



School Gardening Guide

Whether you're working to build a new school garden or support an existing one this handy guide, produced by FoodCorps and Whole Kids Foundation, provides step-by-step instructions, loads of creative ideas and a list of resources.

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Whole Kids Foundation invites you to share school gardening success stories and favorite gardening resources.

Email us at info@wholekidsfoundation.org.

LAYING THE GROUNDWORK: VISION, SYSTEMS, SUPPORT, AND DESIGN

STEP 1

Make the Case: Why Should Your School Have a Garden?

Whether you want to build a new garden or garner support for an existing garden at your school, you will need to be able to "make the case" to administrators, parents, teachers and potential supporters about why the garden is so important.

So, why should your school have a garden? Because what we feed our children, and what we teach them about food in school shapes how they learn, how they grow and how long they will live. And children today—in schools all across the nation—are in need.

- In the last 30 years, the percentage of American children who are overweight or obese has tripled.
- 1 in 3 children born in the year 2000 are on track to develop Type II diabetes (1 in 2 if they are a child of color).
- 23% of all American children face food insecurity.
- Only 2% of children eat enough fresh fruits and vegetables.
- The typical elementary student receives just 3.4 hours of nutrition education each year.

In the face of these challenges, school garden programs can help children grow up to be healthier.

- Children who grow their own food are more likely to eat fruits and vegetables and to be more knowledgeable about nutrition.
- They are also more likely to continue healthy eating habits throughout their lives.
- Children who eat fruits and vegetables are more to carry this healthy habit into adulthood, as well, which can stave off diet-related disease over their lifetimes.

School gardens programs not only promote healthy lifestyles in children, but have also been shown to improve children's behavior and performance at school and improve their attitudes about and appreciation for the environment. Gardens serve as great outdoor classrooms for any number of subjects, including science and ecology, math, creative writing and art. School gardens are wonderful spaces for kids with different learning styles and abilities to work in groups and engage in hands-on, cross-disciplinary education.

The following online resources may be helpful for making the case for your school garden:

 Benefits of Gardening for Children fact sheet (PDF) by the University of Colorado at Denver and Health Sciences Center: www.wholekidsfoundation.org/pdfs/CYE_FactSheet3_BenefitsofGardeningforChildren December%202010.pdf)

- National Gardening Association's presentation about the benefits of school gardens:
 www.kidsgardening.org/article/research-supporting-benefits-school-gardens
- The School Garden Wizard offers free resources that will help you gather resources and craft your garden proposal: www.schoolgardenwizard.org

STEP 2

Engage Stakeholders and Organize a Planning Committee

Cultivating strong relationships with stakeholders will ensure that your garden project receives consistent attention and support to help it thrive.

Stakeholders are people or organizations that are in invested in and necessary to the success of the garden project. Stakeholders in school garden projects include the school and school administration, teachers, facilities staff, parents, and members of the community where the school is located.

These key people help your project in a variety of ways:

- Teachers use the garden for curriculum and experiential learning.
- Parents bring their children for special events and can volunteer in the summer months.
- Administrators can support the presence of the garden by approving the use of school spaces, supplies, funds and school-day time.
- Community partners can provide technical expertise, funding or donate supplies.

Meet with stakeholders by setting up meetings with the principal, put yourself on the agenda of a school staff meeting and the Parent-Teacher Organization meeting—and come prepared. Bring to the meetings a vision for the future—a plan for your next year in the garden and how you hope the project can grow—and offer your stakeholders real ways to be a part of that vision. Hear from teachers about how you can work together to plan curriculum in the garden, ask parents and administration about their interest in a summer garden camp or afterschool program, or work with your principal and facilities staff to help improve your access to water. Your stakeholders are a support system for your garden—remember to keep them informed!

Community support and involvement will be key to your garden's success. That's why a well-rounded Planning Committee should be the driving and sustaining force behind your garden.

The Planning Committee should play a central role in establishing the garden, organizing events, fundraising, and planning for the garden's future. Get committee members invested and on the same page by having discussions early on about the Mission and Goals for the garden, and keep them engaged with a regular meeting schedule and fun events. Build a structure to support your committee members in their work—remember that they're volunteering their time!

In the early stages of your garden, the Planning Committee's responsibilities will include:

- Design and implementation
- Communication about the garden
- Fundraising
- Event planning
- Volunteer recruitment
- Visitor tours
- Building a 3-5 year plan

Every Planning Committee will look different depending on the needs and vision of your garden project. Committee members should be representatives from your various stakeholder groups who are committed to the garden. Be careful of making your committee so large that it has difficulty making decisions effectively—while 6 or 7 people may be able to have very engaging and proactive discussions, gaining consensus can become more difficult as the number increases. A sample committee might include:

- Garden coordinator
- School administrator
- Parent on PTO Board
- Two teachers
- Member of community partner organization
- Food service coordinator or member of school "Green Team"

STEP 3

Define The Garden's Mission and Goals

Having clearly defined goals for your garden is crucial in helping your project run smoothly. It helps to ensure that those involved are on the same page, allows you to sell the vision of your project to important stakeholders, can help in engaging visitors and recruiting volunteers, and keeps you on track with your growth and development.

Questions to ask when considering your mission and goals:

- What population do we hope to serve? Primarily students or the larger community?
- When people visit the garden, what do we want them to get out of their experience? How do we want our visitors to remember their time here?
- How will we measure the success of our garden? By: Number of visitors? Amount
 of food produced? Number of teachers/classrooms using the garden to enhance
 their curriculum? Increased student participation?

Some gardens find it helpful to have a broad mission statement with a more specific list of goals attached. For example, a mission statement might be as follows: "Our school garden's mission is to improve the health and well-being of students, families, and the larger community."

Goals:

- Cultivate student curiosity and exploration.
- Support student nutrition at school and at home, and encourage every child's ownership over his and her own health.
- Cultivate children's joy in learning by providing opportunities for hands-on learning in school curriculum subjects.
- Provide opportunities for students to take on leadership roles. Support students in sharing their own ideas and having their voices heard.
- Make your school a healthier and greener environment by practicing sustainable gardening techniques that restore natural resources and by teaching students that small steps can go a long way towards creating a healthier environment.
- Teach students and community members about the joys of hard work and physical activity.

STEP 4

Design the Garden

When you've defined the mission and goals for your project, you can begin to design the physical space to best meet the needs of those goals. Most of your garden will be used for planting, but there are many other physical attributes that help to make a successful school garden. Consider your design as more than just a bird's-eye view—what will your garden look like from a distance? How will it respond to a large crowd? Some things to consider when planning your garden:

Physical Needs for Growth:

- Soil: One of your first and most important tasks is to take soil samples from the
 area where the garden will be and send them off to be tested. This will help to
 ensure that your soil does not have any contaminants, or may help you decide to
 pursue raised-bed gardening with new soil. A soil test will also determine your
 soil structure and will help to define which amendments will be most helpful to
 add. For more information, contact your state's Agricultural Extension Service.
 They will provide instructions for a soil test as well as information on interpreting
 the results.
- Water: Easy access to water is crucial, and multiple hose hookups for irrigation may be necessary if you live in a hot or arid climate. At the same time, be sure that the land you're growing on has proper drainage – if the soil is often waterlogged, you may want to consider a raised bed system of planting.

• Sun: Most vegetables need at least six hours of direct sunlight to be successful, and some need many more. Be sure you're not in the shadow of nearby buildings or trees.

Other Potential Garden Needs:

- Space to start seeds
- Washing and cleaning space for hands and harvest

Accessibility and Visibility:

- Consider your garden as a beautiful sight to passers-by and as a space that children can enjoy exploring when not in an activity.
- Some gardens attached to playgrounds will open for supervised use during recess, allowing children an added relationship with the space.
- Consider that, if your garden isn't next to the school, teachers will be less likely to use it for curriculum.

Age-appropriate design:

People of all ages and physical characteristics will visit and use your garden.
 Make sure that pathways and signage are clear and provide a shady spot for resting or eating lunch for your many visitors.

Storage:

• Where will you keep your tools, seeds, or curriculum materials? Inside the school, in weatherproof storage, or in an outdoor shed?

Compost:

- Compost is a vital part of the garden cycle and an incredible teaching tool. Many types of compost systems are available, but a three-tier system is most popular for school gardens and allows for a wonderful visualization of the decomposition process.
- Be sure your compost piles are accessible with a wheelbarrow and in a corner of the garden where the smell of decomposition will not deter any wary visitors.

Meeting Area:

• A space to gather and provide orientation to classes, volunteers, or tour groups before they head into the garden. The meeting area is a good space to share the school garden rules and behavior expectations

Security:

 Depending on your area, your garden may be in danger of damage by animals or vandalism. Some sort of fence that still allows for visibility may be helpful, and can also help to let visiting students understand the physical boundaries of the space. Hopes for the Future and Room for Growth:

• Do you dream of a small greenhouse? Cold frames? Chickens? Fruit trees? A brick oven? Keep these hopes in mind as you plan out your space – a successful garden project can grow quite quickly!

Every garden project will have a different design based on its specific location and mission. If you have the time, go with your planning committee to visit other gardens nearby and get a feel for different layouts. Check out the links at the bottom of this page for more advice on garden design, or work with the following sites to plan out your design online:

- http://www.growveg.com/
- http://www.agrisaurus.com/

STEP 5

Secure Funding and Resources

One of the continuing jobs for the planning committee will be to find funding and secure resources for the work of the garden. Funding can come from a variety of sources including grants, produce sales, and donations. If you are a 501 (c) 3 or are connected to a school, you are eligible to receive grants. Search these websites for funding opportunities that many school gardens are eligible for, and search for local Green Space Development grants or Child Health and Nutrition Grants.

Sites Providing Funding Information and Resources:

- National Farm-to-School Network (www.farmtoschool.org/fundingopps.php)
- National Gardening Association (grants.kidsgardening.org/)
- USDA Healthy Meals Grants Resource Library (healthymeals.nal.usda.gov/professional-career-resources/grants)
- USDA People's Garden (www.thepeoplesgarden.gov/)

Specific grant programs:

- Captain Planet Foundation (captainplanetfoundation.org/)
- Corning Foundation (www.corning.com/about_us/corporate_citizenship/index.aspx)
- Lowe's Charitable and Educational Foundation (http://responsibility.lowes.com/community/our-programs/lowes-charitable-and-educational-foundation/)
- Toolbox for Education (http://www.toolboxforeducation.com/)
- Nature of Learning Grant Program (www.fws.gov/refuges/education/natureOfLearning/intro.html -orwww.nfwf.org/pages/grants/home.aspx#.UWW7pitARRc)
- Whole Kids Foundation Garden Grant Program (www.wholekidsfoundation.org/gardengrants.php)

Doing a quick search online can also yield incredible resources to help the work of your garden. These can be found in the form of lesson plans, planting guides for your area, community partnerships, and more. See Additional Resources for links to helpful sites, and seek out your local Agricultural Extension service, Horticultural Society, or community garden for more local information.

STEP 6

Build Community Partnerships

Schools are the perfect place to create garden-based learning environments because so many students, parents, teachers, and others make up the school community. At the same time, the particular names and faces of those involved in a school and its garden spaces may change over time. For that reason, school gardens can benefit from partnering with an organization or business from the community that will help to bring long-term sustainability to the initiative—a "community partner." A community partner can be any organization that will work with and help support the garden for years to come, including:

- Local farm
- "Sister" School or Community Garden Nearby
- Local environmental nonprofit or nutrition initiative
- Hardware or garden store
- Garden Club
- Restaurant
- Community Kitchen
- Food Relief Organization
- Federal or local government
- Faith-based organization
- Youth serving non-profit

DIG IN! BREAKING GROUND, GROWING, AND TEACHING

STEP 1

Prepare Beds, Order Seeds and Tools

Whether you're gardening in containers, raised beds, or directly in the ground, you'll want to be sure your soil is well prepared before you plant. Use the results of your soil test to decide which amendments you want to add, and use your own compost or find a local bulk seller. There are many decisions that go into bed preparation—how much compost to add, how deep to break up the soil, whether to turn the soil by hand or use a tiller, whether to build permanent or temporary raised beds. Each depends on your soil, climate, and personal approach. For a nice overview of the different approaches to school garden beds, begin with the California School Gardening Network's downloadable publication, "Gardens for Learning."

Master gardeners in your community can be excellent resources for advice on preparing and planting your garden. Trained in horticulture by the USDA's Cooperative Extension, master gardeners volunteer their time to help those in their community plant, grow, and harvest fresh produce from gardens. Master gardeners volunteer in all 50 states and the District of Columbia, and can be located through their state programs on the national Extension website.

When your beds are ready, you'll need seeds to plant. You can pick up seeds at a local garden store, but you may learn more about the plants and even get a better deal if you order through a seed catalog. There are many wonderful seed companies all over the U.S. Most will send you a catalog for free, and some will even donate seed packets to school garden projects. The following is a list of some of the seed companies in the U.S.:

- High Mowing Organic Seeds
- Seed Saver's Exchange
- Seeds of Change
- Southern Exposure Seed Exchange
- Fedco
- Johnny's Selected Seeds
- Terrior Seeds
- Territorial Seed Company
- Burpee
- The Cook's Garden
- Renee's Garden Seeds

Finally, you'll need to purchase tools for your work. Keep in mind the size of school groups that will be visiting your garden, and that you want to have enough tools to keep everyone involved. You may also want to buy some wire brushes for cleaning tools to prevent rust, or institute some other daily tool-cleaning activity that will remind students about proper care for their belongings.

Must-have garden tools (age and size appropriate):

- Shovels
- Trowels
- Hoes and Cultivators
- Pitchforks for turning compost
- Rakes for bed preparation
- Garden gloves
- Wheelbarrow
- Weed buckets
- Hose, sprinkler, watering cans
- Re-usable buckets/baskets for collecting your harvest

STEP 2

Research and Understand the Needs of Your Plants

The specifics of your growing process will depend on your area and on the specific needs of your plants. Search the USDA Plant Hardiness Zone Map (http://planthardiness.ars.usda.gov/) to learn which plants will thrive in your part of the country.

Once you know your zone, take some time to research the different varieties you'll be growing and what each plant needs. To get started, check out Cornell University's Vegetable Growing Guides

(http://www.gardening.cornell.edu/homegardening/sceneb771.html) for information on the different needs of common vegetables. But remember, even different varieties of the same vegetable may have specific needs, so consult your seed catalogs and do online research to discover how best to help your plants succeed. And don't forget to check with your local Extension program for growing tips from master gardeners in your community.

If you find that your plants are struggling, consult these websites for more information on pest and disease management and how you can take proactive steps to help your garden:

- National Sustainable Agriculture Information Service Pest Management https://attra.ncat.org/pest.html
- Oregon State University Extension Plant Disease Control http://pnwhandbooks.org/plantdisease/

STEP 3

Develop Activities and Curriculum

A school garden is suited to support a full range of curriculum subjects and educational experiences, and here are a few ideas to get you started. Remember to connect with teachers to plan appropriate garden activities, and visit the links at the bottom of this page for further ideas and lesson plans that meet state standards.

Throw a Back-to-School Party/Harvest Day. The fall is a bountiful time in the garden, and you can start the school year off by getting the students excited about all the things that can happen in the space that year.

At the height of your fall harvest, run a farm stand for the parents and community. Let the students draw the signs for your stand and work with the invoices to practice their math skills. If working with mixed ages, have the older kids take on a leadership role and supervise younger children as they weigh and bag the produce.

Keep individual or classroom garden journals. Fill with drawings and observations on the growth of plants, weather patterns, day length, recipes, harvest records, and more!

Ten Plants to Grow and Related Activities

Squash: Discuss plant biology of Flowers, Seeds, and Fruit.

Cucumbers and Beets: Make Pickles. Tie into lessons on bacteria or physical phases as you discuss the process of canning in boiling water.

Herbs: Get students exploring their senses through a scent scavenger hunt. Discuss the history of medicinal uses for herbs.

Native Plants: Wherever your location, you can create a native plant garden to teach your students about ecosystems and biomes and create a space to discuss human impact on the natural world.

Three Sisters Garden (Corn, Beans, and Squash): Learn about companion planting, symbiotic relationships, and the history of Native tribes in America.

Basil, Tomato, Onion: Cook pizza sauce! Kids can use math and practice fractions as they follow the recipe for sauce and dough.

Beans and Root Vegetables: Consider planting fast-growing or root crops in a root-viewing box to explore the underground growth of plants. Discuss the many organisms present in the soil, nutrient cycles and the water cycle, and earth's geology.

Carrots: A wonderful treat for first-time gardeners, and can help students to understand the compost cycle. Begin by harvesting early fall carrots, snacking on a few and delivering the tops to the compost pile. Turn the compost and learn about all that's happening inside, and use your ready compost to prepare the carrot bed for a late fall planting!

Seeds: In the spring, involve students in seeding crops to be transplanted. In their journals they can record germination rates, and can measure the growth rates of the young plants over the coming weeks.

Corn: Discuss agricultural history. From Native tribes to family farms to agricultural expansion during the New Deal, corn has been grown in this country for centuries, and the plant has changed with its uses. Bring examples of corn over the years, discuss how each is suited to the needs of the grower.

STEP 4

Recruit Volunteers

Volunteers and community members can bring incredible knowledge and energy to your project. Below are some ideas to help you connect with people who are interested in volunteering and support them in their work.

Remember to recruit, support and recognize volunteers for their hard work.

- Reach out in the school newsletter, through a local volunteering website, or to the local garden club. Have a stand at the farmer's market to describe the work of your garden and the many ways a volunteer can help.
- Hold Community Events in your garden to bring in new faces.
- Offer free classes once a month, or as often as you can. Remember, your volunteers want to teach but they also want to learn.
- Keep a regular blog or send out a weekly newsletter so volunteers and community members know what's happening. Visitors to the garden can sign up for the newsletter to hear about events and opportunities to get involved.
- Remember to thank your volunteers often, and not only after big events. Send a letter or e-mail every once in a while, and throw a volunteer appreciation party at the end of the school year! Have students perform or write to show volunteers just how much their help has meant.
- Invite volunteers to a meeting with the planning committee every once in a while, to share their own hopes and ideas for the garden.

STEP 5

Maintain Safety in the Garden

One of garden coordinator's most important duties is to ensure that the garden a safe space for all. To maintain the safety of your garden and your activities:

- Write visible and clear rules for the garden space (i.e., Wear close-toed shoes when working with tools; Always walk in the garden; Ask before pulling or eating a plant; etc.)
- Keep a well-stocked first aid kit on hand. Develop a plan for Emergency situations, or use the one developed by your school and modify it for your space.
 Where is the nearest phone? School nurse? Hospital? Have the appropriate numbers tacked to the nearest phone.
- Maintain proper tool storage, and be sure you have proper safety equipment eye protection if kids will be using hammers, extra boots for those who come in sandals, etc.
- Perform a soil test to be sure your soil does not contain contaminants. Find more information in the above section [Design Your Garden].
- Try to work with small groups in the garden, and schedule volunteers and teachers to ensure adequate supervision over the various activities in the garden.
- Read this online USDA publication on food safety in the garden: http://nfsmi.org/documentlibraryfiles/PDF/20110822025700.pdf

STEP 6

Keep Thorough Records

Record everything! From the hard data of where, what, and how much you planted to the personal impressions you had about running a particular lesson plan. Things will move very quickly in your garden, and you'll be glad to have records to review later. Records are also important tools to use for funding applications and in presentations to stakeholders. You may want record data about:

- Planting and harvesting
- Volunteer and visitor numbers
- Use and sales of your harvest
- Lesson plan write-ups and evaluations

Visit the Whole Kids Foundation Garden Resource Center at www.wholekidsfoundation.org to download our sample record-keeping forms.

If you prefer to save your records on your computer with a program such as Excel, make sure to back up your files!

HARVEST YOUR STORY!

Spread the Word

Now that your project is up and running, let everyone know! Reaching out to families and community members will help to bring in new faces, and it can offer wonderful opportunities for students to reflect and share their experiences. Here are some ways to share your story:

- Start a blog for your garden, or send out a weekly newsletter with updates, pictures, and events.
- Create a Garden Calendar that describes what's growing and what activities are happening, and post it online or in the school. This way, teachers can see what's going on in the garden and can have the opportunity to schedule their class a time to visit.
- Present quick updates during school staff meetings or at the PTOO meeting.
- Make use of social media like Facebook and Twitter to reach out to supporters near and far.

Reach Out to the Community

Your garden can very easily gain support from local residents and benefit the well being of your larger community if you hold public events and welcome visitors. Students can become tour guides and can share their knowledge with the public, helping them to also feel invested in and supportive of the space. Don't forget to invite local farmers, local government officials, and community partners! Here are some ideas for events that the public might enjoy:

- Host a potluck to bring people together. Encourage conversation by asking families to bring dishes that were passed down by relatives, or are meaningful to them in some way.
- Have an outdoor performance night, where students can perform their writings or songs they've written about the garden.
- Invite a local chef to teach a class on purchasing, preparing, and using fresh vegetables.
- Host an "Insect Walk," looking at beneficial and dangerous insects in the garden. Partner with a local garden club!
- Host a weed walk, explaining the different types of weeds one might encounter and practices for reducing weed count in a garden.
- Host a CSA Farm Share Fair, where local farms can share information on their different CSA options and families can choose one that appeals to them.
- Organize a Community Clean-Up Day. Partner with a local environmental or volunteer organization, and offer your garden as a meeting point and end celebration.
- Organize a Tree Walk start at your garden and move out into the neighborhood, learning about the different types of trees in town.

- Organize a bike tour of other local gardens or farmer's markets, or meet at your garden and take a walk to the farmer's market.
- Host a class on Preserving Foods, Carpentry Basics, or a Fiber Arts Workshop.
 These will require more funding and supervision, but will certainly be popular!

ONLINE RESOURCES

For the most up-to-date list of online resources, visit the Whole Kids Foundation Garden Resource Center at www.wholekidsfoundation.org.

There is a wealth of information online for those working with gardens. Take a moment to check out some of these wonderful websites where you can find more helpful advice, plant information, lesson plans, success stories, and inspiration for your own projects.

American Horticultural Society – Offers financial resources, a national list of youth gardening organizations and curriculum, and a national registry of youth gardens. www.ahs.org/gardening-programs/youth-gardening

California School Garden Network – Offers free activities, information, and research on gardening with youth.

www.csgn.org

Center for Agroecology and Sustainable Food Systems – Publication: Teaching Organic Farming & Gardening Center for Ecoliteracy – Has a variety of resources for school gardeners and those hoping to improve school lunch.

http://casfs.ucsc.edu/education

Cornell Garden Based Learning – Provides activities, how-to instructions, program tools and ways to connect with others.

http://blogs.cornell.edu/garden/

The Edible Schoolyard – Alice Water's youth education program teaches children about food from field to table.

http://edibleschoolyard.org/

The Food Project – Free PDF resources, including manuals, relating to youth agriculture programs.

http://thefoodproject.org/books-manuals

Junior Master Gardeners – The University Cooperative Extension network's international youth gardening program, providing tools to teach gardening to grades 3-5. http://www.jmgkids.us/

Life Lab — California-based nonprofit provides educational workshops and resources on engaging young people in gardens.

http://www.lifelab.org/for-educators/schoolgardens/

Michigan's 4H Children's Garden – One of the best children's gardens in the country, with hundreds of small themed gardens and garden-design ideas. http://4hgarden.cowplex.com/Gardens/

National Farm to School Network – Resource section includes wonderful information on previous case studies and success stories.

http://www.farmtoschool.org/

National Gardening Association – Kids Gardening – NGA's Kids Gardening website includes resources on funding, curriculum, and more! www.kidsgardening.org

School Garden Wizard – Resources and step-by-step templates for teachers interested in starting a school garden.

http://www.schoolgardenwizard.org/

USDA Agriculture in the Classroom – An extensive database of lesson plans under 'Teacher Center."

http://www.agclassroom.org/