Fall 2014

School Grounds and Gardens Educator's Guide

An Educator's Resource for the Washington Green Schools School Grounds and Gardens Assessment

About This Educator's Guide

Goal of This Guide

The purpose of this guide is to provide information and resources for teachers to incorporate school grounds and gardens into classroom learning and become certified as a Washington Green School.

Through the certification process, teachers will be able to engage students in outdoor field investigations and project-based learning. Simultaneously, they will create a lasting environmental change at their school and enhance STEM education by teaching science and engineering practices aligned with Next Generation Science Standards.

How to Use This Guide

This guide includes:

- Basic information and suggestions regarding the School Grounds and Gardens Assessment for Washington Green Schools certification.
- Resources and links to outdoor curricula, information from community experts on school grounds and gardens topics, and funding opportunities.
- Ideas for hands-on activities and lessons to help teachers engage students in outdoor learning.

Ultimately, this guide will support your school and Green Team's efforts to learn more about the current state of your school grounds and improve the school's outdoor environment.

For additional program information, visit:

www.wagreenschools.org

Table of Contents

Overview of Certification Steps

There are six steps in the process to get certified as a Washington Green School. First, you must register your school on the Washington Green Schools website. This will give you access to certification resources and your Report Card. As you complete each step, you will fill out corresponding questions in your Report Card.

The six certification steps are as follows:

1. **Build Your Green Team**

   Form your Green Team and set a goal for the year.

2. **Assess: Choose a Category**

   Fill out the Assessment for the School Grounds and Gardens Category and enter your information in the Report Card.

3. **Address: Make a Lasting Change**

   Use your Assessment findings to guide your Green Team as you take action to make a positive Lasting Change.

4. **Verify Your Impact**

   Evaluate the impact of your action project.

5. **Share Your Story**

   Engage your school community by communicating your accomplishments, challenges, and future plans.

6. **Certify and Celebrate!**

   Submit your Report Card, get certified by Washington Green Schools, and receive recognition for your accomplishments!

Introduction

Why School Grounds Are Important

Children today increasingly spend their time indoors, which has negative repercussions for their physical and mental health. In an outdoor classroom, children learn by doing things through hands-on experiences, helping them cultivate important cognitive and social skills. Learning outdoors also helps them develop a deeper understanding of the natural world and their place in it. By incorporating school grounds and gardens into their academic curricula, teachers can capitalize on the many psychological, physical, and academic benefits that students stand to gain from learning in a natural outdoor environment.

Resource Conservation

Conserving resources used to maintain school grounds both saves schools money and reduces their environmental impact. Investigating and participating in resource conservation on school grounds also provides students with service learning opportunities and real context in which to apply their knowledge. Academic topics related to resource conservation on school grounds include stormwater runoff, water quality, soil and decomposition, native and invasive plants, wildlife habitat, and Integrated Pest Management.

Starting a Garden

Research Supporting the Benefits of School Gardens

Academic studies suggest that rising incidences of childhood obesity and attention-deficit disorders can be prevented or alleviated by connecting children to the natural world. This reduces stress and enables students to focus, build competence, and form supportive social groups. The use of school grounds and gardens in academic instruction is also linked with higher achievement on science and other subject tests. For results from these studies, see:

- 2014 California School Garden Survey
- *Last Child in the Woods* (Louv, 2008)
- National Gardening Association: List of academic studies highlighting the benefits of school gardens
- Cornell research team: "School gardens grow kids' physical activity levels" (Boscia, 2014)
- National Wildlife Federation (NWF): Eco-Academics Blog

Starting a Garden: Before You Start Planting

1. **Build your case.** Gain support and approval from administrators, teachers, volunteers, and funders. Recruit a school garden team or committee to help plan, build, and maintain your school garden.
2. **Create a plan and budget.** Each program should have defined goals and objectives. What will your garden accomplish?
3. **Link the garden to curriculum.** Plan how your garden will help teach to the standards and enhance nutrition education at your school.
4. **Secure funds and supplies.** See the next page for a list of resources.
5. **Design your garden.** Plan big, start small.
6. **Sustain and maintain your garden.** Consider long-term costs and draft long-term sustainability and maintenance plans *before* you start planting.

For additional information and guides on starting a school garden, consult: the National Gardening Association and the Collective School Garden Network

Support for Your Assessment

Gathering support from the school and local community will help you complete your Assessment and successfully implement a lasting environmental change at your school.

Educator Hints

- Find out if your school or district has a designated Garden Educator or Coordinator. If no such position exists, consider talking to your principal about creating one for either an employee or volunteer.
- Research local organizations, parents, school staff, nonprofits, and government agencies to find technical experts in your community that will assist your team's action project.
- Contact local gardens, outdoor education centers, and parks to find out how to arrange a field trip. Seeing completed projects will provide students with inspiration, creativity, and enthusiasm for their projects.

Additional Resources

The Seattle Foundation: List of nonprofits in WA State

List of regional and Seattle-based agriculture organizations & blogs

Farmer Frog: Urban agriculture nonprofit in the Pacific Northwest

WA State Dept. of Agriculture: WA Farm to School Toolkit

Seattle Tilth: Garden educator classes; multi-lingual Garden Hotline; support for building food gardens; volunteer services from Master Composters/Soil Builders; Water Smart workshops; garden and farm tours; list of online gardening resources

Grants for teachers and garden education:

- National Gardening Association (NGA): Grants & funding advice
- Collective School Garden Network: Grant searching resources & list of recurring school garden grants
- American Community Gardening Association: Funding opportunities
- U.S. Dept. of Agriculture: People's Garden Grant Program & financial resources database
- Cedar Grove: Grants & donations

Water Use on School Grounds

Wise management of water on school grounds helps to reduce both stormwater pollution and your school's water bill.

Ideas for the Classroom

- Conduct an indoor water audit and compare it to the amount of water used outdoors for irrigation.
- Research what can be done with your school's outdoor landscapes to reduce the amount of water required to maintain them. For example, replace existing plants with drought-resistant and/or native plants.
- Walk around your school grounds and make a sketch of the main areas. Estimate the percentage of your school grounds that is impervious (i.e. areas that water cannot penetrate through, such as roofs, concrete surfaces, etc.) Find where the runoff from these surfaces goes.
- Learn about the impacts of stormwater runoff on salmon streams or other sensitive aquatic species or resources.

Educator Hints

- Ask your custodian or the district's grounds maintenance staff about irrigation practices at your school.
- Contact your school or district's accounts payable department to access your water bills.
- Talk to your school administration about installing a water collection system. Collected rainwater can be used to irrigate plantings instead of becoming storm water runoff.

Additional Resources

Spokane Clean Water Project: Stormwater pollution

Saving Water Partnership: Water conservation ideas, activities & programs

Seattle Public Utilities: Resources for educators

Friends of Issaquah Salmon Hatchery: School programs

Existing Gardens

Integrate your school's garden with class curricula and expand your school's gardening programs.

Ideas for the Classroom

- Learn about food culture and farming practices in your area. Visit a local farm or community garden to learn more about traditional foods.
- Test the soil in your garden to determine whether amendments are needed.
- Study the system of a compost pile or worm bin and investigate the organisms involved in decomposition.
- Build a simple compost or worm bin, either for a classroom or to be placed on school grounds. Use this as a demonstration for a schoolwide composting program.

Educator Hints

- Talk to your cafeteria staff about using produce from the garden to make a special meal or snack. Donate left-over produce to a local food bank.
- Inspect your school grounds and existing gardens for pressure treated wood, which can leach harmful chemicals into the soil. Replace with cedar, which is rot-resistant.

Additional Resources

Seattle P-Patch: Garden resources

Nourish Curriculum Guide (bilingual)

School Garden Weekly Blog

Cedar Grove: Organic recycling

Edible Schoolyard: Resources

WSU Extension: Gardening resources

NGA Kids Gardening: Classroom projects; lessons & activities

Life Lab: School garden resources (bilingual); garden-to-cafeteria protocol; connections to Common Core & Next Generation Science Standards

Wildlife Habitat

Habitat loss due to development, destruction, and pollution poses a serious threat to wildlife. Studying the wildlife habitat on your school grounds provides students with an opportunity to learn about the components of habitat, native and invasive species, and important ecosystem processes.

Ideas for the Classroom

- Keep a log of wildlife/animals regularly seen on school grounds. Knowing what wildlife visits your school grounds will help students monitor the diversity of life living there.
- Create a short list of native wildlife and plant species that you might find on your school grounds. Study the pictures and habitat requirements of a few species then go outdoors to look for them.
- Take a walk and notice where you hear and see the most birds or insects. Use these sites to observe wildlife and study their habitat.

Educator Hints

- Find a small area on campus in need of stewarding and plant some native plants. Invite a plant expert or school grounds staff to identify an appropriate site.
- Certify your school as a National Wildlife Federation Wildlife Habitat.

Additional Resources

NWF: Guides to gardening for wildlife and teaching about schoolyard habitats; resources for educators; Trees for Wildlife Program

WA Native Plant Society: Educational resources about native plants & ecosystems

Burke Museum: WA field guides

Pollinator Partnership: Tools & curriculum

School Grounds Management

Chemicals that are used on school grounds to fertilize plants, eliminate weeds, or manage insects or rodents can be toxic to humans. Sustainable landscape practices, such as Integrated Pest Management, help minimize health risks and reduce waste and water use.

Educator Hints

- Find out if your school or district has policies in place to minimize or ban the use of toxic chemicals on school grounds. If toxic chemicals are used on your school grounds, research alternative products that could be used to achieve the same results.
- Research sustainable landscape practices and see if they can be used at your school. For example, leaving grass clippings on the lawn reduces green waste and provides organic material to maintain lawn health, while mulching planting beds with wood chips and leaves helps reduce weeds.
- Contact someone in your grounds maintenance staff to find out if there is a policy to only plant native plants and to remove invasive species.

Additional Resources

WA Toxics Coalition: Resources for healthy schools & Pesticide Action Kit

U.S. EPA: Integrated Pest Management resources

Oregon Tilth: Organic resources

WSU: Integrated Pest Management

University of Rhode Island: Basics for a healthy landscape

Northwest Center for Alternatives to Pesticides: Facts and tools

Outdoor Education

Providing students with outdoor learning experiences opens up many opportunities to enrich the curriculum and teach skills targeted by Common Core and Next Generation Science Standards.

Ideas for the Classroom

- Go outdoors to do an activity that normally might be done indoors, such as writing poetry or making measurements for math.
- Consider doing a real-world science experiment outdoors.
- Make art installations, tiles, or mosaics to beautify outdoor areas and create spaces for students, teachers, and families to learn and gather.

Educator Hints

- Enlist the help of a committee, parents, or community groups to help acquire items to create an outdoor classroom. Adding benches and tables to an outdoor space will allow students to work more comfortably outside.
- Acquire or create some simple outdoor field equipment (e.g. rain ponchos and clipboards made from sturdy cardboard and binder clips).

Additional Resources

Green Teacher magazine

FOSS outdoor activities & guide

Nature Works Everywhere: Lesson plans & interactive garden tools

National Geographic: BioBlitz activities; teaching resources; Common Core resources; STEM resources

WA NatureMapping Program: Educational resources

Project WILD: Wildlife-focused conservation education program that provides K-12 activities and teacher training

Project Learning Tree: Environmental education curriculum, materials & grants

Play and Fitness

Washington State law requires that elementary and middle school students get at least 100 minutes of P.E. every week, but in reality many students receive much less. Play and physical fitness are essential to maintaining a healthy lifestyle, and can be encouraged by providing children with creative and stimulating outdoor play areas. Research indicates that children play with more vigor, engagement, imagination, and cooperation in natural playscapes than in artificial environments.

Educator Hints

- Understanding who uses the playground and outdoor play areas at your school will help you to plan and determine future actions. Make observations or take a survey for a set period of time, then create a simple graph that illustrates the audience and uses.
- Interview school administrators to learn about playground updates at your school. Invite a landscape architect or playground planner to hold a brainstorming session with students to get their ideas on new equipment.
- Consider including "green" features, such as recycled materials or environmentally-themed equipment, in your playground. Green features in the playground remind students of their connection to the natural world.

Additional Resources

National Wildlife Federation: Guidelines for creating nature play spaces

Edutopia: "How does your schoolyard grow?: A green playground extends the classroom outdoors" (Rapaport, 2007)

Solid Ground: Apple Corps nutrition and physical activity programs

UW Center for Public Health Nutrition: Tools & resources for active living and healthy communities

WA Green School Success Stories

Forest View Elementary • Everett, WA

While conducting their School Grounds and Gardens Assessment, the Green Team at Forest View Elementary noticed that students felt disconnected from the natural areas on their school grounds. For their Lasting Change, the Green Team created a link between classrooms and the outdoors by building an interactive trail system through the natural areas on their campus. The trail system included kiosks that provided information about the wildlife and natural features on the school's campus. Classes now use the trails for outdoor learning and student-led scavenger hunts.

On the left: Interactive kiosks with QR codes at Forest View Elementary.

On the right: Mural created by the Green Team at Peter S. Ogden Elementary.

Peter S. Ogden Elementary • Vancouver, WA

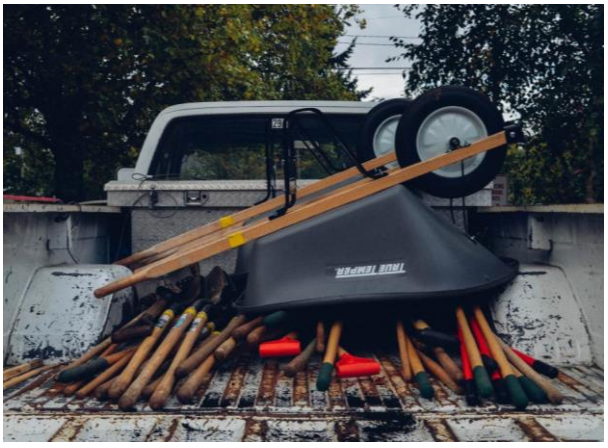
For their School Grounds and Gardens certification, the Green Team at Peter S. Ogden Elementary wanted to create an outdoor learning environment on their campus. The students planted a native plant garden and 200 trees on their school grounds, installed rain barrels, and created a summertime maintenance schedule for their school garden. In the spring, food harvested from the garden was used in the cafeteria to make salsa and pesto. The Green Team also worked with the mayor to curb graffiti in their town, conducting and presenting research on graffiti practices to community leaders. As a culmination of their research, students designed and painted a mural on a building that had been tagged countless times. For their efforts, the Green Team received an "Exceptional" rating during the 2013 Project Citizen National Showcase.

WA Green School Success Stories

Maple Elementary • Seattle, WA

For their School Grounds and Gardens certification, the Green Team at Maple Elementary set up rain barrels to capture water for irrigation, and added a wooden worm bin to their compost system to collect cafeteria leftovers. These changes were implemented using reward funds from Seattle Public Schools Utility Conservation Programs, and assistance from local organizations and volunteers during a schoolwide Day of Service. To ensure the sustainability of these new additions, the Green Team established a Thursday Garden Club involving parent volunteers, and they shared food that was grown in the garden in the school's classrooms.

Mountain View High School • Vancouver, WA



The Green Team at Mountain View High School discovered that the area adjacent to their school's greenhouse was empty and full of weeds. For their Lasting Change, the team removed the weeds from this area and built cedar boxes for a herb garden. Impervious compacted gravel between the garden beds was replaced with pervious landscaping material and loose gravel. The herb garden is now used and maintained by the school's Horticulture, Environmental Science, and Food and Nutrition classes. Through the certification process, students learned how to work in a professional environment and developed important communication and planning skills. The success of their action project also convinced maintenance staff to make other improvements to their school grounds.

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