturbed



Developing your School's Ecological Identity

As a Pathway to the Maryland Green School Award

Introduction to Ecological Identity:

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Branches: Taking Action

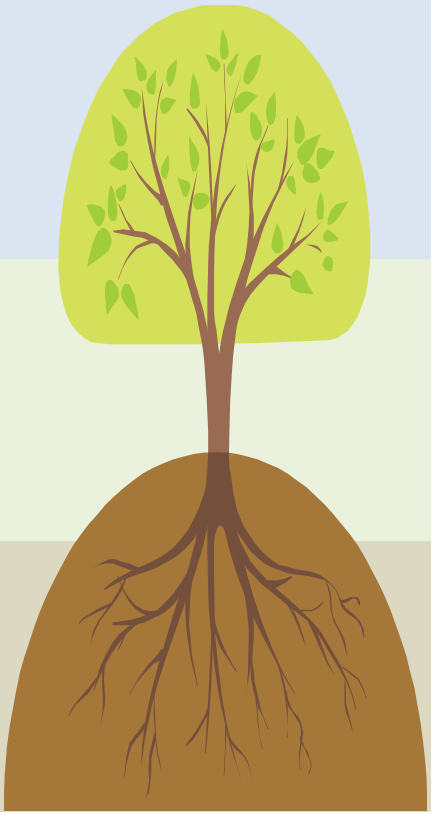
Environmental Issue Investigation
Environmental Best Management Practices

Trunk: The Core

School's Ecological Mission

Roots: Laying the Foundation

Creating a Team
Professional Development



Schoolyard Habitat Program Development

Team Name

Team Members

Sample Project:

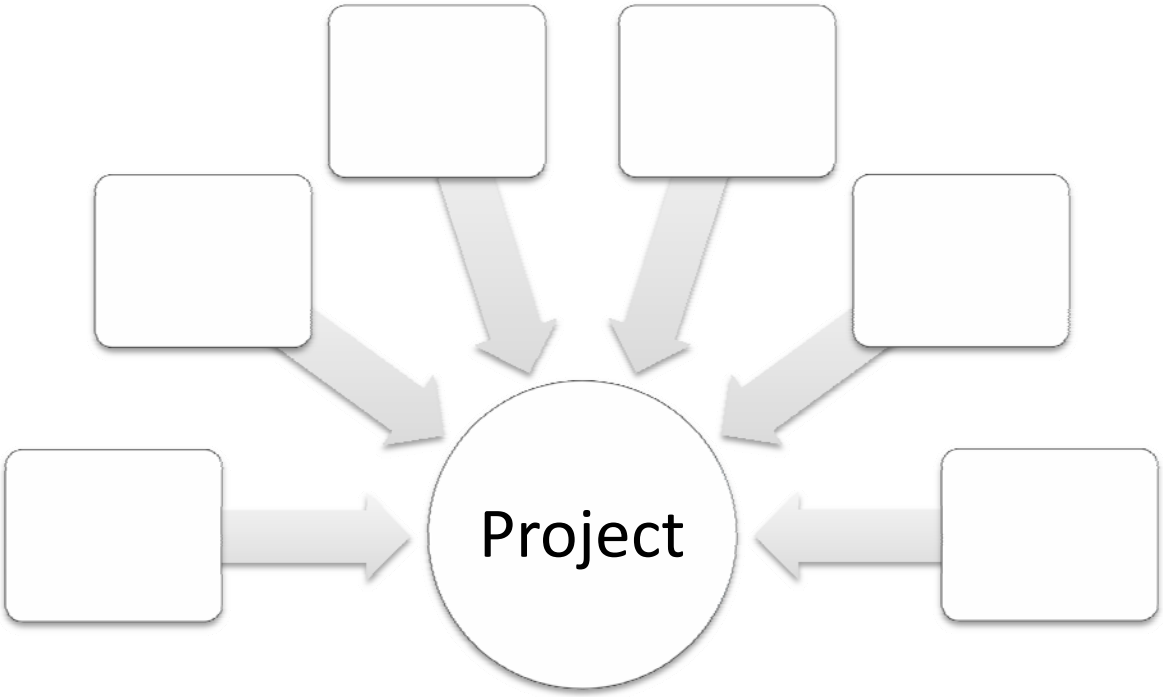
Have each team member describe a schoolyard habitat project with which they have been involved.

Decide on the one that is the 'juiciest' (most complex, several different partners, several headaches involved)

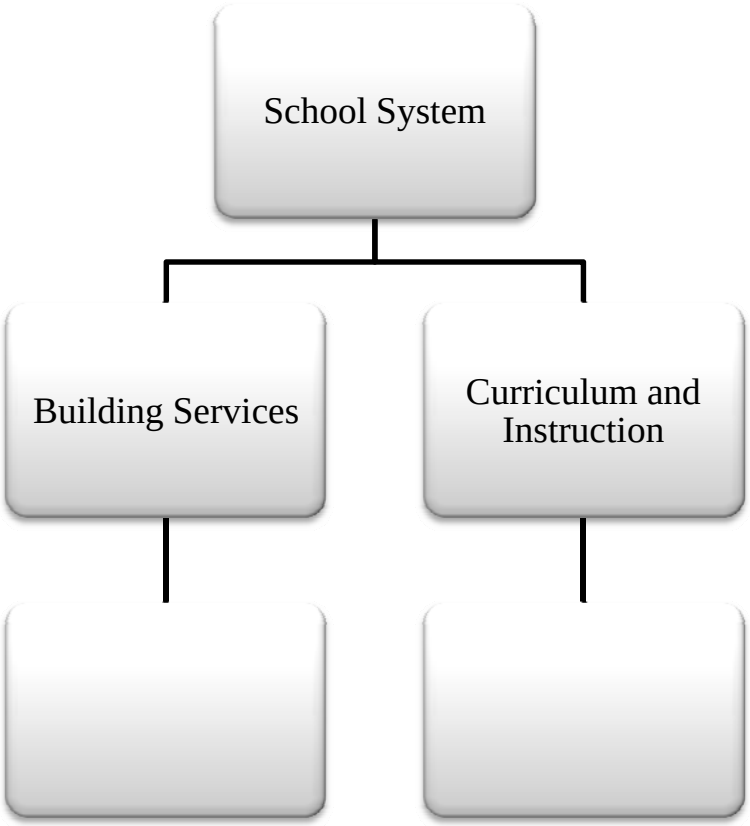
Write down the who, what, where and when of that project below:

Part One: Project Planning Support
Unit One: Finding Funding and Leveraging Resources

Group work:
Identify a project you want to talk about.
Use this diagram to indicate the multiple interests involved.



Part One: Project Planning Support
Unit Two: Working Within the School System



Using this diagram, consider a meeting between two specific people that should have happened to make the project more integrated.

Part Two: Curricular Support
Unit One: Supporting Schoolyard Use in Formal K-12 Education

Fill out the chart below indicating how the project is used and could possibly be used.

	Examples of current curriculum integration:	What is in place that makes this integration possible?
1	*(E.g. 7th grade data collection for population density)*	*(E.g. 7th grade curriculum alignment, and teacher attended training for using the habitat)*
2		
	Examples of potential curriculum integration:	What are the stumbling blocks to that potential integration?
1	(E.g. Art class could use the space for still life scetches)	(E.g. Larger school community not engaged with the habitat. It is considered science department property)
2		

Part Two: Curricular Support
Unit Two: Providing Exceptional Teacher-Training Opportunities

Writing Objectives

S Specific
M Measurable
A Achievable
R Relevant
T Time-bound

Good Objective Verbs:

- list
- identify
- state
- describe
- define
- solve
- compare and contrast
- operate

Part Two: Curricular Support
Unit Three: Evaluating and Improving Program Offerings

Evaluation

Level One: Reaction of the Participant

What they thought and felt about the training. This can even include what they intend to do as a result of the training.

Level Two: Learning

A measurement of the actual skills learned or the knowledge obtained. The participant is able to demonstrate a level of mastery of new skills

Level Three: Behavior

A measurement of the effect of the training on the behavior of the participant once they returned to their job.

Level Four: Results

Quantifies how much the training actually impacted the participant's job performance. Some professions measure the results as a 'Return on Investment." In such cases, the participant's work performance is quantifiable and the training ultimately is shown to have saved the organization money

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