Starting a School Garden

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Cooperative Extension

FAMILY AND COMMUNITY HEALTH SCIENCES

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Establishing and maintaining a school garden can provide a valuable, hands-on learning environment that encourages students to apply what they learn in the classroom. Research shows that hands-on activities like gardening can improve academic performance in children while stimulating their desire to learn new concepts. Subjects such as math, science, reading/language arts, health, and social studies can all be presented in a new and exciting way. This integration of subject matter with an applied focus can invoke a myriad of learning opportunities that can help students to better retain, utilize, and apply the information they learn in the classroom.

Getting Started: Planning and Organizing

School gardens can support a variety of purposes: after-school gardening clubs, service projects, or as an activity integrated into the classroom curriculum. It is very important to define how the garden will be used to maximize learning opportunities for students, make care manageable for school staff, and assure that the garden meets the needs of the school community.

The first step towards building a school garden is to determine if there is interest and support among colleagues and administrators. If colleagues and administrators are hesitant to get involved, it may be very difficult to maintain the project. It is therefore important to garner support from the principal, fellow teachers, maintenance/custodial staff, parents/families, and the school board of education. Getting colleagues and administration involved early can create a sense of school-wide ownership in the project and help to bring people with different perspectives and skills to the table. The establishment of a diverse stakeholder planning and implementation team will strengthen the gardening project. Once there is support for the garden, the next step is to obtain written permission from the school administrative authorities to begin planning and construction.



Once support is confirmed, develop a garden plan. Use the sample checklist on the following page as a guide.

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School Garden Planning Checklist	
Task	**Details**
Establish a garden team	• Work together to outline a basic garden plan and include student representatives. • Define each team member's role in the garden and develop a garden work schedule during the school year and summer.
Select crops	• Fruits • Vegetables • Annuals vs. Perennials • Organic vs. Non-organic
Decide what to do with harvested crops	• Serve in Cafeteria • Classroom Taste-testings • Donate to Community Groups • Sell as a Fundraiser • Give to Families
Establish Volunteer Network	• FCHS Wellness Champions • RCE Master Gardeners • FoodCorps • Scouts • Garden Clubs • Senior Citizen Groups • Volunteerspot.com
Labor, Chores	• Planting • Watering • Weeding
Set up a communications plan to keep staff, families, supporters & funders informed	• Email • Listserv • Newsletter (print/electronic) • Blog • Website • Social marketing
Coordinate educational initiatives	• Classrooms • Student Groups • Cafeteria • After-School Clubs
Evaluation & Sustainability	• What worked or didn't work? • How will we sustain our garden and help it thrive?

Collaboration

It is important to involve everyone who shows an interest in the garden – including those who have a strong gardening background and those with little experience. A school garden is an opportunity to create a team project. Everyone has something to bring to the table. Invite key people to join the team: parents, teachers, administrators, school nurses, school food service, PTA/PTO or other parent group, and maintenance/facilities departments. Include student representatives on the team too. Ask for volunteers or include representatives from student government, Gifted and Talented program, and service or garden club programs to get involved in the planning process to build a large student presence interested in the project. Community partners should join the team, too. Landscapers, local farmers, registered dietitians, gardeners, garden clubs, and youth groups can offer support. Reach out to your local county Cooperative Extension office for assistance as well. Cooperative Extension professionals have numerous resources available, including the Master Gardener Program, Grow Healthy school gardening/wellness project, FCHS Wellness Champions, and many informational documents about gardening and food.



Location

Choosing a location for the garden is key. The right location will ensure that plants grow and the garden becomes an integral component of cross-curricular programming. Rutgers Master Gardeners can assist with identifying an ideal location for the garden. The following is a list of criteria to consider when selecting a location:

- **Sunlight**: Choose a location that receives a minimum of 6 hours of direct sunlight each day. Locations with 8–10 hours of direct sunlight each day are ideal for most vegetables that produce fruit, such as tomatoes, peppers, eggplant, cucumbers, beans, and peas. Root crops and leafy vegetables such as lettuce, spinach, kale, and collards can perform well with less sunlight.
- **Water:** The location should have a clean water source nearby with faucet and hose hook-up to make watering convenient and easy.

- **Soil Quality:** Plants prefer well-drained soil. Avoid selecting a garden location where drainage and compaction are problems because water won't collect and will form large puddles after heavy rainfall. Select areas where the soil is free of any potential contaminants.
- **Proximity to Classrooms:** Placing the garden near the school/classrooms will ensure more teacher involvement than if the site is a longer distance across the school building. A garden close to the classroom makes it more convenient, visible, and easier to incorporate into the curriculum on a regular basis. More weeds will get pulled, more vegetables harvested, and plants will be watered more often if students, families, and staff can see them. Student management will be easier, too.
- **Security:** Locate the garden within sight of classrooms and neighbors. Fences and natural borders of plants, if they don't obstruct visibility and hide intruders, provide security. Make use of existing fences, trees, and hedges in selecting the site, but be prepared to add fencing if necessary. The size of the fence depends on the size of the animals in the area. A three-foot fence will keep out smaller animals such as rabbits. Use a tightly woven (½-inch or less openings) fence that is rust-resistant and does not allow easy access for animals. Plastic-coated metal fences are a good option. Fences should be buried at least one foot deep to prevent groundhogs from burrowing into the garden. Gardens need a taller fence to keep out larger animals like deer.
- **Visibility:** Gardens always add beauty to school grounds. The most successful school gardens integrate their garden with the existing landscape, but don't hide it. "Out of sight, out of mind" can apply to gardens that aren't in a central, visible location. The more visible the garden – to teachers, students, parents, and the community – the more it is used and supported.
- **Design:** Determining the design of the garden is a vital step that should be fully realized before manual work begins. Some things are possible from the start, while other components of the garden will take years. It is best to start smaller, with an opportunity to expand when the time is right.

A gathering area for teaching that can accommodate classes is a useful feature to consider. This can involve potting tables and formal benches or informal seating like tree stumps and bales of hay. Having an area like this will give the garden the feel of an outdoor classroom, which will help students be more attentive in an outdoor environment. Also, include room for pathways that are wide enough to navigate through (about 3–5 feet wide).

Soil Testing

In New Jersey, any school that produces food for children to taste/eat must test the soil prior to planting. The basic soil test provides information on nutrient levels of macronutrients such as phosphorous, potassium, calcium, and magnesium, and micronutrients such as boron, manganese, copper, iron, and zinc. Testing of more harmful elements like lead and mercury usually requires a separate test. Soil tests also measure pH level (acidity or alkalinity) of the soil.

Which Type of Garden Should We Plant?

Should the garden design include in-ground planting, raised beds, or containers? It depends on the space available, the time allotted for planting, and the amount of resources available. Below is a list of advantages and disadvantages for each.

In-Ground Planting

Advantages
- Quick way to get the garden started
- Requires fewer resources
- Gets students engaged

Disadvantages
- More weeds to manage
- Higher chance of trampling
- More soil preparation

Raised Beds

Advantages
- Makes the garden look neater
- Prevents kids from walking over the plants
- Aids in weed control
- Can help to reduce soil-borne disease problems

Disadvantages
- Need wood or other materials to construct
- Increased Costs
- Requires more work initially

Container Gardening

Advantages
- Don't need a garden site
- Can be moved around easily when light mixes are used
- Allows gardening when little space is available
- Can control soil moisture and soil-borne diseases more effectively

Disadvantages
- Limits what can be grown
- Strictly dependent on the people caring for them
- Requires more management of water and nutrients

A pH of 6.4 to 6.8 is recommended for garden soil. In New Jersey, Rutgers NJAES Cooperative Extension's Soil Testing Lab can do standard nutrient analysis and lead testing if needed. Go to njaes.rutgers.edu/soiltestinglab for more information, or contact your local Rutgers Cooperative Extension office for assistance. (To find your local office, visit njaes.rutgers.edu/county.)

Seeds, Tools, and Supplies

Quality seeds are important for a successful garden. These should be purchased new each year. Seeds must be kept in a cool and dry place for optimal quality. Starting seeds indoors is a great winter activity for kids. It shows them the germination process. Seeds can be started in many types of containers including recyclable materials such as cardboard milk cartons cut in half, aluminum pans, and plastic clam shell containers.

A well-stocked garden is a well-tended garden. Some of the essentials schools need to help kids and adults as they work in the garden include a tapered or pointed tip shovel, hose, sprinkler/watering cans, spade, metal garden rakes, trowels, hoe, pitch fork, wheelbarrow, and plastic bins. Other supplies that may be helpful include mulch, row covers or plastic to protect plants from pests or cold damage, support stakes or cages for tomatoes or other large plants, organic or conventional fertilizers, and garden curricula and reference books.



Preparing the Garden

Before planting, till the ground with a shovel or rototiller to loosen the soil. The best time to till the soil is in the fall. After tilling, rake out the stones and clumps of grass (new sites can be composted), level the garden area, and fertilize.

Planting the Garden

Once the ground has been tilled and the garden has been designed, it is time to plant. Choose plants based on interest, demand, culinary needs at the school, and seasonality (when students and community members are available to harvest what grows). Plan for spring and fall harvests when students are in school. Select summer crops (like Jersey tomatoes and peppers) only when a summer school session, community members or volunteers commit to harvest and tend the garden when school isn't in session.

For a spring harvest, choose cool-season vegetables such as leafy greens (kale, lettuce, and spinach), broccoli, radishes, and peas. Consider perennial crops, too. Strawberries and asparagus, once established, will provide years of great produce. A fall harvest might include vegetables planted in early spring such as onions, sweet potatoes/yams, and potatoes, late spring/early summer crops such as tomatoes, eggplant, squash, and pumpkins, and a second planting of leafy vegetables. Planting time will vary by state, region, or climatic zone. Finding your state seasonality chart can help you in this process. For New Jersey, use the NJ Farm to School Network's seasonality chart at njfarmtoschool.org/foodservice/current-seasonality.

Funding Ideas

Every garden project needs a good funding plan. Gardens don't have to be expensive to start and maintain – but they do cost money. And, if a school wants to create an educational edible garden that integrates into the classroom, a funding source is important. There are many options for funding. The key is to be creative and stand true to the mission of your project.

Fundraising

- School Garden Event: Start an annual event such as a Fun Run, Spaghetti Dinner, or Dance-a-thon where all proceeds go into the garden for supplies.
- Garden-Themed Sales: Sponsor a sale, where all proceeds go to the garden fund.
  - Sell seedlings so families can start their own gardens.
  - Sell small potted plants for gifts (Mother's Day, Father's Day, Easter, etc.).
  - Build on the healthy eating theme. Sell smoothies made with fresh fruits and vegetables at lunch, after school, or at school or community events.
- Sponsorships: Hold a fundraiser that allows families and local businesses to show their support for the garden. Build a brick path through the garden, and invite families, businesses, school staff, and community groups to purchase a brick with their name on it.
- PTA/PTO Fundraisers: Speak with your school's parent organization about collaborations and sponsorships.

Grants

- Whole Kids Foundation: wholekidsfoundation.org
- National Gardening Association: garden.org
- Kids Gardening: grants.kidsgardening.org
- Annie's Homegrown Grants: annies.com/giving-back/school-gardens/grants-for-gardens
- Garden ABCs: gardenabcs.com/Grants.html
- New Jersey Agricultural Society: njagsociety.org/garden-grants.html
- SPARK PE: sparkpe.org/grants/grantfunding-resources

Donations

Set up a donation system that school staff, families, local businesses, and community organizations can use to support the garden.

- Ask for donations from local suppliers/landscapers for things like garden tools, wood, soil, seeds, etc.

- Speak to gardening clubs and agriculture organizations about plant donations
- Use web sites like Donors Choose (donorschoose.org) to publicize and organize a donation campaign.

The list of benefits that result from the school garden continues to grow – as does the popularity of the school garden as an experiential learning tool that teachers can use and adopt across the curriculum to support academic achievement, social and behavioral development, healthy eating, and environmental awareness and appreciation. School gardens provide the opportunity for students, teachers, and community members to work together to support education, wellness, and healthy eating. In New Jersey, Rutgers NJAES Cooperative Extension's Master Gardeners and Family and Community Health Sciences Department (FCHS) work with school teachers and administrators, community groups, and children alike to make gardening and healthy nutritional education an integral component of the school. Visit growhealthy.rutgers.edu for more information.

Resources

- Rutgers Cooperative Extension: njaes.rutgers.edu/extension.
- Grow Healthy: FCHS School Wellness Initiative: growhealthy.rutgers.edu.
- FoodCorps: foodcorps.org.
- National Farm To School Network: farmtoschool.org.
- New Jersey Farm To School Network: njfarmtoschool.org.
- USDA Farm To School: fns.usda.gov/farmtoschool/farm-school.
- Bergsund, M. 2008. 5 Steps to Starting a Garden: myhealthyschool.com/gardens/starting.php.
- Bremner, E. Pusey,J. 1999. Children's Gardens: A Field Guide for Teachers, Parents, and Volunteers. Oakland, CA: University of California Cooperative Extension.
- Bucklin-Sparer, A. Pringle R. K. 2010. How to Grow a School Garden: A Complete Guide for Parents and Teachers. Portland, OR: Timber Press.
- Let's Move School Garden checklist: letsmove.gov/school-garden-checklist
- Meinen, A. 2009. Got Dirt?: A Garden Toolkit for Implementing Youth Gardens. Madison, WI: Wisconsin Department of Health Service.
- *Dig In! Standards-Based Nutrition Education from the Ground Up*: fns.usda.gov/tn/dig-standards-based-nutrition-education-ground.
- *Grow It, Try It, Like It!* Preschool Fun with Fruits & Vegetables: fns.usda.gov/tn/grow-it-try-it-it.
- *The Great Garden Detective Adventure: A Standards-Based Gardening Nutrition Curriculum for Grades 3 and 4*: fns.usda.gov/tn/great-garden-detective.



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NEW JERSEY DEPARTMENT OF AGRICULTURE

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New Jersey Planting Schedule

Cool Season Crops	Warm Season Crops
Arugula: For spring, plant early April and for fall plant early September.	Beans: Plant directly from seed beginning of June.
Asparagus: Plant asparagus crowns beginning of April. Note: will take 2 3 years to produce asparagus.	Cantaloupe: Plant directly from seed mid May.
Beets: For spring, plant mid April and for fall plant early September.	Corn: Plant directly from seed mid May.
Broccoli: For spring, plant early April and for fall plant mid August.	Cucumber: Plant directly from seed after last frost, usually mid May.
Brussel Sprouts: Start indoors 6 8 weeks before planting. For Spring plant mid April and for fall plant early September.	Eggplant: Start indoors 8 12 weeks before planting outdoors. Plant outside after last frost, usually mid May.
Cabbage: Start indoors 4 6 weeks before planting outside. For spring, Plant mid April and for fall early September.	Pepper: Start indoors 6 8 weeks before planting outdoors. Plant outside after last frost, usually mid May.
Carrots: For spring, plant mid April and for fall plant early September.	Pumpkin: Plant directly from seed late June.
Cauliflower: Start indoors 3 4 weeks before planting outside. For spring, plant outside mid April and for fall plant mid August.	Summer Squash: Start indoors 3 4 weeks before planting outdoors. Plant outside after last frost, usually mid May.
Collard greens: For spring, plant early April and for fall plant late August.	Sweet Potato: Plant sweet potato slips late May.
Kale: Start indoors 6 8 weeks before planting or plant directly in ground. For spring, plant beginning of April and for fall plant beginning of September.	Swiss chard: Start indoors 4 6 weeks before planting outdoors or plant from seed. Plant outside beginning of May.
Lettuce: Start indoors 3 4 weeks before planting date. For spring, plant early April and for fall plant early September.	Tomato: Start indoors 6 8 weeks before planting outdoors. Plant outside after last frost, usually mid May.
Onion: Start indoors 4 6 weeks before planting date. Plant outside mid April.	Watermelon: Plant directly from seeds beginning of June.
Peas: For Spring, plant mid March and for fall plant early September.	Winter Squash: Plant directly from seed after last frost, usually mid May.
Potato: Plant outside beginning of May.	Zucchini: Start indoors 3 4 weeks before planting outdoors. Plant outside after last frost, usually mid May.
Radish: For spring, plant mid March. Can continue planting all season.	
Spinach: For Spring, plant early March and for fall plant early September.	
Turnip: For spring, plant mid April and for fall plant early September.	

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