



## Section V

# Assembling the Elements

This section outlines the final elements to consider in planning your Schoolyard Habitats project.

- Design Considerations
- Discouraging Vandalism
- Accessibility Guidelines
- Putting It All Together
- Project Planning
- Acquiring Resources
- Creating a Budget
- Fundraising
- Engaging Volunteers
- Breaking New Ground
- Planting Your Site
- Planning a Planting Day

# Schoolyard Habitats Design Considerations

The checklist below can serve as a useful reminder of design goals in the early stages. Near project completion, be sure all boxes can be checked. After considering the specific needs of your site, issues of accessibility (p. 117) and preventing vandalism (p.114 ), add additional criteria of your choice near the bottom of the page.

- Plants are native to local area.
- Food, water, cover, and places to raise young are being provided for various types of local wildlife.
- A diversity of plants and habitat features are included.
- Pesticides have been eliminated from the habitat area.
- Location of new plantings has been determined, in part, according to the sun and water needs of individual plant types.
- When plants are grown in clumps, taller plants are placed towards back; lower plants are placed in front. In an island planting, tallest-growing plants are planted in center, and lower-growing plants radiate outward.
- Students' ideas and needs have been incorporated into the design as much as possible.
- High School Students should complete the community Survey Activity.
- Steps have been taken to make the site accessible to all.
- Features have been included to maximize the educational use of the site (i.e., with the inclusion of plans for interpretive signs, seating, small platform to allow access to school pond, compost bins, learning stations, work stations, etc.).
- Areas of shade (particularly in warmer climates) are provided.

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# Discouraging Vandalism in Schoolyard Habitats Sites

Vandalism and the fear of vandalism are concerns to schools wanting to create or maintain Schoolyard Habitats sites. In North America the willful destruction or defacement of property costs schools, homeowners and others billions of dollars each year. Most vandals are young and the places they vandalize, including schools, are often in the neighborhoods where they live. Yet instances of vandalism to outdoor learning areas are few, and when the sites are designed properly, the threat can be kept to a minimum while students, teachers and community members enjoy a hands-on, outdoor learning opportunity that cannot be duplicated in an indoor classroom setting.

While there is no completely effective way to prevent vandalism, there are ways to discourage it at your site. The National Crime Prevention Council's "Crime Prevention Through Environmental Design" program focuses on several key strategies, all of which apply to discouraging vandalism at Schoolyard Habitats sites.

## Signs

A Schoolyard Habitats sign should let everyone know that this place is special and why that is so. By posting interpretive and other signs, and maintaining them (for example, cleaning off graffiti immediately), you are telling people that this place is used frequently and is monitored and cared for. Incorporate sign design and construction into your habitat project curriculum; these tasks touch on subject areas such as mathematics, arts, and language arts.

## Maintenance

While Schoolyard Habitats sites do lessen the need for traditional maintenance, it is still important to keep your habitat area looking presentable to the public. Watering, weeding and general upkeep, especially over the summer, give the impression that your habitat site is being used and enjoyed and that it is not an overgrown weed patch and not a ready target for vandals to attack because no one is watching. Maintaining the habitat site is the responsibility of students, teachers and volunteers. This is a good way to involve neighbors who can lend a hand and keep your summer contact person informed about how the site looks and who is using it. To gain support of neighbors, it is especially important that your site be attractive—not a nuisance!

## Location and Design

Schoolyard Habitats sites can be planned for interior courtyards, fenced-in areas of the schoolyard, or open areas easily accessible to everyone. Where you plan and plant your sites depends on the space available and on the steps you can take to discourage vandalism. If your neighborhood has an ongoing vandalism problem, consider an interior courtyard which will limit accessibility. If your school has the funds, fencing might be appropriate for a more open site.

Try developing our site slowly. First, plant a small area and over a period of time add plants and structures such as bird feeders or a water feature. Give everyone a

chance to watch the habitat grow. Work with your students to design your site to be “user friendly,” so that there is something for everyone to do when they visit, whether it’s a class studying insects, a group of students and teachers visiting to look for ideas for their own site, or neighborhood residents enjoying the peaceful area to sit and watch birds. To give as many people as possible a feeling of ownership, hold an open house for the whole school and invite everyone to bring something for the habitat. Whether it’s a plant for the butterfly garden, a stone for the path or pond, or a worm for the soil doesn’t matter, as long as it connects everyone to the site.



### Natural Surveillance

Vandals don’t want to be seen. Placing physical features, activities, and people in ways that maximize the ability to see what’s going on discourages crime. Barriers such as bushes, sheds, or shadows make it difficult to observe activity. Landscaping and lighting can be planned to promote natural surveillance both from inside a building and from the outside by neighbors or people passing by. Maximizing the natural surveillance capability of such “gatekeepers” is important.

### Landscaping

Involving students in the design of habitat sites is one of the best ways to give them a feeling of ownership and to discourage vandalism. When you and your students are mapping and taking inventory of the site, include human uses of the area. For example, do students currently beat a path across the lawn or throughout the underbrush; do vandals graffiti the walls; is the area well-lit at night; is it

an area that will lend itself to use by the community at large; can neighbors see what’s happening at the site? Take the answers to these questions into consideration as you proceed. If walls have a history of attracting graffiti, students can research appropriate vines or shrubs to plant in front of them; if the area is too dark at night, include funds for lighting in your budget; if students have already cut a path through the area, include that path in your site design; and if your site is not in full view of the neighbors, consider moving it so it will be.

### Gatekeepers

Most schools require that all visitors stop at the office before going further inside the school. In this sense, office staff are gatekeepers who keep track of everyone who visits. School neighbors can also act as gatekeepers just by keeping an eye on the habitat site. When visitors are aware that they are being monitored—even informally—it helps to discourage inappropriate behavior. Other ways of “gatekeeping” include keeping a visitors’ book at the site; encouraging active use of the site by as many community groups and classes as possible, including classes from other schools; and encouraging summer volunteers to maintain a very

visible presence by scheduling their activities on various days and at various times of the day, including early morning and evening (which are the best times for watering anyway).

### Activity Support

Encouraging legitimate activity in public spaces helps to discourage crime. Any activity that gets people out and working together at your habitat site increases community involvement with your project and could lead to unexpected support such as donations of materials or volunteer help. The greater the number of people who are involved with, and care about, your site, the more eyes and ears you will have in the community.

Some ideas:

- Hold a community open house
- Conduct a ‘bug’ count and invite neighboring schools
- Offer regularly scheduled habitat tours and advertise them in the local paper
- Hold celebrations in the habitat on special days such as Arbor Day, Earth Day, International Migratory Bird Day and birthdays
- Develop a mentoring program for your habitat project and reach out to younger students with special activities
- Invite high school students to perform service-learning or community service projects
- Hold regular clean-up days to keep up with maintenance and demonstrate that the site is important—for both wildlife and people

## Access Control

Properly located entrances, exits, fencing, landscaping, and lighting can direct both foot and automobile traffic in ways that discourage crime. Another way to maintain access control is to include specific references to it in your school code of conduct and to encourage your school district to include Schoolyard Habitats sites in their policy manuals under “Vandalism” or “Care of School Property by Students.” Make sure that everyone understands that vandalism is a crime, and that crimes are reported to the police, criminals are prosecuted, and restitution is demanded.

## Territoriality

People protect territory they feel is their own and have a certain respect for the territory of others. Fences, pavement treatments, art, signs, and good maintenance and landscaping are some physical ways to express ownership. Identifying intruders is much easier in a well-defined space.

## Dealing with Vandalism

Despite our best efforts, vandalism is widespread and it can happen to your habitat site. So what do you do if you’ve been ‘hit’?

- Contact the appropriate authorities. Vandalism is a crime and must be reported to the police. Ask the police to keep an eye on your site as they patrol.
- Contact your neighbors. Let them know what has happened and ask if they saw anything they can relay to the police. Ask them to keep a closer watch on the habitat site and make sure they have the phone number of the person to call if they have information.

- Clean up immediately! Show the vandals that you will not tolerate their actions and that you will paint over graffiti, replant shrubs, clean up signs, and replace structures such as birdbaths or feeders.
- Counsel and continue to educate your students. It can be depressing, even devastating, to be the victim of a crime. Offer your students time and space to express their emotions and concerns about destruction and defacement of a place they worked so hard to create. Students who have been active in the habitat project can visit other classes and schools to talk about what happened and how to prevent it from happening again.
- Rethink the design and use of your site. As much as possible, incorporate the strategies above into the redesign, and always involve students in the design process; their ideas for deterring vandals and involving friends and neighbors are valuable.
- Remind yourself of the reasons you planted the habitat in the first place. Schoolyard Habitats sites are outdoor learning areas for students, teachers and members of the community. They provide

homes for wildlife, reduce the need for field trips and maximize teaching time; and they are beautiful to look at and enjoyable to be in.

Creating a habitat site on school grounds is one of the positive contributions you can make to the life of your school and the surrounding community. But creating a place for wildlife right outside the schoolroom door brings with it the responsibilities of stewardship. Vandalism of schoolyard sites, while uncommon, does happen. Don’t let fear of crime deter you; rather, let the joy of creation guide you in taking steps to reduce its frequency and severity.



# Schoolyard Habitats Accessibility Guidelines

When creating a Schoolyard Habitats site it is important to consider the needs of people as well as wildlife, including people with disabilities. When possible, add accessible elements to the habitat design that will enhance the usability of the space for all people (i.e., people with disabilities, senior citizens, parents with strollers, etc.).

Of course, the size and location of the habitat area and budget will determine what accessible elements are reasonable to include in the site. The following items are low-cost and easily implemented suggestions. If there is no way to include these in the original design, consider adding more accessible elements into the long-range plan for the wildlife habitat site.

Note: If the habitat site is developed at a public or government facility or the project funding comes from federal, state or local government sources, the site must be accessible according to the Americans With Disabilities Act requirements. Please contact the United States Access Board at [www.access-board.gov](http://www.access-board.gov) for additional accessibility guidelines.

## Location

- Choose a site that is largely accessible (i.e., level, easy to get to, does not flood, etc.).
- Place the habitat close to a building.
- Take advantage of existing paths or sidewalks for access.
- Choose a site that is close to a water source for ease of maintenance.

## Pathways

- Width: Optimal recommended width is 60 inches with a minimum recommended width of 48 inches.
- Surface: Should be firm and stable. Recommended surface options include pavement, textured concrete and screenings. Screenings are made from a mixture of small pieces of rock (no greater than 1/4 inch in size; typically limestone or greenstone) and dust to stabilize it. Brick and boardwalk style pathways become slick when wet and can be a safety risk. Rock, wood chip and stepping stone paths are not recommended.

- Slope: Recommended 5 % or less running slope (grade). Recommended cross slope is 2 to 3 %.
- Ramps: Any time the grade of a path exceeds 5 %, provide a ramp. If a ramp is needed, the least amount of slope possible is recommended. A maximum acceptable slope is 1:12 (e.g., a one-inch rise for every twelve inches of distance). Ramps are required to have a level, 60-inch minimum landing immediately before and after a sloped run, and a landing must be installed for every 30 feet of sloped run.



- **Handrails:** Handrails are recommended for safety purposes any time an element such as a ramp or bridge is present on a path. The gripping surface of handrails should be between 1 1/4 and 1 1/2 inches wide. Recommended handrail heights for adults should be 34 to 38 inches; heights for children should be 20 to 27 inches.
- **Obstacles:** Paths should be free of any obstacles such as roots, rocks, and/or steps. There should be ample head and side clearance (i.e. from tree branches) for individuals at standing and seated levels. It is important to maintain pathways for safety.

## Planting Beds and Containers

- Create raised planting beds or boxes to accommodate individuals who use wheelchairs, senior citizens and other individuals with limited mobility. There are a variety of styles and heights that can be used; if possible use a mixture of heights to accommodate the greatest range of individuals.
- Create a sensory garden (in which visitors can smell, touch and hear) in a raised bed or standing planter box for individuals with visual

impairments. This allows individuals to comfortably explore and experience the plantings.

- Use trellises to raise plants vertically to provide access to plants for a greater number of individuals.
- Containers are an inexpensive way to create raised plantings. Whiskey barrels and other large planters are excellent heights for wheelchair access. In addition, you can use plant stands, existing walls, etc. to place containers at different heights.
- If possible, use a multi-layered landscape design to increase access to all individuals.

## Tools

- A variety of adaptive gardening tools are available including long-handled tools, tools with adaptive handles, lightweight and comfort grip tools. The handles of traditional gardening tools can be modified with tape/foam/or bandage material for gardeners with limited muscle strength, coordination or dexterity of the hands.
- Have gardeners who have difficulty carrying items wear an apron with pockets or secure a lightweight bag or basket on their wheelchair or walker.



- If possible, provide a tool storage shed in or near the habitat.
- To increase comfort, have gardeners who have difficulty bending or have joint pain use kneelers, knee pads, or a small stool.
- Use tools with brightly colored handles or paint or tape the handles white to provide contrast for gardeners with low vision.

## Signage

- Interpretive signs should not be text heavy; text should be in large, no-glare block letters. When possible, utilize pictures and/or symbols.
- Make Braille plant labels for raised bed sensory gardens.
- For larger public gardens, incorporate an auditory interpretation system into signage.

## Miscellaneous

- Add benches for people to rest. Benches should have back supports and an arm rest on at least one end for safety purposes. If possible, place benches in shade. Recommended spacing between benches is 100 feet or less, depending on the size of the habitat.
- Choose plants for scent and tactile recognition for gardeners and visitors with visual impairments.
- Use sound producing elements such as wind chimes, a waterfall or a fountain to help provide orientation in the habitat for gardeners and visitors with visual impairments.

## Curriculum

National Wildlife Federation's *Access Nature*<sup>®</sup> curriculum provides many activities leading students through the various steps of a habitat project; all activities have accommodations for students with various types of disabilities. For more information on ordering this curriculum, visit [www.nwf.org/schoolyard](http://www.nwf.org/schoolyard).

# Community Survey

## Summary:

*Students conduct surveys to gain insights on attitudes of, and garner support from peers, teachers, and administrators for the Schoolyard Habitats project. They will analyze data and compile graphs to communicate research findings.*

## Grade Level:

9–12

## Time:

1 class period

## Subjects:

Language Arts,  
Environmental  
Science/Studies,  
Geography, Statistics

## Skills:

Investigation,  
Communication,  
Statistical Analysis, Data  
Analysis and Processing

## Learning Objectives:

Students will be able to:

- Investigate community views on Schoolyard Habitats planning process and implementation
- Utilize survey research design for the sciences
- Communicate research findings using graphs, charts, and pictures

## Materials:

- Schoolyard Habitats Community Survey (p. x) (Students can use the sample provided or modify it to specific project needs)

## Background

Before writing the project plan, investigate school and community opinions on, and visions for, the Schoolyard Habitats project. Although individuals will envision different habitats, each person provides feedback and suggestions for the site. This activity will get the school talking about the upcoming project. It may uncover potential barriers to implementation, identify new resources, and garner additional support for your Schoolyard Habitats project.

## Preparation

Identify a statistically representative sample of the school community to participate in the survey, such as a lunchroom exit poll or a survey sampling of biology classes. Students, teachers, and administrators should all be represented. Be sure to include the individuals most likely to participate in Schoolyard Habitats site planning and construction (i.e., biology or

environmental science teachers, environmental club members, etc.).

## Procedure

Distribute copies of the following Community Survey or allow students to create their own. Have students introduce the survey by explaining that they are interested in participants' opinions on school grounds and in their interest in participating with the development of the Schoolyard Habitats site. Set a deadline for survey completion, and follow up with each participant to make sure all surveys are returned. Remember to thank all participants for their time and effort!

When surveys are completed, students will compile the data. Use the appropriate graphs and charts to summarize all of the information in a clear and concise way. Explain to your students that researchers and many natural resource professionals rely on the same graphic tools to summarize data for a specific audience.

Explain the different types of graphs and the type of information they are used to express. For example, a bar graph is used to display information that does not have a precise logical order or sequence. That is, it is used to present data from nominal scale questions. Histograms are used to present information that does have an order: they are used to present data from ordinal and interval scale. The following lists indicate the kind of information



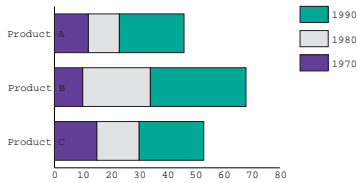
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# 9-12 ACTIVITY

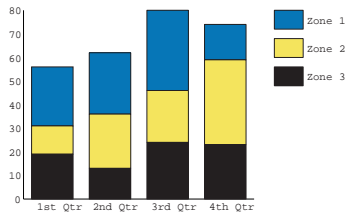
usually presented in the two types of diagrams.

- A **Bar Graph** is a way to represent yes/no information.

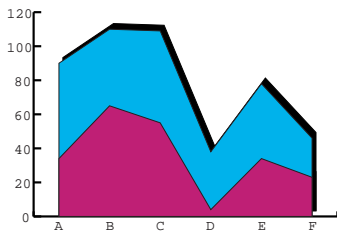
Stacked bar graph



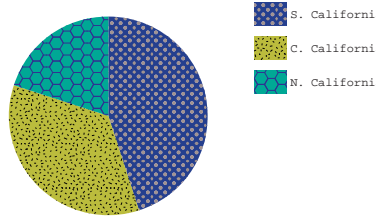
- A **Histogram** is a way to represent responses to a rating scale.



- A **Polygon** is another way of diagramming the data that forms a histogram. It is produced by joining the mid-points of the top of the histogram bars. Polygons are often easier to read because they are less cluttered with vertical lines.



- A **Pie Chart** uses segments of a circle to represent different amounts of some result. If the results of a question were split 50:50, then each result would be represented by half the pie.



- In a **Scatterplot**, each dot represents two measures on one person. One could plot the age and activity level or income and education of several persons on one graph. Scatterplots are very useful for summarizing how two sets of results are related to each other.



Common sense is the key to determining which type of graphic presentation to use. Look at the data, sketch out something that seems to be appropriate, and then look at the representation for clarity. *Can the reader grasp the main point or points?* Then read the accompanying text. Did the same point or points become evident? If so, the report has probably done a fair job of representing the data.



# Community Survey

Role in School Community (e.g., student, teacher, etc.) : \_\_\_\_\_

Date: \_\_\_\_\_

**Part I: Please check the number that best represents your answer to each question.**

1. How do our school grounds currently look?
 

1    2    3    4    5  
 Very Good Very Poor
  
2. How interested are you in having a habitat for wildlife on school grounds?
 

1    2    3    4    5  
 Very Interested Uninterested
  
3. How interested are you in helping to design our Schoolyard Habitats project?
 

1    2    3    4    5  
 Very Interested Uninterested
  
4. How interested are you in helping to build or install the Schoolyard Habitats site?
 

1    2    3    4    5  
 Very Interested Uninterested
  
5. How much would a Schoolyard Habitats project improve the look of our school grounds?
 

1    2    3    4    5  
 A Great Deal Not at All

**Part II: Please mark all appropriate boxes.**

1. Which types of wildlife do you currently see on school grounds?
 

<input type="checkbox"/> Birds <input type="checkbox"/> Butterflies <input type="checkbox"/> Bugs: _____ <input type="checkbox"/> Bees/Wasps <input type="checkbox"/> Spiders <input type="checkbox"/> Bats <input type="checkbox"/> Squirrels <input type="checkbox"/> Rabbits <input type="checkbox"/> Woodchucks	<input type="checkbox"/> Deer <input type="checkbox"/> Chipmunks <input type="checkbox"/> Other Mammals: _____  <input type="checkbox"/> Frogs/Toads <input type="checkbox"/> Waterfowl (e.g., Ducks, Geese) <input type="checkbox"/> Other: _____ _____
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## Community Survey

### 2. What types of wildlife would you like to attract to our school grounds?

- |                                      |   |
|--------------------------------------|---|
| <input type="checkbox"/> Birds       | <input type="checkbox"/> Deer                           |
| <input type="checkbox"/> Butterflies | <input type="checkbox"/> Chipmunks                      |
| <input type="checkbox"/> Bugs: _____ | <input type="checkbox"/> Other Mammals: _____           |
| <input type="checkbox"/> Bees/Wasps  | _____   |
| <input type="checkbox"/> Spiders     | <input type="checkbox"/> Frogs/Toads                    |
| <input type="checkbox"/> Bats        | <input type="checkbox"/> Waterfowl (e.g., Ducks, Geese) |
| <input type="checkbox"/> Squirrels   | <input type="checkbox"/> Other: _____                   |
| <input type="checkbox"/> Rabbits     | _____   |
| <input type="checkbox"/> Woodchucks  |   |

### 3. Which habitat features would you like to see on school grounds?

- |  |   |
|--|---|
| <input type="checkbox"/> Native Plants                 | <input type="checkbox"/> Birdbaths                    |
| <input type="checkbox"/> Wildflowers                   | <input type="checkbox"/> Birdfeeders                  |
| <input type="checkbox"/> Pond                          | <input type="checkbox"/> Batboxes                     |
| <input type="checkbox"/> Running Water                 | <input type="checkbox"/> Walkway (stone or woodchips) |
| <input type="checkbox"/> Woodland Area                 | <input type="checkbox"/> Other: _____                 |
| <input type="checkbox"/> Benches or other Sitting Area | _____   |

Thank you for your time and input!

Please return this survey to \_\_\_\_\_ by \_\_\_/\_\_\_/\_\_\_.





## HABITAT TEAM/9-12 WORKSHEET

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5. On a separate sheet, list the plants you will need in order to create your habitat. Be sure to consider how your habitat will provide food during different seasons.

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6. Use the information above to create a base map overlay that shows your schoolyard habitat design including the structures, water sources and plants you will include.

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# Project Planning

Through the site inventory process, a site has been chosen for the Schoolyard Habitats project. The next steps involve assembling the elements into a comprehensive plan: deciding what needs to be done and by whom. Even a small amount of time spent developing a plan early on will save substantial time in the long term.

The key to a successful schoolyard project is the continued involvement of students, parents, teachers, and the community. This project does not end when the planting day is complete; the habitat will require watering, weeding, and other maintenance throughout the summer and following school year. Initial groundbreaking may be only the first phase of implementing a long-range plan that may include several different habitats in various areas of the schoolyard. Thus, the school grounds will be a work in progress. However, it is important early on to introduce others to the idea that a habitat is a dynamic system that is never stagnant, but is one that will change and grow over time. This will help to ease any doubts that in one day or one week the school grounds will immediately transform into a mature wildlife habitat.

**Breaking down long range goals into incremental steps and delegating responsibilities will help you achieve and maintain consistent SYH progress.** Consider creating a larger version of the Schoolyard Habitats Planning worksheet (p. x), to help organize your tasks and assign responsibilities.



**Sample: A Slice of a Mid-Project Planning Schedule**

GOAL	OBJECTIVE	ACTION STEPS	RESOURCES NEEDED	MISSING RESOURCES/ HOW TO LOCATE	WHO IS RESPONSIBLE? WHO WILL HELP?	START DATE	END DATE
Build Raised Beds	Provide accessible garden plots for students in wheelchairs	Identify and contact volunteers to help with construction  Plan building day with 4th-6th graders  Pick up donation from lumberyard	People who have woodworking experience  Planter bed designs  Truck for lumber pick-up	Call Boy and Girl Scouts; talk to PTA; place ad in parent newsletter for volunteer help and use of truck  Have students research designs	Betsy will coordinate volunteers; 4th-6th teachers will coordinate student involvement; Woodshop teacher will assist and provide tools.	Feb 15	Mar 10
Keep Facilities staff informed and involved in SYH project	Make SYH project successful through teamwork and clear communication	Prepare and present an update report on current status of SYH project at the Facilities staff meeting			Habitat Team members and two 8th grade students	Feb 18	Feb 25
Make the best use of community resources	Accomplish as much as possible while spending as little as possible	Complete applications for grants with upcoming deadlines: nature center, EPA, and native plant society	Photos of site; Documentation of student work	Borrow camera from art teacher; Ask students to write about what they have learned through the SYH project; include letters with app's to funder	Grant-writing committee; English teacher and principal will review	Feb 20	Mar 31





The Habitat Team may wish to create a list of tasks for the year ahead. To begin with, simply brainstorm activities that should be conducted in each of the four seasons, in terms of maintenance, planting, student

activities, etc. This should be a working document that can be refined over time.

Following is the beginning of one teacher's "4-Season Brainstorm:"

<p style="text-align: center;"><b>Spring</b></p> <p>Check soil conditions (composition, pH)</p> <p>Cleanup and planting day:              - remove mulch and cover crops              —plant trees and container plants</p> <p>Monitor monarch migration with students</p> <p>Hold fundraiser (students' art sale, plant sale)</p> <p>Earth Day Celebration</p> <p>Create summer maintenance plan; delegate maintenance responsibilities</p>	<p style="text-align: center;"><b>Summer</b></p> <p>Water plants according to the weather</p> <p>Turn and water compost pile once a week</p> <p>Weed and fertilize beds (with compost)</p> <p>Harvest and distribute any vegetables</p> <p>Add faded leaves and flowers to compost</p> <p>Community outreach to find funders and expertise</p> <p>Staff training:              Teaching with the Schoolyard Habitats site</p>
<p style="text-align: center;"><b>Fall</b></p> <p>Divide and replant perennials</p> <p>Plant fall flowering bulbs</p> <p>Harvest vegetables for Thanksgiving Celebration</p> <p>Bring container plants inside or protect with mulch or other coverings</p> <p>Compost plants killed by frost</p> <p>Plant cover crops and mulch young trees</p> <p>Clean up habitat</p> <p>Clean and sharpen all garden tools</p>	<p style="text-align: center;"><b>Winter</b></p> <p>Map next year's garden; plan spring projects</p> <p>Start seeds in the classroom</p> <p>Make labels and signs for habitat</p> <p>Check that mulch hasn't been disturbed</p> <p>Maintain compost pile weekly</p> <p>Write plans for integrating habitat into curriculum</p> <p>Build bat and bird boxes with students</p>



## 4-Season Schoolyard Habitats Planning

## HABITAT TEAM/ 9-12 WORKSHEET

Begin to brainstorm the year ahead for your Schoolyard Habitats project below.

<p style="text-align: center;"><b>Spring</b></p>	<p style="text-align: center;"><b>Summer</b></p>
<p style="text-align: center;"><b>Fall</b></p>	<p style="text-align: center;"><b>Winter</b></p>

# Acquiring Resources: Creating a Budget

Creating a budget is a key component of project planning. This helps to determine the amount of money to spend on various parts of the project. Creating an estimate for the entire project helps guide fundraising goals, assists with writing grant proposals, and keeps school finance committees and PTA's informed. Two different budget-planning worksheets follow. Use the form(s) that best meets your expense planning needs.

**It is important to keep in mind that money need not be a limiting factor.**







# Schoolyard Habitats Budget Worksheet 2

## HABITAT TEAM/ 9-12 WORKSHEET

CATEGORY	ITEM	SUPPLIER	COST/ DONATION	NUMBER	TOTAL COST
Ex: Trees	Red Maple	Jones Nursery	Donation	2	\$0.00
<b>Shrubs</b>					
<b>Plants</b>					



# HABITAT TEAM/ 9-12 WORKSHEET

CATEGORY	ITEM	SUPPLIER	COST/ DONATION	NUMBER	TOTAL COST
<b>Building Materials</b>					
<b>Equipment</b>					
<b>Water Source</b>					
<b>Wildlife Supplies</b>					
				<b>TOTAL</b>	

# Acquiring Resources: Fundraising

Do Schoolyard Habitats projects require huge sums of money? No! With a little creativity, Schoolyard Habitats projects can be brought to life without major expenditures.

There are several ways to go about acquiring needed resources. Using a variety of approaches will reap the greatest rewards. Consider all of these possibilities:

## Solicit Donations of Materials

- **From members of the school community:** Consider placing a wish list in the school newsletter or on a prominent bulletin board. Decorate a small tree in the school lobby with wish ornaments (papers on string, labeled with project needs); as people enter the school and see something they are able to donate, they remove the paper and return with their donation!
- **From local businesses:** Identify local stores which sell various needed items (child-sized garden tools, seeds, etc.). Write letters and/or have students write letters describing the project and requesting donations of a few items to help it get off the ground. Be clear about the value of the project, and where and how they will be publicly thanked if they donate—businesses often enjoy the public attention that acts of local goodwill bring.

## Apply for Free Materials

Several non-profit organizations donate or award specific materials to schools and other organizations. To make sure their materials are used wisely, they often require a short application; otherwise the materials are free or very low-cost. Three examples include:

### National Tree Trust Community Tree Planting Program

1120 G St. NW, Suite 770  
Washington DC 20005  
1-800-846-8733  
[www.nationaltreetrust.org](http://www.nationaltreetrust.org)

Schools can apply to receive free tree seedlings through NTT's Community Tree Planting Program. Containers and money for soil are also available.

### America the Beautiful Fund,

1730 K Street NW, Suite 1002  
Washington DC 20006  
202-638-1649  
[www.america-the-beautiful.org/html/abf/news/freeseedorder.htm](http://www.america-the-beautiful.org/html/abf/news/freeseedorder.htm)

ABF provides seeds free-of-charge; schools pay only shipping and handling.

**National Gardening Association** Youth Garden Grants,  
1100 Dorset St., South Burlington, VT 05403  
[www.kidsgardening.com](http://www.kidsgardening.com).



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Each year 400 schools and youth groups that are starting or continuing garden programs are awarded tools, seeds, garden products, and educational materials.

## Organize a School Fundraiser

All of the standard school fundraisers (bake sales, aluminum can drives, car washes, penny collections) can raise money for Schoolyard Habitats projects as well. Many schools have also thought of creative alternatives including these:

- Students raise plants from seeds in the classroom. Once plants have sprouted, repot in plastic containers (donated by the local nursery) and conduct a plant sale!
- Is a stone or brick pathway included in the project plan? Create an “Adopt-a-Brick” or “Adopt-a-Tile” opportunity—each person who contributes a certain amount will have their name painted on a brick or tile in the path through the habitat area.
- Have students create schoolyard-inspired art. Create frames from posterboard; hold a raffle of student artwork.

## Apply for Grants

Many national and regional organizations provide grants that support Schoolyard Habitats projects. Grants vary widely in terms of the amount of their awards, who is eligible to apply, and the types of projects they support. Because Schoolyard Habitats projects accomplish so many goals, they often are eligible for many types of grants. Consider these alternatives: A local watershed protection organization may support plantings of native species, while a violence prevention agency may award the work being

*We have received two matching fund grants from the Missoula County Park Board. The first was designated for two projects:*

- (1) construction of an open-air, covered shelter to be used as an outdoor classroom and for school or community recreational gatherings, and*
- (2) construction of a gravel walking trail. The second grant was to be used for native plant restoration including trees, shrubs, native grasses and flowers, construction of interpretive signs, benches and picnic tables.*

*Additional funds have been provided by the Frenchtown Parent Teacher Students Association and by the Frenchtown Stadium Committee, a civic group that has provided financial backing for a variety of school district projects. The building of the trail was organized and supervised by one of our high school students as his Eagle Scout project. Donations of gravel, equipment, and labor contributed to the completion of the trail. A local engineer donated his expertise and seal of approval on the building plans for the outdoor classroom. Our high school Community Service class has constructed two sturdy picnic tables and donated materials. A Cub Scout group has built and installed several bluebird boxes.*

*Frenchtown Elementary School, Missoula, MT*

done to build a sense of community through the project. A private foundation or business focused on improving science education may fund curriculum purchases or Schoolyard Habitats educator trainings, while a regional environmental group may fund your efforts to attract pollinators! Look carefully at the mission of the funding organization, and look for a meaningful connection between the Schoolyard Habitats project and their interests.

There are many national, state, and local donors that fund this type of work. A small amount of research into these possibilities will be well worth the effort. Types of organizations to consider include: school PTA/PTO, school board of education, cooperative extension service, soil and water conservation districts, resource management agencies, conservation and environmental groups, colleges and universities, garden clubs, foundations and businesses (see Sample Letter, p. \_ for an example of a letter to a local business).

**Below is a preliminary list of organizations and companies that give grants to Schoolyard Habitats projects nationwide.**

■ **The Arthur M. Blank Foundation**

3290 Northside Parkway,  
Suite 600  
Atlanta, GA 30327  
(404) 239-0600  
[www.BlankFoundation.org](http://www.BlankFoundation.org)

Supports programs and organizations that create opportunity, enhance self-esteem and increase awareness about cultural and community issues among young people (geographic restrictions).

■ **Bayer Corporation**

100 Bayer Road  
Pittsburgh, PA 15205-9741  
[www.bayerus.com/about/community/com\\_fproposal.html](http://www.bayerus.com/about/community/com_fproposal.html)

Gives grants to programs that address science literacy or science education, or provide science-oriented vocational education.

- **The Dunn Foundation**  
 333 Strawberry Field Road  
 Warwick, RI 02886  
 (401) 941-3009  
[www.dunnfoundation.org](http://www.dunnfoundation.org)  
 Awards grants to foster communities that are visually distinctive, attractive, and have a strong sense of place.
- **The Environmental Protection Agency**  
[www.epa.gov/enviroed/grants.htm](http://www.epa.gov/enviroed/grants.htm)  
 Awards grants of \$25,000 or less from each regional office and headquarters each year. Their website provides links to other sites and includes a grant-writing tutorial.
- **Home Depot**  
 Community Affairs  
 2455 Paces Ferry Road  
 Atlanta, GA 30339  
 (800) 430-3376  
[www.homedepot.com](http://www.homedepot.com)  
 Offers grants to projects benefiting the environment, and to those working with at-risk youth. Applications are available online.
- **The Jordan Fundamentals Grant Program**  
 Scholarship Management Services  
 1505 Riverview Road  
 PO Box 297  
 St. Peter, MN 56082  
 (507) 931-1682  
<http://nfie.org/grants.htm>  
 Offers grants of up to \$2,500 for public school teachers of grades 6-12. At least 40% of school's student population must be covered by Title 1. Funds the development of original lesson plans or units.
- **Learn and Serve America**  
 202-606-5000 x117  
<http://learnandserve.org>  
 Supports service learning projects by funding state agencies and other organizations, which then select and fund local service learning programs.
- **The Lorrie Otto Seeds for Education Fund**  
 The Wild Ones, Natural Landscapers Ltd.  
 PO Box 1274  
 Appleton, WI 54912-1274  
[www.for-wild.org/seedmony.htm](http://www.for-wild.org/seedmony.htm)  
 Provides small grants to schools and other educational organizations that work towards creating natural landscapes using native plants.
- **Lowe's Companies Inc.**  
 Charitable and Educational Foundation  
 Mail Code RPS4  
 PO Box 1111  
 North Wilkesboro, NC 28656  
 (336) 658-5544  
[www.lowes.com](http://www.lowes.com)  
 Local stores make charitable contributions of supplies and materials, and award grants to projects that enhance the natural environment and improve the local community. Grant applications are available online.
- **National Environmental Education and Training Foundation**  
 1707 H St. NW, Suite 900  
 Washington, DC 20006-3915  
 (202) 833-2933  
[www.neetf.org](http://www.neetf.org)  
 In partnership with the President's Council on Environmental Quality, \$1,000 grants and certificates of Merit are available to K-12 teachers who are environmental educators and/or use the environment as an integrating context for learning with their students.
- **National 4-H Council**  
 7100 Connecticut Avenue  
 Chevy Chase, MD 20815  
 (301)961-2800  
[www.fourhcouncil.edu/ycc/grantinfo.htm](http://www.fourhcouncil.edu/ycc/grantinfo.htm)  
 Community Tree Planting Grants of \$200 to \$1,000 available to be used in community tree planting and/or restoration projects.
- **National Fish and Wildlife Foundation**  
**Conservation Education Grants**  
 1120 Connecticut Avenue NW  
 Suite 900  
 Washington, DC 20036  
[www.nfwf.org](http://www.nfwf.org)  
 Provides challenge grants to projects that promote fish and wildlife habitat conservation. Their website includes several links to other available grants.

*“Involving young people in service learning activities is increasingly seen by educators and community leaders as a powerful strategy for improving educational performance, supporting school improvement, and contributing to community renewal—simultaneously. In service learning, students are involved in experiential learning, long recognized by educational leaders as one of the most powerful learning contexts of all, in which students learn by doing. In service learning, students participate in an educational process that relates their service experience directly to the curriculum’s subject matter, while at the same time making a valued contribution to their neighborhoods and communities.”<sup>1</sup>*

<sup>1</sup> Page i, Executive Summary. Boston, Bruce O. Service Learning: What it Offers to Students, Schools, and Communities. A Report from the Council of Chief State School Officers, The Close Up Foundation, Earth Force, and the National Society for Experiential Education.

■ **The Orion Society, Stories in the Land Teaching Fellowships**

195 Main Street, Great Barrington, MA 01230

(413) 528-4422

[www.oriononline.org/pages/os/education/sil.html](http://www.oriononline.org/pages/os/education/sil.html)

Designed to help teachers foster an education of place through study of local landscapes and histories. Year-long fellowships to elementary and secondary school teachers in the U.S. and Canada. A \$1,000 stipend goes towards activities and teaching resources.

■ **Toshiba America Foundation**

1251 Sixth Avenue, 41st Floor, New York, NY 10020

(212) 569-0600

[www.toshiba.com](http://www.toshiba.com)

Provides grants to K-12 teachers to contribute to quality science and mathematics education in the U.S. Larger grants awarded for grades 7-12.

■ **The Wal-Mart Foundation**

[www.walmartfoundation.org](http://www.walmartfoundation.org)

Encourages community action by supporting environmental efforts and education.

## General Tips for Writing Grants

- Look closely at the criteria provided by the funder. They are generally very specific about exactly which types of projects they wish to fund, the causes they wish to support, and the people and places which they hope to affect. Use language that matches theirs. If it becomes too much of a stretch to fit the Schoolyard Habitats project into their guidelines, don't apply—find another grant which is a closer match.
- Be clear and concise. Remember, funders may be reading through hundreds if not thousands of applications. Applications that clearly communicate project goals, rationale, and plans will rise to the top. Circulate grant proposals among several colleagues with strong writing skills for editing prior to submission to the foundation.
- Be sure to complete every question and include all requested attachments with the application. Many funders will completely disregard an application which arrives incomplete. Do not apply for a grant unless prepared to submit each and every piece the funders require.
- Submit applications on time. Again, some funders may not even read those applications which arrive a day or two past the deadline. Make the time spent on the application worthwhile; send the application in plenty of time to meet funders' deadlines.
- Demonstrate enthusiasm and commitment. Give a human voice to the proposal; some funders admit that a short quote from a child, a story illustrating the school's desperate need for the grant, or an inspiring pair of photos can help distinguish one application from the rest.
- If possible, demonstrate the long-term vision or long-term plan for the project. Provide the wider context for the grant: who will benefit and how? What would the next steps be? Generally, if given the choice, funders would rather award grants to projects with longer-term positive effects. They have a limited pool of funds, and understandably want to see their money spent wisely. Take this into consideration in choosing the items which you request the grant cover, and in the language you use in the application. Consider this: if you have budgeted \$50.00 for food for schoolyard celebrations, and \$50.00 for interpretive signs for the habitat, which item do you think an educational foundation would rather fund?

## Apply for Awards

Several programs honor the innovative curriculum and instruction of individual teachers. Like traditional grants, many award programs have a special focus, whether they are acknowledging the work of a teacher in engaging students in environmental issues, or improving the quality of math instruction through an innovative



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series of activities. The monies these award programs pay out are generally intended towards reinvestment in the school, students, and/or professional development opportunities for the teacher or staff.

■ **Sea World/ Busch Gardens Environmental Education Awards**

Education Department  
7007 Sea World Dr.  
Orlando, FL 32832  
(877) 792-4332  
[www.seaworld.org](http://www.seaworld.org)

Each year, eight schools are chosen to receive \$10,000, and one teacher is awarded \$5000. K-12 teachers in the U.S. and Canada are eligible to apply.

■ **The Scott's Company Give Back to Grow Awards**

c/o Weber Shandwick Worldwide  
515 Olive St., Suite 1900,  
St. Louis, Missouri 63101  
(800) 551-5971  
[www.scotts.com/community/community.cfm](http://www.scotts.com/community/community.cfm)

Honors individuals who give back to their communities through gardening. One winner and two finalists are awarded in each of four categories, winning \$5000 and \$2500 respectively. Awarded through a nomination procedure.

■ **Toyota Tapestry Grants for Teachers**

C/o National Science Teachers Association  
1840 Wilson Blvd.  
Arlington, VA 22201  
<http://nsta.org/programs/tapestry/index.htm>

Grants are awarded for innovative projects that enhance science education in the school and/or school district.

**Tap into Additional Resources**

**The Foundation Center**

(212) 620-4230 [www.fdncenter.org](http://www.fdncenter.org)

This website offers weekly grant updates, a fundraising library, a searchable database of funding opportunities, and online grant-seeking trainings.

**Web sites listing additional possibilities:**

**[www.nea.org/grants](http://www.nea.org/grants)** National Education Association's grant programs.

**<http://environmentalgrants.com>** Ordering information for a directory of resources.

**<http://foundations.org>** Directory of charitable grantmakers.

**<http://schoolgrants.org>** Good resource for all types of school grants.

Bauer, David. **The Teacher's Guide to Winning Grants.** Jossey-Bass Publishing \$24.95.

**Prioritize**

Before money is spent, be sure to consider other alternatives. Is there a lower-cost alternative? Is there a source (business or individual) that might be able to donate that item? Prioritize your purchases: which are essential? Which items would be a welcome addition but can wait a few months to be added?

Consider asking for donations of certain items (i.e. watering cans) in the school newsletter before heading to the store. Some schools save money on plants by starting them from seeds or starting with seedlings instead of planting mature (and more expensive) specimens. Resist the initial urge to purchase items which will only be used on rare occasions: for example, heavy-duty tools can often be borrowed from the maintenance department, or from other members of your school community.



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## Sample Fundraising Letter

Joe Murphy  
Sample Middle School  
135 Willow Rd.  
Sample, VA 55555  
(555) 555-5555

September 1, 2002

Ms. Edna Bryant  
Community Affairs Manager  
Virginia Garden Center  
672 Smithfield Rd.  
Arlington, VA 55555

Dear Ms. Bryant,

I am writing to you on behalf of Sample Middle School's Habitat Team. As you may know, Sample Middle School has been struggling for many years to raise the level of achievement of our students, and to engage them more effectively in learning. At the same time, many of the students, faculty, staff and wider community have been complaining about the depressing state of the schoolgrounds: currently they consist of a small barren lot, which is mostly grass and dirt, with very little other vegetation.

I am proud to say that to address these issues, we are launching a National Wildlife Federation Schoolyard Habitats project. Through this project, the entire school community will be engaged in creating an outdoor classroom and wildlife habitat on our schoolgrounds. As we have learned from other schools with similar successful projects, we know that long-term, hands-on projects like these will really capture students' interest and provide a low-cost living laboratory that can improve the quality of instruction at Sample School. At the same time, we will be doing our local wildlife—who are facing more and more threats to their habitat—a favor, and instill in Sample students an understanding and appreciation of local Virginia plants and animals. As a respected member of our community, and a major supplier of plants to landscapes in this region, I'm sure you will recognize the value of this project.

Students have already researched the native plants which would best attract wildlife local, and with the help of our Habitat Team, have created a list of plants they would like to add to our schoolyard (the list is attached). I have also attached our vision statement, a few related articles that further help to explain our interest in this project, and a few letters from students about their dreams for the schoolyard.

Unfortunately, we have very limited funding for this project; we are now writing to several businesses to request their support in the form of donations of time, materials and/or expertise. Please consider donating some or all of the plants on the students' list. All donations will be publicly acknowledged, and widely appreciated!

Your contribution would be an enormous help in getting this exciting project off the ground. If you would like more information about Sample Middle School's project, please feel free to contact me at the phone number above. I look forward to hearing from you. Thank you for your time and consideration.

Sincerely,

Joe Murphy, PTA Member, Sample Middle School

# Acquiring Resources: Engaging Volunteers

In many cases, it is easier to gain volunteer assistance than it is to seek out funds. Think creatively about ways in which you can save money by accomplishing tasks with students and volunteers. Consider this example: one school gradually raised and saved money and finally earned the \$199.00 necessary to buy an attractive wrought-iron bench that a parent had picked out at a lawn furniture supplier. A neighboring school got a 50% discount on lumber from a hardware store, engaged the help of Girl and Boy Scouts (who were all working toward badges), and worked with their 9th graders to construct four simple wooden benches for placement throughout the Schoolyard Habitats site.

## Potential Sources of Volunteers:

- NWF's **Habitat Stewards™** (volunteers who have participated in 40 hours of training on planning and implementing habitat projects). For more information visit the NWF web site [www.nwf.org](http://www.nwf.org)
- Master Gardeners (volunteers trained in horticulture by local Cooperative Extension offices)
- Volunteer clearinghouses (maintained by nonprofits in many towns and cities)
- Retirees
- Civic organizations (i.e., Lions Club, Garden Clubs, etc.)
- Boys Scouts, Girl Scouts, Eagle scouts, and similar groups
- Parents, guardians, grandparents, neighbors
- Local colleges and universities

Consider using the form on the following page (*We Need You!* p. 141) to recruit and assess the interests of volunteers. Alternatively, engage students in creating their own version of this recruitment tool, clearly stating the purpose of the Schoolyard Habitats project, project goals, and the need for volunteers.

No matter how you choose to assess and identify volunteers, engaging these community assets will be enormously helpful in achieving the full potential of your Schoolyard Habitats project.





**WE NEED YOU!**

\_\_\_\_\_ is developing a Schoolyard Habitats site to provide habitat for wildlife on our grounds and to provide an outdoor classroom for the entire school community to learn in and enjoy. We are looking for volunteers to share their expertise, talent, experience, and interest in creating, enhancing and/or maintaining our Schoolyard Habitats site. Opportunities are endless, and range from one-time tree planting events to ongoing maintenance and assisting with teacher-led classes outside on the schoolyard. Please take a few moments to complete this form so that we can match you with a project that meets both your interests and our current needs. Thank you for your time and interest!

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_

E-mail: \_\_\_\_\_

Current/Former Occupation: \_\_\_\_\_

What do you hope to gain from volunteering with this project? Why are you interested?

\_\_\_\_\_  
 \_\_\_\_\_

**Areas of Interest/Expertise (Please check all that apply):**

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Gardening (general)     | <input type="checkbox"/> Trees              | <input type="checkbox"/> Earth Science       |
| <input type="checkbox"/> Horticulture            | <input type="checkbox"/> Researching        | <input type="checkbox"/> History             |
| <input type="checkbox"/> Landscaping             | <input type="checkbox"/> Site Planning      | <input type="checkbox"/> Mathematics         |
| <input type="checkbox"/> Native Plants           | <input type="checkbox"/> Site Preparation   | <input type="checkbox"/> Art                 |
| <input type="checkbox"/> Composting              | <input type="checkbox"/> Site Maintenance   | <input type="checkbox"/> Language Arts       |
| <input type="checkbox"/> Ponds/Wetlands          | <input type="checkbox"/> Gathering Supplies | <input type="checkbox"/> Writing             |
| <input type="checkbox"/> Butterflies             | <input type="checkbox"/> Fundraising        | <input type="checkbox"/> Nature              |
| <input type="checkbox"/> Birds                   | <input type="checkbox"/> Public Speaking    | <input type="checkbox"/> Mentoring           |
| <input type="checkbox"/> Insects                 | <input type="checkbox"/> Politics/Activism  | <input type="checkbox"/> Hands-on Activities |
| <input type="checkbox"/> Reptiles and Amphibians | <input type="checkbox"/> Natural History    | <input type="checkbox"/> Education           |
| <input type="checkbox"/> Mammals                 | <input type="checkbox"/> Biology            | <input type="checkbox"/> Other _____         |
| <input type="checkbox"/> Flowers                 | <input type="checkbox"/> Ecology            |  |

**Check age group(s) you prefer to work with:**

- |  |   |
|--|---|
| <input type="checkbox"/> Preschool (Ages 2–5)        | <input type="checkbox"/> College (Ages 18–21) |
| <input type="checkbox"/> Early Elementary (Ages 5–8) | <input type="checkbox"/> Adult (Ages 21– up)  |
| <input type="checkbox"/> Late Elementary (Ages 9–11) | <input type="checkbox"/> No Preference        |
| <input type="checkbox"/> Jr. High (Ages 12–14)       |   |
| <input type="checkbox"/> High School (Ages 14–18)    |   |

continued



List any specific skills/training/classes/knowledge/hobbies that you have that may relate to our Schoolyard Habitats project.

Four horizontal lines for writing skills, training, classes, knowledge, or hobbies.

**Work style:**

I prefer to  Work in Team  Work Independently  Either

**Availability:**

What days of the week are you available? \_\_\_\_\_

Which hours are you free? \_\_\_\_\_

How often would you like to volunteer? \_\_\_\_\_

Other comments? \_\_\_\_\_

Four horizontal lines for additional comments.

THANK YOU!

# Breaking New Ground

## Summary:

*Participants begin the project by clearing and preparing the ground.*

## Grade Level:

K-12

## Time:

2 to 8 hours or more, depending on size of habitat and number of participants

## Skills:

Construction, application, problem-solving

## Learning Objectives:

Students will be able to:

- Demonstrate basic use of gardening tools
- Utilize basic safety precautions
- Use tools to prepare site for planting

## Materials:

Largely dependent on circumstances. (Note: Many companies manufacture child-sized gardening tools and gloves. Selecting appropriate tools will help with successful student involvement.) Some examples include:

- A flat-bladed, sharp shovel, for cutting sod, prying soil, or removing plants
- A pointed shovel
- Gardening gloves

- A hand mattock (looks a little like a small tomahawk), for cutting roots
- A wheelbarrow and buckets, to move plants, soil, or tools
- Pruning shears, to cut vines, branches, or saplings
- A tree saw (curved blade) for larger work
- Stakes (and a mallet), string/rope, logs, or some system to mark off the area
- Pitchfork or hoe, to loosen the soil

## Background

Breaking new ground will mean different things to different people. A group planting a habitat at the edge of a woods may decide to remove a few of the more aggressive shrubs and/or exotic plants, loosen the soil in selected spots, and plant there. Some groups in more urban areas may have gotten permission to tear up asphalt, or they may have decided to build raised beds. A team enhancing a wetland area would need to keep soil disturbance to a minimum. Once the group has assessed the steps involved in prepping their site, the digging, loosening, pruning, and rock removal may commence.



More often than not, “new ground” will include a portion of lawn, often a tough mat of shallow-rooted, flat-bladed grass. It is important as a first step to remove this non-native, aggressive grass from the site. Aggressive plants that were introduced from another region are called invasive exotics. These exotics will crowd out native plant species and greatly reduce the diversity of plant and animal life in the area. See the background section of the Plant Selection Activity (p. x), in the previous section, for more information about invasive exotics.

Since the method of preparing a site is so variable for each site, the information included here is very general. Resources specific to a particular type of site and methods of site preparation might include regional gardening books, websites, a local expert, or a local garden center.

## Procedure

1. The group should first assess what sort of preparations they need to make for the site, e.g., debris removal, asphalt breaking, creating raised beds, etc. A detailed site map will provide clues, as will a well thought-out design.
2. Have the group select appropriate tools. Explain and demonstrate the proper use of each of the tools. For example, participants using a flat-bladed shovel should only use it to cut into soil and pry, they should keep hands and feet away from the blade, and they should always keep the blade end below knee level. Break into small groups and have students



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practice using tools. If possible, assign a volunteer or older student to assist each group. To prevent injury, it is important to review proper lifting techniques. Have participants practice lifting with their legs, knees bent and back straight.

**NOTE:** *This is not a comprehensive set of safety precautions. Compile a set of safety precautions by contacting the tool's retailer, manufacturer, or other reliable source. Make sure to read all pertinent labels.*

3. Assign specific jobs and areas for each participant and explain each job as it comes up. Some of the major job descriptions follow.
4. Mark off the site. If the plan includes loosening a good deal of soil, take preventative measures so that a lot does not wash away. An erosion prevention device might be as simple as lining the plot with 3"-5"-diameter logs and staking the logs in place.
5. Remove plants that will negatively impact the site, especially aggressive, fast-growing exotics. Leave native plants; if they are in the pathway of your project, dig up and transplant to another area. Watch carefully for poison ivy, poison oak, poison sumac, thorny plants, and stinging

nettles. If these plants grow in your area, and no one in the group knows how to identify them, consult a field guide or a local expert. The removal process will vary for different types of plants.

6. Since it is such a common and usually daunting task, here are some options for lawn grass removal:
  - One option is to lay down cardboard on the plot, and cover the cardboard with at least 6" of leaf mulch. This not only kills the grass; it makes for good, rich soil. Starting this process in the fall gives the cardboard and mulch time to degrade. Planting should begin only after the cardboard has degraded enough for roots to maneuver through. This could take several months, so it is best to start in the fall for spring plantings.

## Solarization Method of Grass/ Weed Removal:

Solarization is another way to kill grass. Mark the area that you want to remove plants from with surveyor chalk (pathways, bed areas). Soak the area. This creates a hotter temperature underneath the plastic. Place clear 6 ml plastic over the area (clear plastic will cause higher



temperature than black). This works best when the area is in full sun. Use landscape staples or heavy rocks to seal the plastic to the ground. Place the staples or rocks approximately one foot apart. Wait three weeks. The ideal outdoor temperature is 80 degrees F or greater and the grass should be actively growing. Remove the plastic. Dig up weeds and grass. Use a hoe, shovel or very shallow tiller (soil should not be disturbed more than 3" below the surface). Certain grasses and weeds (such as Bermuda grass) thrive on disturbance! Soak the area again. Repeat the process.

- Some people choose herbicides when working with very large plots of lawn grass. Only licensed professionals should handle herbicides. They are aware of safety issues, know what time of year to apply them, and know how much they need to apply. If this is the only option, do some research and recommend herbicides that biodegrade quickly and do not stay in the ecosystem for a long time. Otherwise herbicides can kill other plants, leach into and poison the groundwater, or run off into streams and do much more damage than was intended. They may have effects on children as well. **Herbicides should only be considered in cases where all other options do not work.**
- A sod-cutter will cut the sod into strips, which can be rolled up, removed and saved for compost. An experienced adult should run this machine. Sod-cutters are available for rental at local equipment rental centers.
- A group with a small plot and a lot of muscle power can cut and pry out sod with a sharp, flat-bladed shovel. Cut small



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squares, about 1 1/2 inches deep, and pry out the pieces of sod. Set the squares aside and use them later for compost. Note, however, that lawn grass is hardy stuff; it will grow back (even upside-down!) given the chance. A few weeks under a plastic tarp in warm weather should kill it and make decent compost.

7. Once sod and any invasive plants are removed, where necessary cut roots and break apart tough soil with a hand mattock. Generally, it is not necessary to totally till the soil. In most areas the plants will do fine if the soil is loosened enough for roots to spread. The depth of soil to loosen depends on the needs of different plants.
8. Pull out medium-sized rocks, and set them aside. A rock pile on the site can provide shelter for beneficial insects, toads,

chipmunks, etc. Leave small and really big rocks. The small ones will not hurt anything, but attempting to move the really big ones might hurt the mover. Removing a large rock will also leave a big, hard-to-fill cavity in the ground.

9. When the soil is ready, it is time to start planting!

**Note:** *Have water, sunscreen, and a first aid kit available. Take appropriate rest breaks.*

# Planting Your Schoolyard Habitats Site

### Summary:

*Participants plant their selected vegetation on the habitat site.*

### Grade Level:

K-2, 3-6, 9-12

### Time:

2 to 6 hours or more, depending on size of habitat and number of participants.

### Skills:

Application, construction, problem-solving

### Learning Objectives:

Students will be able to:

- Demonstrate proper planting techniques and requirements
- Place appropriate plants in their new habitat site, according to their site plan

### Materials:

- Gardening gloves
- Shovels
- Rakes
- Hand trowels
- Water source (hose, watering can, etc.)
- Buckets
- Plants (i.e., trees, flowers, shrubs, seeds, etc.)
- Tree protectors (if planting seedlings)
- Mulch
- Compost or other organic material
- Plant markers and a permanent marker

### Background

After weeks of researching, planning, and preparing it is now time for the real fun—planting the habitat! Participants will be thrilled to see their plans become an actual wildlife habitat. (You may want to create a school-wide planting day, or choose a weekend so parents and community members can participate.)

While there are general planting guidelines to follow, each plant is unique. Most plants, seeds, and bulbs come with suggested planting depths and spacing measurements, as well as sun and soil requirements. If this information is not provided, ask the nursery staff for planting suggestions. When planting, keep in mind the size of each plant at maturity. At the same time, it is important to remember that things grow closer in nature and often grow in clusters, so do not be afraid to group plants together to form tight-knit communities. If large gaps are left between plants, nature will fill



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them in, often with unwanted invasives that can take over the habitat.

Spacing decisions should be made prior to the day of planting.

### Procedure

1. Gather all required equipment. Plants should be purchased ahead of time. If possible, take students on a field trip to a nursery to purchase the plants. The site should already be



prepped; see previous activity for complete details.

2. Review the site design plan for the habitat with the group, including what plants go where. Go over general planting instructions (e.g., hole size, watering, mulching, etc.). Consider planting a shrub or plant as a demonstration. Review tool and safety issues as needed.
3. Divide students into groups, assigning each group a certain area of the habitat to plant. If possible, assign a volunteer to assist each group. Give the students area/plant specific instructions including how far apart plants should be spaced.
4. Begin planting. Remember, enthusiasm is contagious, so have a great time digging in the dirt!
5. Have students label plant markers (available at nurseries and garden centers) in permanent ink. Place in appropriate spots throughout the habitat to identify plants and educate visitors. Following the site design plan, have students place additional elements in the habitat (e.g., benches, birdfeeders, etc.).

**Note:** Have water, sunscreen, and a first-aid kit available. Take appropriate rest breaks.



# Planting Guidelines

## Plants and Shrubs

Dig a hole the same depth and slightly wider than the container the plant came in. Remove the plant from its container and gently loosen the roots. Place in the hole and cover with backfill (soil from the hole). Gently pat down the soil to be sure there are no large air pockets, water, and apply mulch.

## Trees

Dig a hole twice as wide and no deeper than the container the tree came in or the height of its rootball. Remove the tree from its container or burlap wrap. Gently loosen the roots and place in the hole. Water for several minutes. Fill in the hole with backfill, pat down the soil and apply mulch.

Be careful not to pile mulch around the tree trunk, as this traps heat and moisture and can cause the bark to rot. Use a tree protector (available at nurseries or through gardening catalogs) when planting seedlings. This will protect small trees from errant lawn mowers and hungry deer.

## Bulbs and Seeds

Refer to planting directions on packaging, water, and mulch. If desired, start seeds several weeks in advance as an additional activity for participants.

## Soil

If the soil is in poor condition in the area, mix some organic material such as compost in with the backfill. Be sure to match plant needs with soil conditions. Adding soil amendments can slightly alter the soil quality, but the basic needs of a plant must be met by the existing soil for the plant to thrive.

## Watering

Apply water generously, making sure to reach the roots and not just the surface. After the initial planting, water approximately once a week with one-inch of water, although amount will vary with weather conditions and soil type. If possible, water with a soaker hose or other drip irrigation system. Native plants will require watering periodically for a full growing season to help them become fully established. Once established, they should not require watering except in times of extreme drought.

## Mulching

Apply at least a one-inch layer of mulch to the soil surface. There are a variety of mulches available including wood chip, leaf, and pine needle. Use what is readily available and fits the project budget. Not only does mulch look attractive, it helps hold in moisture, adds nutrients, and helps cut down on weed growth.



# Planning a Planting Day

Planting days are a great opportunity for the whole school community to participate in the creation or enhancement of the Schoolyard Habitats site. This is an excellent chance to get those who have not yet been involved excited about the habitat project. Those involved in the actual construction and creation of a project are more likely to take ownership in the initiative and participate in the future (or at least not be opposed to future phases of the project).

Planting days take a fair amount of organization and planning to ensure that students, teachers, and volunteers all have an assigned role and know what they are supposed to do. Consider the following tasks when planning Schoolyard Habitats planting events:

**Notes:**

- Avoid planning a planting day on a Friday if possible—if the event is rained out, plants may not survive until Monday.
- Use the energy and enthusiasm that the initial planting day will generate to get more people involved in the project.



## Sample Checklist for Planting Day

- Get Schoolyard Habitats plan approved by school principal, other appropriate school staff and committees.** \_\_\_\_\_
- Identify materials and resources needed for this planting phase**
- Devise a plan for getting the school community involved**
  - Solicit teachers' ideas for student activities
  - Create roles with specific responsibilities
  - Encourage staff involvement by identifying and/or assigning specific tasks/roles
- Solicit volunteer help and donations from school community**
  - Construct necessary structures such as raised beds, walkways, etc.
  - Clearly mark pathways and areas for foot traffic
- Prepare habitat area for planting**
  - Add topsoil/humus if necessary
  - Take before and after photos to visually capture your progress
  - Rototill and smooth out soil beds
  - Dig holes for trees and shrubs
- Create a checklist of all the materials you will need to have available on planting day (e.g., gloves, trowels, shovels, wheelbarrows, hoses, watering cans, etc.)**
- Promote your event to local print, television and radio media**
- Coordinate the delivery/purchase of trees, shrubs, and plants**
- Prepare a planting day schedule/program for participants and distribute to all teachers/volunteers involved**
  - Designate which classrooms or grades will plant which areas and when. With larger groups, planting in shifts can help the process flow smoothly.
  - Ask parents/volunteers to arrive early on the planting day to dig holes for trees and shrubs and make final preparations of the habitat areas to be planted.
  - Pair older students with younger students to assist them with planting.
  - Prepare activities to engage students in habitat work and play.
  - Celebrate success by ending the day with a community gathering. This event could include students sharing poems, songs, and artwork inspired by the Schoolyard Habitats project.
  - Prepare a back-up plan in case of rain (indoor activities such as building bat and bird boxes can be a perfect way to continue to work towards habitat goals despite bad weather).

