





Jackson County Health Department

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Starting a School Garden: A Toolkit for Success

Developed by Sydney Klein

Klein Public Health

About Your ToolKít

This toolkit was developed by Sydney Klein, an intern at the Jackson County Health Department, in the Spring of 2013. This should serve as a broad introduction to creating a school garden, serving garden produce in your cafeteria, and incorporating the garden into your classrooms.

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Benefits of School Gardens

School Gardens, if properly utilized, can serve as a learning space for hands on interaction and skill building, as well as health improvement of students. School Gardens are becoming more and more frequent as communities become more concerned with the health of their families. Research shows that school gardens can serve as a tool to get children eating more fresh fruits and vegetables! Children will be excited to try the fresh produce they had a hand in growing, opening the door for increased wellness within the school.

School gardens can also serve as interdisciplinary teaching tools. From measuring and graphing the growth of plants, learning about ancient gardening techniques and unique heirloom varieties, to painting a ladybug ridding a plant of aphids, there is really no subject that goes untouched. As children interact and learn in this environment, they will gain an appreciation for healthy foods, which will lead to better health overall.

Along with dietary health, gardens can benefit social, mental, and physical health as well. These spaces can serve as places for physical activity as well as stress relief and social skill building. Much research has shown that gardens can lead to strong emotional well-being and give the gardener a bond to the world around them. The benefits could go on and on!

This toolkit serves as a guide to help the non-gardeners learn to garden, and give their school the gift of a wonderful learning tool!



Non-Garden Gardening Basics

There are many aspects to running a school garden that do not involve actual gardening. These tasks can often seem daunting or overwhelming, but can really be done with the support of a few key people.

Before starting your garden, establish a garden committee. It is important to be sure there is strong interest in the project, to ensure longevity and success. Support and Volunteers are the number one necessity of a successful garden project. Once a committee is formed and the garden location and size is planned, the next step is to allocate funds and resources.

Fundraising and grant writing are two key way to acquire needed resources for your garden. There are many grants available for starting school gardens that range from free seeds to funding for an entire project. This portion of the toolkit will cover creating a committee, key roles of those within the school community, finding support in the school and outside community, as well as funding.

Community Support:

Forming a Gardening Committee:

A gardening committee should include administration, teachers, parents, and students in the planning process. Cafeteria staff can also be a great addition to a gardening committee. If the mission of the garden is to provide food for the cafeteria, the kitchen manager must have a role in the garden planning. Within the committee try to find specific talents or areas of expertise among the members as well as any access they may have to community support. Some examples would be members with access to a greenhouse or with strong gardening experience. Other members may be able to use their place of work as a fundraising tool etc.

What do Commíttees Do?

At the first few meetings the committee may meet to simply get permission to establish the garden or to decide on a location and size. After these key steps are finished gardening committees should list specific goals members hope to achieve within the garden and individuals should be assigned to each task. At the beginning the committee will have some key things to do: establish a source of funding, define the mission of the garden, create a project list a time-line for completion of specific projects, and recruit members. Committees may also decide to visit successful school gardens to get ideas for their own garden. Committees are meant to keep the garden running smoothly by working together in the planning, implementing, and managing of the garden.



School Garden Checklist: Fall

AUGUST

- □ Organize committee
- □ Recruit members
- Identify available resources (members
- with greenhouses, gardening
- experience, tools, etc. Resources may
- also be available at the local health
- department, hospital, or other
- community organizations)
- \Box Establish mission statement
- Discuss funding options
- □ Discuss tentative management
- responsibilities
- \Box Create time-frame for garden bed
- completion and first planting

Finalize garden plan (size, location, design)

- Financial planning (decide materials needed for: bed construction, soil amendments, seeds, tools, etc.)
- □ Establish fundraising plan (List of
- items needed, date for donation
- acceptance. Depending on plan, make
- flyers to send home with students or
- assign members to apply for various grants)
- □ Choose date for garden construction
- Acquire schedule of garden days from teachers
- \Box Set date for fall planting
- Order any needed seeds, materials, tools
- 🗆 Start fundraising
- \Box Create list of volunteers for bed
- construction day, or those who may be
- able to provide refreshments etc.
- Discuss t-shirt and acquire order forms

- □ Create plan for produce distribution/use
- Construct Garden Beds
- □ Fall planting (Late August)

SEPTEMBER

- \Box Order t-shirts
- \Box Continue fundraising
- \Box Create list of items still needed (if any)
- $\Box\,$ Rework classroom use schedule as needed.
- □ Designate members to run planting, harvesting, and maintenance tasks.

OCTOBER

- □ Continue fundraising
- Discuss fall harvest festival
- \Box Discuss any needed planting days, etc.
- □ Decide if you want to overwinter any crops for early spring harvest
- □ Tentative winter management schedule
- □ Keep an eye out for spring grants

NOVEMBER:

- □ Finalize any plans for over-wintering crops
- $\hfill\square$ Order seeds and/or materials as needed
- Discuss successes/obstacles of the first growing season and discuss solutions or methods of improving for the following year.
- \Box Wrap up fall harvesting

DECEMBER:

- □ Finalize winter management
- \Box Wrap up fundraising
- Draft plan for following Spring Growing Season (when to start seeds, what materials needed, is additional fundraising needed, etc.)
- \Box Close garden for winter break

School Garden Checklist: Spring

JANUARY

- \Box Recruit new members
- Create spring growing plan
- □ Create spring budget
- 🗆 Plan fundraising
- □ Maintain garden (if overwintering
- crops)

FEBRUARY

- Begin fundraising for spring (items
- needed, etc.)
- Finalize spring plan
- □ Acquire garden use schedule from
- teachers
- □ Order seeds
- □ Start seeds indoor for spring planting
- of cole crops (Asian greens, collard
- greens, broccoli, cabbage, etc.)

MARCH

- 🗖 Discuss status of funds, items still
- needed, other resources available.
- □ Order any other seeds as needed
- 🗆 Plan spring planting day
- Begin to get students excited about
- garden (Stories about gardens, start
- seeds indoors, etc.)
- 🗆 Continue fundraising
- Plant by end of March for spring garden

APRIL

- 🛛 Create summer garden plan
- Discuss summer management
- Start summer seeds (depending on plan)
- Acquire parental permission slips for
- children's involvement in garden.
- \Box Discuss planting day for summer crops

MAY

- \Box Finalize summer maintenance plan
- \Box Plant for summer
- $\hfill\square$ Create tentative plan for fall crops
- □ Discuss possible end of year celebration
- □ Discuss management for following school year (members leaving?)
- □ Create checklist for summer maintenance (watering, weeding, etc.)
- Decide how to distribute produce over summer months
- $\Box\,$ Wrap up fundraising for school year

JUNE

- \Box May not meet in June
- Discuss maintenance, harvesting, distribution, any problems occurring, etc.
- Watering, weeding, and other maintenance should be maintained by garden managers.

JULY

- □ Begin planning for new school year
- □ Discuss what seeds, materials, and tools will be needed for the fall.
- □ Discuss fundraising and/or grants available for new school year.
- □ Create tentative fall plan
- Discuss any problems encountered during summer and how they can be mitigated the following year.
- □ Start seeds for fall planting of cole crops

Community Support...

Faculty and Administration Support:

Getting teachers and administration involved ensures the garden will be used as a learning space. It is important to gauge this support from the start of the garden. Teachers should be encouraged to suggest lesson plans for the garden that can give their class a weekly time-slot at the garden. Administration support is key for garden implementation. Oftentimes at a public school, principals will have to get permission from the Superintendent before a garden can be put into place. This, however, is usually easy to achieve if in depth planning is already established.

Teachers Role in the Gardening Committee:

Teachers should define the purpose the garden will serve for their classroom. All teachers should be encouraged to utilize the garden as a teaching aid. Gardens allow students with kinesthetic learning tendencies to grasp curriculum. For some, the garden can be used for natural science, for others it can be used for social studies, math, art, reading, etc. Some teachers may even use the garden as a multidisciplinary tool. When starting the garden, teachers should establish these goals and look through their lesson plans to see when and what types of garden lessons are needed. There are many resources for including gardening into lesson plans. Faculty should also work together to set up a schedule of times when each classroom will be using the garden, and how the bed space should be allocated.



Community Support...

Parent Support:

Parents are amazing resources to utilize for school gardens! Often parents will have links to outside community resources such as: greenhouses that can be utilized for seed starting, work places that can serve as fundraising resources, or personal experience with gardening. Parents can also assist with grant writing and garden management throughout the growing season.

Parents' Role in the Gardening Committee:

At the start of the garden parents should establish a list of tasks that they hope to accomplish at the garden. Assigning tasks evenly will aid in getting everything up and running properly. Be sure to utilize their skills and areas of expertise. Parents can head-up planning tours of successful school gardens, fundraising, grant writing, and garden management. Creating and sending home a survey for student's caregivers can shed light on how many parents are interested in helping out at the garden, as well as any questions or concerns they may have about their child's experience with the garden.



Community Support...

Kítchen Staff Support:

If the garden is intended to provide produce for the cafeteria, a kitchen manager should be a part of a gardening committee as well. Kitchen managers are familiar with the way the cafeteria system runs, and will be instrumental in the successful integration of the garden.. Often it may seem daunting to initiate change in a well established system, but there are many ways to avoid this shock. Kitchen staff should provide a list of

questions and concerns regarding the project. Staff should also provide a list of produce that will be most useful for inclusion in school meals. Including the staff in the planning process is a great way to keep garden produce from going to waste. More information on implementing the gardens into cafeterias is found in Part Three: Gardens in the Cafeteria.

Other School Staff:

Pulling from all the resources your school has to offer can never fail. Are any of the staff master gardeners or have a lot of gardening experience? Would these members of the staff be interested in working with the garden? Leave no stone unturned, the more people involved the more easily the garden will be integrated into the school.

Broader Community Support:

Often times your local health department, hospital, or other community agencies and organizations can help with the initiation of a school garden. These agencies have resources available to acquire funding and support for school garden initiatives.

Fundraising:

Fundraising is a great way to allocate resources for the garden. Fundraising can include asking for certain materials or even gift cards for the local garden store. Create a list of items needed and send it home with students. Often there will be very inexpensive items such as seeds that can be easily provided. For more expensive items garden gift cards are ideal, but there are also methods for allocating funds other than asking parents who may be financially strained.

Once the garden is established produce stands at school pick-up can be one way to raise some funds for the garden, while providing fresh produce to families. There is also a plethora of grants out there for school gardens and it really doesn't take much to get a garden up and running. Grants can range from small to large and will have various deadlines. It may be handy to have a binder with grants organized by submission due date.

Sponsors:

Often there are local businesses who would be willing to provide some sort of aid for school gardens. There are local businesses that will be willing to sponsor garden t-shirts or allow fundraising collection at their place of business. Many parents will also work at companies willing to provide support for the gardening initiative.



Grants:

Grant Writing can be a time consuming task, but its benefits are well worth the work. There are many grants available specifically for funding school gardens. There are also more broad grants for various educational programs, for environmental and green initiatives, or for creative school projects, etc. Often spending a few days to compile a list of potential grants and organizing them is a great start. Organize grants by due date and then go through and star the most relevant or desirable grants. After writing a few grants, the process is not as intimidating, and you may not need to do it every year. Often the initial start up of the garden will be the costliest part of the project, and this may be the only time you will need to apply to large grants.

Tips for Grant Writing:

Good grant proposals will have a few key characteristics:

- 1. Have a strong cover letter. The cover letter is sometimes the only
- thing a grant reviewer will look at. Keep it informative, interesting, and to the point.
- 2. Clearly state your goals and objectives for your gardening project.
- Use powerful language such as increase, improve, reduce, etc.
- 3. Proof-read well! Grammatical mistakes are a quick way for
- reviewers to lose interest.
- 4. Show that there is a clear plan in place for the project. This can
- involve having preliminary costs calculated, the potential location
- chosen, a list of interested committee members, etc.
- 5. Don't get discouraged! If you do not receive one grant, remember
- that there may be 1000's of people applying for the same funds.
- Keep your head up and keep applying. There are so many grants
- available for school gardens now, it is impossible to not find one that suits your garden.

Some Grants Avaílable:

2013 Youth Garden Grant

For six years, The Home Depot Garden Club has provided over \$400,000 in support to youth garden programs across the country through the Youth Garden Grant. One hundred outstanding applicants will receive gift cards to the Home Depot along with NGA curriculum. Five winners will receive a \$1,000 award that includes a \$500 gift certificate to the Home Depot, a \$500 gift certificate to the Gardening with Kids catalog, and an NGA curriculum package. All non-profit youth garden programs are eligible to apply.

American Honda Foundation

Funding for youth education, specifically in the areas of science, technology, engineering, mathematics, the environment, job training and literacy.

America the Beautiful Operation Green Plant

This program helps grow food for the hungry and beautify roadways, parks, and neighborhoods in 20,000 communities across the country. The program is now inviting applicants to request

vegetable seeds, flower seeds, and/or herb seeds to help beautify their own communities. To apply,

applicants must write a short letter describing their project and fill out the application form.

Annie's Grants for Gardens

We offer a limited number of small grants to community gardens, school gardens and other educational programs that connect children directly to real food. These funds can be used to buy gardening tools, seeds or other needed supplies. If you would like to apply, please read our complete guidelines and fill out an online application.

Best Buy Community Grants

Best Buy teams across the U.S. select non-profit organizations that provide positive experiences to help teens to excel in school and develop life and leadership skills. Non-profits located within 50 miles of a Best Buy store or Regional Distribution Center may apply. Grants will average \$4,000-\$6,000 and will not exceed \$10,000.

Bing's Our School Needs Contest

Bing, the search engine from Microsoft, is having a contest and wants to know what your school needs. The contest is a fun, interactive campaign designed to encourage students, teachers and administrators to come together for a united cause: improving schools. Bing will award a \$250,000, divided among four schools - \$50,000 to three first prize winners and one \$100,000 grand prize winner.

<u>Brita Filter For Good Eco Challenge</u>

Enter to win one of fifty **\$1,000 grants** to make your school more sustainable. From kindergarten to college, students, teachers and schools are discovering new ways to make our planet more sustainable. From turning the energy created from a simple workout into electricity to power a campus building or creating a campus guide to finding organic and local foods, opportunities to create a greener school and community are limitless.

<u>Burpee 'I Can Grow' Youth Garden Award</u>

Schools, youth groups, community centers, public garden organizations, and others interested in supporting urban youth garden installations in the U.S. are eligible to apply for a 2012 'I Can Grow' Youth Garden Award from Burpee Home Gardens.

<u>Cabot Creamery Healthy Living Grants</u>

Cabot will provide matching funds of up to \$200 for any qualifying program. Cabot created the matching grant process to encourage schools to reach out to their own local businesses, cooperatives, parent clubs and others. Doing this supports sustainability for the initiative, provides awareness about a school's new healthy living idea and encourages participation by community members.

Captain Planet Foundation

The Captain Planet Foundation (CPF) annually funds projects involving children and young adults. Recipients of these awards are often schools and non-profits that propose projects promoting understanding of environmental issues. These projects must include children and young adults (aged 6-18) and focus on hands-on involvement, interaction and cooperation within the group, development of planning and problem solving skills, and adult supervision. Generally, the monetary sum of awarded grants is between \$250-2,500.

Chefs Move to Schools

The American Culinary Federation (ACF) along with the School Nutrition Association (SNA) are leading a new coalition of top culinary, nutrition and school organizations to oversee the Chefs Move to Schools program. The program pairs chefs with interested schools in their communities to work with teachers, parents and school nutrition professionals to help educate kids about food and nutrition. The goal of the program is to promote chefs as the catalyst for creating a new nation of child food advocates and start turning the tide on unhealthy eating behaviors.

<u>Community Food Projects Competitive Grants Program (CFP)</u>

USDA Cooperative State Research, Education and Extension Service (CSREES)

Communities Take Root

The Fruit Tree Planting Foundation (FTPF) is an award-winning international nonprofit charity dedicated to planting fruitful trees and plants to alleviate world hunger, combat global warming, strengthen communities, and improve the surrounding air, soil, and water. FTPF and Dreyer's Fruit Bars are planting orchards across the country in a collaborative program called Communities Take Root (CTR). Through this exciting program, communities compete in a nation-wide vote to win a complete community orchard. Applications are now open for 2012. The first 100 qualified applicants will be in the running to win a free orchard, including orchard design, arborist expertise, and a fun community planting event. Orchard recipients also receive a free community workshop on planting, pruning and caring for fruit trees.

CVS Caremark Community Grants

The CVS Caremark Community Grants program awards funds to nonprofit organizations for programs targeting children with disabilities; programs focusing on health and rehabilitation services; and public schools promoting a greater level of inclusion in student activities and extracurricular programs, and initiatives that give greater access to physical movement and play. Qualifying organizations are eligible for grants of up to \$5,000.

Disney's Planet Challenge

Teachers who submit a hands-on project request for up to \$500 in materials focused on benefiting the environment (water conservation and watershed protection, recycling, composting, restoring/ creating community gardens, etc.) are eligible to receive full funding if they complete three steps of registration on the Disney Planet Challenge website.

Donald Samull Classroom Herb Garden Grant

The Herb Society of America will select 4 classrooms to receive a \$200 Donald Samull Classroom Grant to establish an outdoor herb garden. The funds may be used for soil, plant trays, containers, youth-sized tools, and more. Eligible recipients include teachers of grades 3-6 who have at least 15 students in their class.

Earth Savers Club Grants

Youth-led school, community, and faith-based groups with an environmental focus can sign up to become a partner of Greening Forward's Earth Savers Club Program. (It is free to become a partner.) Partners are granted access to a number of resources, including mini grants (\$100-500), social activism training, mentorships, and the Earth Saver Award.

EPA Environmental Education Grants

The U.S. Environmental Protection Agency (EPA) is accepting grant applications for \$1.9 million in funding for environmental education projects and programs that promote environmental stewardship and help develop knowledgeable and responsible students, teachers and citizens. EPA

expects to award at least 20 grants nationwide ranging between \$15,000 and \$100,000.

<u>Fiskars Project Orange Thumb</u>

We'll choose 11 recipients from this year's applicants — 10 will receive \$5,000 in cash and tools to help support their goals of neighborhood beautification and horticulture education, and one lucky applicant will receive a complete garden makeover! Apply now and help sow the seeds of community change!

Fruit Tree 101

The Fruit Tree Planting Foundation and Stretch Island Fruit Co. are giving fruit trees to K-12 parents who submit their children's school.

Fuel Up to Play 60

Funding is available to K-12 schools enrolled in Fuel Up to Play 60. The competitive, nationwide funding program can help your school jumpstart and sustain healthy nutrition and physical activity improvements.

Gardener's Supply Garden Crusader Awards

Winners (no age limit) in the areas of garden education, feeding the hungry, urban renewal and restoration receive cash and supplies.

<u>Giving Through Growing in Community Gardens- 2012 Woodbridge by Robert</u> Mondavi/ACGA Grant program

To support sustainable community gardening efforts, Woodbridge by Robert Mondavi will assist American Community Gardening Association in recognizing established or developing community gardens with grants of up to \$1,000. You or your organization must be a member of ACGA to apply for this award.

Green Prize in Public Education

• The National Environmental Education Foundation, with major support from the NEA

Foundation and in partnership with EarthEcho International, will award \$10,000 to a K-12 public school that has most successfully implemented an innovative, sustainable and replicable school-wide greening effort that has involved and benefitted its students. Two merit awards of \$5,000 each will also be given to schools that demonstrate this kind of success.

Green Thumb Challenge

Green Education Foundation and Gardener's Supply Company are calling on schools and youth groups to submit chronicles of their garden projects in a race to win a \$5,000 prize. The award is designed to support the continued sustainability of an exceptional youth garden program that has demonstrated success, and has impacted the lives of kids and their community.

Green Your School Challenge

Do Something and HP are giving a banner and \$5,000 prizes to K-12 schools that reduce their carbon footprint. In addition, \$1,000 prizes will be awarded to the 5 schools with the most participants signed up. Those who sign up and refer 5 friends will also have the chance to win a \$500 scholarship. Eligible schools must make concrete efforts to reduce their environmental impact during an 8-week competition. Winners will be chosen based on their school's energy saved, garbage reduced, number of people involved, and innovative quality of actions and ideas.

Golden Carrot Awards

The Physicians Committee for Responsible Medicine is seeking nominations for its Golden Carrot Awards for outstanding school food service professionals who have developed and implemented a healthful and successful school lunch program. The grand prize winner will receive \$1,500 and a \$3,500 check made out to her or his school or school district. Up to four additional awards will be given, with \$500 going to the food service professional and \$500 to benefit the school food service program.

Subaru Healthy Sprouts Grant Award

The Subaru Healthy Sprouts Award recognizes and supports youth gardening programs focused on teaching about nutrition, the environment and hunger issues. Through the program, students gain skills to maintain a healthy lifestyle compatible with environmental stewardship and a greater understanding of how their actions can positively impact their community.

Herb Society of America Grant for Educators

The Grant for Educators challenges individuals, groups or small businesses to develop and deliver learning experiences to the public. The grant recognizes innovative projects that enhance herbal education in school systems, in communities, or in any public forum (electronic or person-toperson). It requires learning goals and a mechanism to measure the educational outcomes.

Home Depot Community Impact Grants Program

The Home Depot Community Impact Grants Program provides support to nonprofit organizations, public schools, and public service agencies in the U.S. that are using the power of volunteers to improve the physical health of their communities. Proposals for the following community improvement activities will be considered: repairs, refurbishments, and modifications to low-income and/or transitional housing or community facilities (schools, community centers, senior centers, etc.); weatherizing or increasing energy efficiency of low-income and/or transitional housing or community facilities; planting trees or community gardens and/or landscaping community facilities; and development of community parks or green spaces. Grants of up to \$5,000 are made in the form of The Home Depot gift cards for the purchase of tools, materials, or services.

Illinois DNR Biodiversity Field Trip Grants

• Grants to take your students on a field trip to study some aspect of Illinois' natural or cultural biodiversity.

Illinois DNR Wildlife Habitat Action Grants

Involve your students in hands-on natural resources stewardship

Jamba Juice <u>It's All About the Fruits and Veggies!</u>

Jamba Juice and the National Gardening Association are pleased to offer the It's All About the Fruits and Veggies grant program to provide schools with \$500 in gardening supplies, curriculum,

soil amendments and plants to help create engaging nutrition and gardening experiences.

Observing and exploring fruit and vegetable production gives a deeper understanding and

appreciation for these essential foods in our diet. Recipients will be selected based on plans to promote nutrition education and more.

Katie's Krops Vegetable Garden Grant

Grant to start vegetable gardens to feed people in need. Grantees will be awarded materials necessary to create a garden (up to \$400), support from Katie's Krops, and a digital camera to document the garden and the harvest. Applications for all types of vegetable gardens will be considered such as a container garden for city residents or a school, church or neighborhood garden. Applicants must be between the ages of 9 and 16 (as of February 11, 2011).

Kroger Co. Foundation

Feed-the-hungry programs in communities where Kroger employees live and work

Lorrie Otto Seeds for Education Grant Program

The Lorrie Otto Seeds for Education Grant Program gives small monetary grants to schools, nature centers, and other non-profit and not-for-profit places of learning in the United States, including houses of worship, with a site available for a stewardship project.

Love Your Veggies Grant

The makers of Hidden Valley® Salad Dressings are now accepting applications for the 2009-10 Love Your VeggiesTM grant program. With support from its partner the School Nutrition Foundation (SNF), the grant program will once again seek to help schools provide innovative programs to increase consumption of fresh fruits and vegetables in thelunchroom.

Lowe's Toolbox for Education

Lowe's Charitable and Educational Foundation (LCEF) knows how hard you work for your kids and your community and we're dedicated to helping your parent-teacher group achieve even more for your school. Apply for our Toolbox for Education Grant now and build on your already impressive parent group success with Lowe's.

Mantis Awards for Community and Youth Gardens

Mantis presents the Mantis Awards to charitable and educational garden projects that enhance the quality of life in communities. Winners are selected by the NGA and receive Mantis tiller/ cultivators. All nonprofit garden programs are eligible to apply.

M<u>elinda Gray Ardia Environmental Foundation</u>

Helping facilitate the development and implementation of holistic environmental curricula that incorporate basic ecological principles and field environmental activities within a primary or secondary school setting

Midwest Garden Grant

This grant is open to schools and organizations with garden programming in any of the following states: Illinois, Indiana, Iowa, Kansas, Michigan, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. Ten winners will be chosen.

M<u>uhammad Ali Center Peace Garden Grant</u>

For the third year, The Muhammad Ali Center in partnership with Yum! Brands Foundation is providing support to youth garden programs across the world through the Muhammad Ali Center Peace Garden Grant. 50 outstanding applicants will receive \$500 garden packages including an NGA curriculum package. International applicants are encouraged to apply. Schools within the United States must have a student body eligible for 50% or more reduced or free lunches.

National Association of County and City Health Officials (NACCHO) Action

Communities for Health, Innovation, and Environmental Change (ACHIEVE) Proposals

This program seeks to strengthen community coalitions to develop an action plan that addresses comprehensive chronic disease prevention through policy, systems, and environmental change strategies. Areas of interest include, but are not limited to, increasing farmers markets, fresh fruits and vegetables, and community gardens for residents; and increasing healthy food choices in restaurants, grocery stores, worksites, and schools.

Nature Hills Nursery Green America Awards

The Nature Hills Nursery Green America Awards will be presented to groups and organizations that are making a difference in their communities. Eligible applicants include community groups who are committed to improving their local environment by planting trees, bushes, and shrubs to make their communities a better place to live. One grand prize winner will receive \$2,500 in plant materials. The first place winner will receive \$1,500 in plant materials, and the second place winner \$1,000 in plant materials. The plant materials can contain trees, fruit trees, bushes and shrubs, perennials, and vegetable seeds.

NEA's Green Across America

Grants of up to \$1,000 are available to help you implement your innovative education program, activity, lesson or event to excite students about going green, caring for the earth and creating a sustainable future.

NEA Foundation Student Achievement Grants

For projects that engage students in critical thinking and problem solving that deepen their knowledge of standards-based subject matter and improve habits of inquiry, self-directed learning, and critical reflection.

Play with Your Produce Healthy Challenge

PFK invites K-6 classrooms to enter the PFK Play with Your Produce Classroom Challenge, which challenges classrooms to create an activity focused on healthy eating using fresh fruits or vegetables. The 1st place winner will receive \$1,000, 2nd place winner will receive \$750, and 3rd place will receive \$500.

Project Learning Tree GreenWorks! Grant

Have an idea for an environmental service-learning project for your students? Need funds to implement it? PLT GreenWorks! grants of up to \$3,000 are available.

The Quaker Go Project

Awards for community-based projects that combat hunger

Sodexo Foundation Youth Engagement Grants

Programs funded through this grant will engage teachers and students, grades K-12, in learning about and addressing childhood hunger in their community. The Sodexo Foundation School

Engagement Grant will be implemented through a service-learning Semester of ServiceTM focused on childhood hunger. Applications are due July 15, 2012.

This program incorporates service-learning into a Semester of Service[™] framework designed to engage students in a minimum of 70 hours of service and learning over a period of at least 10 – 14

weeks. This program focuses on building the academic subject areas of civics, social studies and language arts, but may also incorporate other academic areas. Grant amount: \$5,000.

Sodexo Youth Grants

YSA will award 25 Sodexo Youth Grants of \$500 each to support youth-led service projects in the United States that address the issue of childhood hunger during National Hunger & Homelessness Awareness Week (November 13-20, 2011). We're looking for projects that engage your peers, friends, families, neighbors, Sodexo employees, and other community members in creative, youth-inspired solutions to ending childhood hunger in your community.

Sow It Forward Food Garden Grants

Sow It Forward is the grants and partnership program of Kitchen Gardeners International. The grant is for nonprofit causes (schools, churches, food pantries, community gardens, senior programs, etc.) interested in starting or expanding food garden projects that are of general benefit to their community.

The Subaru Healthy Sprouts Award

Grant recognizes and supports youth gardening programs focused on teaching about our environment, nutrition and hunger issues in the United States. Through winning programs, youth will learn the skills necessary to maintain a healthy lifestyle compatible with environmental stewardship and gain an understanding of how their actions can positively impact the well being of their community.

TogetherGreen Invites Applications for Innovation Grants

TogetherGreen, a program of the National Audubon Society and Toyota, is accepting applications for its Innovation Grants program, which provides support for creative and ambitious projects that engage diverse communities in finding innovative solutions to environmental challenges.

Innovation Grants fund projects that conserve or restore habitat and protect species, improve

water quality or quantity, and reduce the threat of global warming; engage new and diverse

audiences in conservation actions; and inspire and use innovative approaches and technologies to engage people and achieve conservation results.

Tom's of Maine 50 States for Good Community Sponsorship Program

50 States for Good is a national initiative to support the goodness behind grassroots community projects. Six organizations will share in our \$150,000 sponsorship fund, including one organization that will be given \$50,000! Our panel of judges will select 20 organizations doing great things in their communities to be voted on by you.

Toyota Tapestry Grants for Science Teachers

Recognizing projects that provide an innovative approach and a hands-on learning environment for K-12 science

USDA Farm to School Grant Program

Grants for implementing farm to school programs that improve access to local foods in eligible schools. The USDA Food & Nutrition Service (FNS) is charged with implementing the farm to school program. In this first funding cycle, FNS anticipates awarding up to \$3.5 million in grant funding to support efforts that improve access to local foods in eligible schools. Suggested letter of intent due May 18.

USDA Rural Development's Community Facilities Grants

Grants for Farm to School initiatives in rural communities with less than 20,000 people Whole Kids Foundation Garden Grants

Whole Foods Foundation is accepting new grant applications from K-12 schools and/or 501(c)3 organizations. \$2,000 grants are available to those developing or currently maintaining a garden project on school grounds that will engage children with fresh fruits and vegetables. Applications will be reviewed this winter, and grants will be awarded in early spring 2013.

Whole Kids Foundation School Grant Program

Learning about the process of growing food helps children develop a deep understanding of the connection between healthy eating and a healthy body. School gardens offer an opportunity to integrate math, science and health curriculum into a dynamic, interactive setting. They also provide a base of knowledge that allows children to take an active role in healthy food choices.





Basíc Steps for Starting a Garden

Starting a garden is actually quite an easy project, if properly planned from the start. Before construction of the garden can begin, a committee should be established and the necessary tools and materials should be acquired. There is a significant amount of planning and fundraising that must occur before you can actually start digging in the dirt.

The gardening guide of this toolkit will cover the very basics, from choosing a site to the actual planting and harvesting of garden produce. Don't be afraid to experiment and try new things, gardening is 50% learning, both from successes and mistakes. Above all, get the children involved in the garden by creating a space that provides enough space for lesson plans and also grows produce with a variety of shapes, colors, sizes, textures, and flavors.



Step 1: Garden Placement and Types

WHERE TO PLACE YOUR GARDEN

- Picking your Location: Since plants thrive on sunlight, it is key to pick a spot that receives at least six hours of sunlight. The area should also be level to avoid erosion problems. Place the garden 75 to 100 feet from any trees (especially nut trees) to keep the garden from having to compete for soil moisture and plant nutrients. It is also convenient to place the garden near the water source as well as tool storage area, if possible.
 Check the Soil: Always conduct a soil test if you are growing on a new plot. Your local extension office has all the resources you need to conduct a soil test as well as understand the results. Often home kits are inaccurate or confusing, so it's best to spend a few dollars and send soil samples off. Fruits and vegetables require nutrient rich, well drained soil so it is vital to test your soil before putting anything in the ground. Soil improvement will be discussed later in this chapter.
- 3. Sun Needs: When planning where to place your garden be sure there are no large trees or buildings that will shade your plot. Many crops like sweet corn, tomatoes, and peppers require full sun. Some shade, however, may be beneficial if you are using cooler season crops in the summer growing season. Not all cool crops can be grown in the summer.
- 4. Water Supply: Placing your garden near a water source will save you lots of hassle in the long run. The garden should be watered once a week with a 1" application for most vegetables. Tomatoes prefer 2" of water per week. You can test if your garden needs water by digging an inch or so down and making sure the soil is moist. In hot, dry weather, the garden may need more than one watering per week.
- 5. Size: The gardens size will vary based on available space as well as available volunteers. It is important to start small, you can always expand later. A good size to start with is 100 square feet, or 4-6 raised beds.
- 6. **Map it Out:** Create a basic outline of your garden. Map or graph your crops out so that you know what not to plant the following season. Never plant the same crop in the same spot for consecutive growing seasons, this can lead to increased risk for pests and disease. There are many free online resources for mapping gardens now. A good one is www.smartgardener.com



SUN

WATER



Garden Design Considerations:

• **Raised Beds:** Raised beds are a great option for starting your garden. This garden design offers many benefits. For one, raised beds improve drainage. Raised beds also allow the soil to become warmer earlier in the spring, and thus a slightly earlier start to the growing season. If you are bringing in outside soil it is important to use a quality soil. Top-soil is often full of large amounts of clay and can lead to compaction of your beds. To maintain fertility and build healthy soil inside the beds, addition of compost yearly will be necessary. Raised beds should be about 1/4 compost and 3/4 topsoil. Apply a 3" application of compost and till it in each time the bed is planted. Raised beds are some of the easiest and most visually appealing garden designs to utilize.

• **Container Gardens:** Container gardens are good when there is a lack of space for your garden. Many vegetables can be grown in containers. This type of gardening also allows for the utilization of recycled materials, like old tubs, rain barrels, etc. More watering is required for container gardens, which is something to consider.

• With all gardens, be sure to have a meeting area where students can gather for lessons, stories, or demonstrations. Inclusion of a learning space is vital to ensure that the garden is integrated into the school.

• When choosing lumber for raised beds or borders always use untreated wood. Hardware stores will be able to suggest the best wood to use for creating garden beds. Cedar is a commonly used lumber for raised beds.

• Start small! You can always expand later. Try to start with four beds and allow room for growth.

TYPES OF GARDENS:

There are so many garden designs and themes to choose from, it would be impossible to not find one that suits your school's needs! Some Common Gardens:

- **Historic/Cultural Garden:** A garden focused on historic garden styles allows the garden to serve as a resource for social studies and other subject curricula. Some examples: Colonial Heirloom Garden, Three Sisters Garden, or French Potager Garden.
- Sensory Garden: These gardens use plants and design elements that allow students to explore the five senses. These gardens are great for younger children and as therapeutic tools.
- **Container Garden:** Great for areas that are limited in space. Plants are gown exclusively in containers. Containers can be pots, grow bags, or even recycled materials such as old rain barrels and bathtubs. Do not use old tires. http://urbanext.illinois.edu/containergardening/herbyeggie.cfm
- Art/Sculpture Garden: These gardens serve as outdoor galleries where students' work can be highlighted.
- **Pizza Gardens:** These gardens are a fun way to teach children about vegetables in their favorite foods! The garden is grown in a circular shape subdivided into various slices for different crops. Typically these gardens include tomatoes, oregano, basil, bell peppers, onions, and other vegetable toppings.
- Snacking and Sipping Gardens: These gardens contain produce that can be eaten right off the vine, like cherry tomatoes and strawberries. Children will learn to love their vegetables, and the produce can also be used in the cafeteria to aid in a healthier school meal.
- Flower Maze: These gardens are typically larger in size, but allow a fun play space for children, incorporating classes into the planting of the garden will allow them to learn about the lifetime of a flower as they play in the maze.
- Zuni Waffle Gardens: These gardens are based on Native American gardening techniques. The gardens consist of four raised beds. Planting in the three sisters method (Corn, squash, and runner beans) will teach students about beneficial relationships among various plant species, while also allowing for social studies curricula to be taught.

These are just a small sample of the bountiful types of gardens out there! There are many books and web sources that can serve as inspirational guides for your garden plan. For more information view the resources list at the end of this toolkit.

SMALL PLOT VEGETABLE GARDENING:

Many schools will have limited space for a garden plot but it is very easy to adapt your garden to grow a large amount of things in a very small space if the right techniques are employed.

SPACE SAVING TECHNIQUES:

- 1. **Try Bio-intensive Methods:** Double digging gardens bed instead of tilling them is labor intensive but also allows more food to be grown in a small space. Though roots will always grow towards water, deeper tilling of the soil will open up vertical pore space within the soil to allow for strong root growth. A great book that covers these methods is: *How to Grow More Vegetables (8th Edition)* by: John Jeavons. A must have book for many Southern Illinois Growers!
- 2. **Try Interplanting:** This technique involves growing two or more vegetables in one area by planting slow-and-fast maturing crops among each other. The fast maturing vegetables are harvested before the crops begin to crowd themselves. Fast-and-slow crops can also be grown in alternating rows, such as Tomatoes (slow) and lettuce (fast).
- 3. **Try Succession Planting:** This involves planting another crop once the other is harvested or finished. Succession planting is also common in crops that you harvest generally all at once and want to have throughout the growing season. Often planting radishes with a two week interval will allow you to harvest throughout the season. This method can also be done with carrots, beets, lettuce, etc. Successive planting of the same crop should be done every 2 to 3 weeks to
- have harvest for the entire growing season.
- 4. Use Vertical Space: Using a trellis o fence to support pole beans, cucumbers, and squash is a great way to maximize limited space. You can also cage or stake the tomato plants. Plants grown on a trellis will occupy about 1 square foot of space, leaving room below to plant other varieties.
- 5. **Plant Bush Varieties:** Certain crops have bush varieties that may be easier to grow, but can also take up a bit more space. Trellising tends to leave more space for other crops, but is a hassle for some growers. Bush varieties, available as seeds, are found in cucumbers, beans, and squash.
- 6. **Square Foot Gardening:** Marking squares of space for crops rather than planting in straight rows saves space. Plants are plotted out according to their space needs. There is a great, free interactive tool to design a square foot garden
 - at: <u>www.gardeners.com/Kitch-Garden-Planner/</u>
 - kgp_home,default,pg.html

CONTAINER/RAISED BED GARDENING:

KEY POINTS:

- Select containers that are large enough to hold the plant and its root system.
- For most vegetables, a 3 to 5 gallon container is preferred.
- Plants grown in containers require frequent watering, as they tend to dry out quicker.
- When creating raised beds, try to not make them wider than 4 feet. Beds that are not as wide allow for easier weeding and harvesting.
- Raised beds allow for tighter rows to be utilized while also aiding in drainage and soil temperature. In the summer, raised beds may dry out quicker than traditional garden beds, so be sure to check soil moisture.

TYPES OF CONTAINERS:

- Some examples: Clay pots, old pails, bushel baskets, plastic buckets, wash tubs, wooden planters, grow bags, or hanging baskets. Almost any container can be used as long as it has good drainage via holes on the sides or bottom. One thing to note, however, is clay pots tend to dry out quicker in the summer and can require
- up to two watering per day!
- Wood containers can be easily constructed. These containers last longer if
- heartwood or durable trees are used (i.e. cedar or redwood). Always use untreated lumber.
- A typical wooden container is 18"x24"x8". Drainage holes must be drilled in the
- bottom or around the sides near the bottom of the box. A mesh screen can be cut
- to fit the bottom of the container to allow water, but not soil, to drain. Soil should
- be a minimum of 6 to 8 inches deep for most vegetables.
- Dairy supply plastic tanks (35 gallons or less) cut in half make excellent
- containers as well.

Suggested Fruits and Vegetables:

Beets, Carrots, Cucumbers, Eggplant, Green Beans, Lettuce, Onions, Peppers, Radishes, Summer Squash, Spinach, Swiss Chard, Tomatoes, Potatoes



For More information visit: http://urbanext.illinois.edu/containergardening/ http://m.extension.illinois.edu/firstgarden/basics/dirt_03.cfm

Step 2: Get Seeds and Tools

Selecting Seeds for Your Garden:

- Buy seeds early in the year (January through March) for the
- best selection. Or use catalogues for a large variety. Bakers
- Creek Seeds is a great source for Heirloom Varieties based in
- Missouri. Other seed catalogues include: Johnny's Selected
- Seeds, Territorial Seed Company, Burpees, Jung Quality Seed...
- To ensure germination, purchase new seeds every year. You can test
- germination of old seeds by placing them between two damp paper towels
- inside a zip-lock back and leaving in a dark place for a about a week to ten
- days. If seeds are still useable, they will sprout.
- Many seeds are chemically treated and should be avoided if small children will be handling the seeds. These chemicals will be listed on the seed packet.
- Purchasing heirloom seed varieties is a great way to work towards
- preserving biodiversity of plants while growing unique vegetables which can
- peak student interest. Heirlooms have often been bred for their color and
- taste. Certain varieties, however, may produce smaller yield or possess less
- disease and pest resistance than some hybrid varieties.
- Read the package or description of the seeds to see days to harvest, desired
- temperature and planting date, as well as pest and disease resistance.
- A lot of packages will say "easy to grow!" and you can never go wrong with these.

Quick Tips:

- **Check Packages:** Packages should include crop, germination percentage, and chemical seed treatments, if any, as well as best methods for growing the particular crop.
- **Storage:** Keep seeds in a cool and dry place. Keep paper packets in tightly closed cans or jars until seeds are ready to be planted. Laminated foil packets ensure dry storage.
- Saving Seeds: Saving seeds can be tricky for first time gardeners, but is a
- great learning process for kids! Be aware that hybrid seeds are not suitable for saving, since they often will not fruit the following year or may have other undesirable qualities. Choose seeds from disease and pest free fruit.
- For more information on saving seeds visit the Illinois Extension site:
- http://web.extension.illinois.edu/cfiv/homeowners/100916.html



GARDEN TOOLS AND MATERIALS:

Purchasing gardening tools and other items can slowly add up to a large expense. A great way to reduce costs is to create a list of items needed that parents, faculty, staff, or community members can donate. You can also create a wish-list at your local hardware store. Some schools will even request gift certificates at stores that supply garden materials, so they can buy supplies as needed. But even if funds are tight you can get by with a very minimal amount of tools, and many things can be found around the house!

Necessítíes:

- Rake
- Shovel
- Garden Hoe
- Compost or other organic fertilizer
- Seeds and/or plants
- Untreated timber for raised beds, or containers for container garden.

Other Items:

- Small hand trowels
- Watering Cans (can make your own)
- Turning fork
- Small Buckets
- Plant Labels and row markers
- Rope or twine (for marking rows)
- Garden hose
- Lawn sprinkler
- Wheelbarrow
- Seed Starting Trays
- Seeds and/or plants

To calculate how much soil to buy for a raised bed: multiply the bed length times width times depth in feet and divide by 27 to get the cubic yards of soil needed. A 4 to 6 inch deep application of compost should be incorporated at least six inches deep, in addition to the soil.



Southern Illinois, unlike the central portion of the state, lacks a good quality growing soil. Soil that is ideal for growing will have a pH around 6.0-7.0 and should be well drained. As seen above, our region tends to have soils of low pH (more acidic) and poor drainage. The poor drainage can be a result of the high clay content in our soils. Acidic soils tend to reduce the amount of nitrogen fixing bacteria in the soil, a vital component needed for healthy plant growth. When digging a new bed, it is important to test your soil so you know what amendments to make so that you have a productive garden. An alternative would be to create raised beds and bring in soil, though this can end up being a more costly method than soil amendment techniques.

Soil pH

When using city water, it is important to test the pH of your soil yearly. City water can often lead to higher pH soils. Soil pH tests can be done with students as a learning experience. Addition of

compost will neutralize your soil over time. Soil pH around 5.5-6.5 is ideal for growing vegetables.

Test Your Soil's Drainage

Take your shovel and dig a hole one foot deep and fill with water. Allow the water to drain completely and then refill. Measure the amount of water that drains in one hour.

If the amount of water that drains is less than two inches per hour, your soil has poor drainage.

Poor Drainage

Add organic matter. Compost works wonders in a garden. Mixing a 2-3 inch application of finished compost into your bed will aid in improving soil drainage.

Planting cover crops also incorporates organic matter to the soil, aiding in drainage and fertility. Some common cover crops are rye, clover, buckwheat, and canola. •

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Know Your Dírt: A garden store guide

- **Garden Soil for Flowers and Vegetables:** Garden soil is usually a mix of sand, silt, clay, and various minerals that aid in optimal plant growth. Steer away from non-
- organic varieties as they may contain chemicals that will be harmful to the kids digging around in the soil.
- **Top-Soil:** This soil is a basic soil from the top layers of the ground. This soil is not as nutrient rich as garden soil, but can be mixed with as much compost or well composted manure as needed to increase the drainage and fertility of the soil. Top-soil tends to be cheaper than garden soil and can be bought in larger bags. If using top-soil to fill your beds, buy a type of compost and mix the top-soil and compost in a 2:1 ratio (top-
- soil:compost).
- **Potting Mix**: Potting mix is made of organic and inorganic materials. The mix is created to hold onto moisture while allowing proper flow of air and water through the soil. Potting mix is suited for plants being grown in pots, as the name suggests. If you are choosing to do a container garden, this mix may be a good choice. Be sure to choose one that is suited for vegetables.
- **Compost:** Well Finished Compost (this is the end product of the decomposition of organic matter). Compost helps condition your soil and allows for slow release of vital macro-nutrients. Compost can improve soil structure, aid in necessary microbial activity in the soil, attract beneficial insects, fungi, and worms. There are a variety of composts out there. Often you can find a local source to buy compost in bulk, which saves money in the long run. Sometimes you will see this labeled as Humus Organic Matter at the store.
- **Manure:** Manure is un-composted animal excrements. Manure can aid in adding nitrogen to the soil, but should be added several months prior to growing vegetables, leafy greens, or berries. You can find composted manure, which is a great addition to any soil!
- Seed Starting Soil: This mix often contains large amounts of peat, and most have a bit of perlite and/or vermiculite. These mixes work fine for starting seeds, but may lack nutrients for plants to flourish. Once true leaves emerge on the seedlings, plants should be transplanted to a larger container with more nutrient rich soil.



The best thing for your soil is the addition of organic matter (1-4 inches on top of the bed). Incorporate materials at least 6 inches deep. Always test your soil before making any amendments.

Types of Organic Matter:

Aged manure, leaves, grass-clippings, compost, green manure, crop residues, or peat moss, etc.

Composting 101:

Composting is the breakdown of organic materials. Composting is usually done in a bin or pile where organic waste is allowed to mix together and break down into soil or fertilizer.

Compost is an excellent fertilizer for gardens. It helps plants grow because it supplies nutrients to feed plants. These nutrients were originally part of living plant tissues, but they are released when the plants are broken down. In this way, composting is an important kind of recycling.

Decomposers (fungi, microbes, earthworms...) are an important part of composting because they help to create air pockets for air and water, as well as the creatures responsible for the decomposition process.

What do Decomposers need?

- Carbon + Nitrogen
- Moisture: (enough to keep pile slightly damp)
- Oxygen: Turn the pile regularly to fluff up air channels.
- Temperature best above 50°F outside

What do you need to compost?

- Buy or make a bin—commercial or home built
- 4 key ingredients
 - Air
 - Water
 - Brown stuff, carbon (leaves, pine needles, etc)
 - Green stuff, nitrogen (grass clippings, food scraps, etc)

What to Place in Compost:

Brown: Leaves, Dried Plants, Saw Dust, Wood Chips

Green: Fresh grass, weeds, or other plants; vegetables and fruit scraps, other food scraps (pasta, beans)

Other: Wood Ash, egg shells, sand, herbivore manure.

Do Not Place in Compost:

- Meat
- Bones
- Dairy products (milk, yogurt)
- Oil
- Fats
- **Diseased Plants**



Getting Started:

- Place compost bin or pile in a location that is not too close to a building, but with access to water. The pile or bin should be at least 3 feet wide by 3 feet deep by 3 feet tall. If it is much smaller or larger, it won't compost correctly.
- Layer 2ft browns then 1 ft greens. Top layer is ALWAYS brown to manage odors & hold in moisture.
- Water as the pile is being built.
- Turn once every week or two to add oxygen
- Takes about 4 weeks for mature compost during the warm months. Once the bottom layer appears dark & crumbly the compost is mature. Composting will be significantly slower or inactive during the winter.

Types of Composts

Hot Pile: Build all at once as a batch. Microbes multiply; Pile heats up to 132-140° F. Turn weekly so each part of pile gets hot & kills weed seeds and most diseases. **Cool Pile:** Build as you get materials. Top layer ALWAYS browns. Turn when you can.

Compost Uses

Add to Soil in vegetable or flower garden

Use as Mulch - 2-3 inches to top of soil around flowers, vegetables, trees & shrubs Mix in potting soil

Internet Resources:

http://www.epa.gov/epawaste/conserve/composting/index.htm http://www.composting101.com/ http://www.composterconnection.com/

http://greenliving.nationalgeographic.com/compost-made-3030.html

Composting is good for the garden, and helps keep waste out of the landfill.

Step 4: Start Your Garden

Timeframe for Starting Your Garden:

1. Starting Your Plants

From Seeds:

Starting your own seeds allows for students to fully understand the life cycle of a plant and could serve as a science lesson.

Many plants will need to be started indoors several weeks before their intended planting date. There are many guides available that will tell you how many weeks prior to transplanting you should start your own seeds. If you plan on starting your own transplants from seeds, be sure to allow enough time in your plan for the plants to develop strong roots and be hardened off. Some seeds can be sown directly into the soil which will be specified on the seed packet. Some common examples would be squash, beans and peas, lettuce, carrots, radishes, etc.

Buying Plants:

It may be easier to purchase plants at your local garden store and harden them before planting, especially if you are new to gardening. If choosing to purchase plants make sure they are healthy, with dark green leaves and stocky stems.

2. Remember to Harden Your Plants Before Placing them in the Garden

Before planting you should harden your purchased plants or transplants for 7-10 days. Slowly introduce your plants to cooler temperatures and less water by placing them outside in the shade to start. Over time you can allow the plants to receive full sun. It is suggested to leave the plants out all night the day before you transplant them into the garden space. Take plants in if frost is expected. Hardening your plants prevents transplant shock and allows for healthier root and plant development.



3. Planting your Southern Illinois Garden

The time you start your garden is dependent on where you live in Illinois. In the Southern Illinois region, the last frost date for spring is around April 15th to April 20th. It is important to consider that some plants prefer cooler weather, while others will thrive better in warmer temperatures. The Illinois Extension has a planting guide that gives timeframes for common vegetables, which can be found at:

http://web.extension.illinois.edu/vegguide/step06.cfm

Transplanting:

Before transplanting your plants into the garden, be sure to pluck off any fruit from your plant. This will allow the plant to use its energy to develop strong roots, which will lead to higher productivity of the plant later on.

The main goal when transplanting is to avoid disturbing the roots as much as possible. Transplant on a cloudy day or in the late afternoon. Plants will be sensitive for the first few days, so it is suggested you provide light shade and protection from potential frost. Transplants can be protected from the sun using a floating row cover, but it is not recommended to use plastic to cover beds because it will cook the plants during the day. You can uncover the beds during the day and recover them when frost is expected at night, or on cold days simply provide a venting hole for heat to escape.

Water transplants the day before putting them in the garden. After planting be sure to keep the area well watered, every 3-4 days, to encourage healthy growth. Do not allow ground to get soggy, however.

The Illinois Extension offers resources on starting and maintaining a garden at: <u>http://urbanext.illinois.edu/tog/</u>

4. Watch for Frost:

Plant your garden after frost has subsided. Pay attention to frost warnings and cover your plants if needed.



Step 5: All About Planting

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Straight Row Furrows:

This is the easiest and most straight forward way to plant. This method allows for easy cultivation, harvesting, weeding, and pest control. To plant a straight-row furrow, first stretch a tight cord or rope between stakes at each end of the row. A 1 1/2 to 2-inch furrow can be made using the blade of a garden hoe. Use this method when planting large seeds, such as beans and corn. The handle of a garden hoe can be used to make 1/4 to 1/2 inch shallow furrows for small-seed crops such as lettuce, beets, carrots, etc.



Wide Row Planting:

This method allows you to make best use of the space and grow tons of veggies! In this method seeds are scattered in "bands" rather than rows which are 4 to 24 inches apart. This works well with lettuce, carrots, and other small vegetables. To make your bands, drag a rake across the wide row and scatter your seeds. As plants grow they may need to be thinned so that proper growth can occur. Care must be taken when weeding, but one benefit of growing plants so close, is that it shades the ground below, preventing weed growth.



Hill Planting:

Hill planting is a convenient method for viney plants like squash, cucumbers, and melons. Begin by raking dirt into a round hill that is raised from the ground, creating a 12-inch circle. Next, plant 4 to 5 seeds. Later, when the plants begin to grow, thin the hill to no more than 3 plants. Raised mound plantings are not highly recommended for the entire garden, as the soil will dry out much more quickly than if it were level. This can result in poor germination.

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Square Foot Gardening:

Square foot gardening is an easy way to plan out your garden. This method involves planting a set amount of a particular plant in a square foot space. Like wide rows, this method makes efficient use of the garden space. To plan a square foot garden, string twine across the space to create square foot spaces for planting. An example of some crops is seen below.



Vegetables and Herbs

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Transplanting and Mulching:

How to transplant (plant seedlings):

- 1. Water your plants well the night before.
- 2. Gather your tools.
- 3. Measure where you want your plant to go.
- 4. Dig your first hole for your plant (can dig all holes at one time if you wish)
- 5. Carefully remove the plant from the container.
- 6. Carefully remove any dead or diseased leaves.
- 7. Place the plant inside the hole, up to but not covering its growing tip.
- 8. Cover the planted part of the plant with soil, lightly pack the soil around the plant.

Mulching your Garden:

Mulching is a great way to hinder weed growth and allow the soil to retain moisture and keep cool during hot days. Mulching plants during winter months can shelter them from harsh cold temperatures, though covering with row cover is also necessary.

Types of Mulch:

Straw (not hay), old leaves, woodchips, grass clippings, or other natural materials. There are also types of weed inhibiting papers that can be placed over your garden bed prior to transplanting. In some instances black plastic can be used to heat soil in early spring while hindering weeds and retaining moisture.

How to Mulch:

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There is really no wrong or right way to mulch. Sometimes it is easiest to pre mulch beds with straw before planting and then creating holes in the straw to dig your holes. Mulch can also be applied around the plants after they have been transplanted. With tomatoes, you can mulch around the base of the plant with compost to aid in more productive plants. One thing to note when using old leaves is that they can create more acidic soil, and are great for placing around blueberry bushes.



Step 6: Caring for Your Garden

1. Thinning Seedlings:

Once your seeds begin to sprout you want to thin them down so they do not compete for resources. The space between each plant will depend on the spacing specified on the seed packet or plant container. It is important to thin seedlings before they get too large to promote strong healthy root development.

2. Weeding:

It is important to keep your garden well weeded. Weeds limit your harvest by taking vital resources like sun, soil, and water from your plants. Weeds provide homes for unwanted pests and diseases, and even some wanted beneficial insects. Mulching your garden early on will help prevent weeds. Weeding is one task that is easy for kids to do once they know what they should and should no be pulling up. **3. Watering:**

Watering should be done in the early morning or afternoon to allow time for the leaves to dry in the sun. You do not want plants to be wet at night, as this will put the plant at risk for fungal infections. Drip irrigation is one method of watering that can be used to conserve water, and also allows you to water plants at night.

4. Fertilizing Organically:

Use of synthetic fertilizers is not suggested for many reasons: #1 being it is not safe to have small children digging in soil that contains chemicals. There are, however, many organic methods for fertilizing your garden when it is lacking nutrients. When using any fertilizer, however, be sure that children do not have any allergic reactions to the materials in question. Blood meal and feather mill are great sources of Nitrogen for your soil. These can be found at most garden and hardware stores. You want to avoid getting the materials on the leaves of your plants, as it may burn the plant tissue. Overall, crop rotation and proper soil amendments over time will lead to greater soil fertility. Yearly soil tests should be conducted.

5. Adding Organic Matter:

Organic matter provides nutrients for plants while also aiding soil structure. Plants take food from the soil as they grow, so organic matter needs to be applied yearly. Some organic matter sources include: composted cow or horse manure, compost made from tree leaves, lawn clippings (without chemicals), garden refuse (disease-free), green manure (vetch, clover, etc.), and other organic residues. It is important to keep in mind that some fruits and vegetables are "heavy feeders" (i.e. corn and tomatoes), while others are not (i.e. green peppers). For "heavy feeders" you can "dress" the plants to aid in a better harvest. To "dress" heavy feeders, apply compost around the base of the plant and scratch it into the surrounding soil. Finish by watering the base of the plant. Add organic matter in the early spring or fall when you are preparing your beds.

6. Good Gardening Practice:

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Anytime there is an excess of pests in your garden, it is an indication that the natural balance of the system has been upset. There are, however, many ways to prevent pest and diseases from getting out of control.

Quality Plants: Healthy plants are the number one way to keep pests from destroying your garden. When choosing seeds or plants aim for varieties that have stronger resistance to disease and pests.

Spacing: Provide enough space between plants for air to move freely. If plants do not receive enough air they can develop fungal or bacterial diseases.

Companion Planting: Companion planting is a way to create strong healthy plants. Sometimes companions can deter pests that would otherwise feed on a particular crop. It is fairly easy to find the companion plants for particular crops in gardening books or websites. Some companions that are beneficial to any garden space are: Lemon Balm (attracts bees), Marjoram, Oregano, Stinging Nettle (though kids should not touch this because it makes you itch), Valerian (stimulates phosphorus activity and encourages health and disease resistance in plants), Chamomile, Dandelion (though small amounts only), and Oak Trees. One great set of companions are Tomatoes, Marigolds, and Basil. Both marigolds and basil produce terpenes, chemicals that deter pests and will in turn, protect your tomatoes. Some even say the basil enhances the flavor of the tomatoes.

- **Set up Barriers:** The use of floating row cover can be used to keep some pests away from your garden. The trick with row cover, is to use a very light grade in hot summer months and to put it in place before the pests invade. Be sure to take the row cover off when plants are flowering, however, to ensure pollination.
- **Monitor and Address Issues Early:** Keep an eye on your garden and catch pests early before they can begin to lay eggs. Hand pick pests off your plants and kill them to prevent extreme infestations. This is very important, since some pests will lay eggs that stay dormant in the soil over winter (such as squash bugs). Collect pests in jars for later identification.

Keep Weeds and Waste Out of Your Garden: Keeping your garden well weeded will keep a lot of pests from making a home in your garden. When weeding or harvesting be sure to discard all waste out of the garden, as this may attract particular pests or provide shelter for pests to breed over the winter.

Rotate Your Crops: Crop rotation is vital for healthy soils, healthy plants. Try to avoid placing plants from the same family in the same bed the following season. Rotating your crops will keep nutrients balanced, promote healthy bacteria, and prevent diseases.

7. Encourage Beneficials: 90% of bugs in your garden are harmless, and many are actually great predators to keep out pests as well as aid in pollination. Planting herbs and flowers in your garden will attract beneficial insects and lead to healthier space.



Bugs: The Good, The Bad, and the Ugly

Bad News Bugs:

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• Aphids: Aphids are small, slow moving bugs that range from green, black, brown, red, or pink. Aphids range from 1/16 to 1/8 inch in length, are pear shaped, have long antennae, and some may have transparent wings. These bugs are suckers and like to feed on young, succulent plants. When looking for aphids, large colonies can be found on the underside of leaves or along the stems. Aphids release sap from the plant which can make plants sticky and have sooty mold or black stems. To get rid of aphids you can spray with a steady stream or water, or try soap water. Ladybugs are great bugs to have around your garden since they feed on aphids.

- **Cabbage Worm:** There are three types of cabbage worms that like to feed on cabbage, kale, broccoli, brussel sprouts, collards, kohlrabi and other plants of this variety. Some are velvety green and slow, some are green with stripes along their backs and sides, and another has green active larvae. These moths lay their eggs in spring time and as the larvae hatch they begin to feed on foliage of salad greens and other plants. Pick bugs off as you find them. Applying diatomaceous earth to plants can kill adult caterpillars and larvae.
- Spotted or Striped Cucumber Beetle: Cucumber beetles are 1/4-1/5 inch long with a black head and wings that are striped or spotted yellow and black. The larvae feed on the roots and stems of plants. These bugs will overwinter in sheltered places, and the striped cucumber beetle overwinters in large numbers in Illinois. These bugs will feed on field and woodlot vegetation in the spring before attacking vine or bean crops. The bugs lay their eggs at the base of the plant and the larvae feed for 2-4 weeks before becoming adults. These bugs are chewing insects and will eat asparagus, corn, eggplant, cucumber, melon, squash, and pumpkin. Placing row cover over your plants after a spring planting is one way to protect your crops, but be sure to uncover when plants are flowering to ensure pollination.
- Slugs: Slugs are very common in gardens and tend to feed at night. Slug damage on a plant is often large holes in the leaves, fruits, and crowns of plants. To control slugs remove mulch or other debris that provide dark places for slugs to hide. Good spacing of plants will also deter slugs. Slugs should be removed if seen, though this may be difficult since they feed at night. You can make slug traps by placing shallow cups of stale beer at the corners of your garden beds to attract the slugs.



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Bugs: The Good, The Bad, and the Ugly

Bad News Bugs:

- Aphid
- Apple Maggot
- Cabbage Worm
- Squash Bug
- Squash Vine Borer
- Hornworm
- Japanese Beetle
- Slug
- Spotted and Striped Cucumber Beetles

If you notice your plants being fed on, try to look around for any pests in the area. If you find a bug you do not recognize, capture it in a jar. There are many sites that help to identify garden pests, your local agricultural extension can also aid in pest identification.

One helpful guide can be found on the University of Illinois Extension site: http://urbanext.illinois.edu/bugreview/veg.cfm

Garden Friends:

There are many bugs that are beneficial to a garden space. You can attract beneficial insects with the inclusion of flowers and herbs in your garden. These bugs will help keep pests from invading your garden. Many beneficial insects prey on the pests while some will aid in pollination. Earthworms are the soil builders and good healthy soil will be full of these garden friends.

Some Beneficials:

- Earthworms
- Bees
- Ladybugs
- Praying Mantis
- Stink Bugs
- Damsel Bugs
- Green Lacewings
- Spiders

Step 7: Harvesting

Knowing When to Harvest:	Cauliflower: Pick when curds (flower
Asparagus: Pick when the spears are	heads) are 6 to 8 inches, but still are
6 to 8 inches tall, and before the tips	• compact, white, and smooth. Curds that
begin to open. Cut or break off stems	• are exposed to sunlight become cream
at the soil line. Asparagus is a	colored, rough, and coarse in texture.
perennial (grows year after year)	Therefore, cover curds when they are
Beans (Snap): Pick when the pods	3 to 4 inches across by tying the
are almost full size, but before the	outer cauliflower leaves loosely above the
seeds begin to bulge. Never pick beans	curds.
that are wet or have dew on them.	• Celery: Pick when the plants become
Beets : Pick the greens when the	• 12 to 15 inches tall. When the plant
leaves are 4 to 6 inches long. If you	is still young and tender, the lower
want to use the tops or small beets,	leaves (8 to 10 inches long) may be
pick when the beets are 1 to 1.5" in	removed from a few plants and used
diameter. If you want to use the roots	in salads, soups or cooked dishes.
only, pick when the roots are 1.5 " to	• Chard: For continual clippings you can
<i>3</i> " in diameter.	• trim the outer leaves of the plant. The
Broccoli: Pick when flower heads are	• plant will regenerate if the center is left
fully developed, but before flower	undisturbed. Chard can also be grown to
buds start to open. Cut 6 to 7 inches	full size and harvested all at once.
below the flower heads.	Collards : Pick by breaking off outer
Brussels Sprouts: Pick when sprouts	leaves when they are 8 to 10 inches
at base of plant have become solid.	long. New growth from the center of
Remove sprouts (buds) higher on the	• the plant will provide a continuous
plant as they become firm, but do not	• harvest throughout the growing season.
strip the leaves, as they are needed	Cowpeas/Black-Eyed Peas: Pick
for further growth. They tend to taste	when seeds are near full size, but still
better if harvested after the first fall	bright green. Dry seed can be used for
frost.	cooking, baking, or in soups. Pick dry
Cabbage: Pick when the cabbage	seeds when they are full size and dry.
head has become solid. Leave older	• Cucumbers: Pick cucumbers when they
leaves, stems and roots to produce	• are 6-9" long. For sweet pickles, pick
small, lateral heads later in the season.	cucumbers when they are 1.5 to 2.5" long.
Carrots : Pick when roots are 1/2 to 1	For dill pickles, pick when the cucumbers
inch or more in diameter. If you want	are 3 to 4 inches long. For slicing, pick
to store carrots, pull them	cucumbers when they are 6 to 9 inches
just before the ground	long and are bright green and firm.
freezes in the fall.	

Eggplant: Eggplant will vary in size based on variety. Some will be picked when very small, others when very large. The seed packet or planting guide will state the standard size for harvesting. Be sure to pick when the fruit is still firm and brightly colored. Older eggplants may become dull in color, soft and seedy.
Garlic: Pull the garlic when tops begin to bend over or die.
Gourds: For eating, pick gourds when they are 8 to 10 inches long, young and

tender. For decoration, pick when gourds are mature and fully colored, but before the first fall frost. Also, you'll know a gourd is mature if a finger nail doesn't leave a mark on them.

Kale: Break off outer leaves when they are 8 to 10 inches long. New leaves will grow from the center of each plant for harvest throughout the growing season. **Kohlrabi**: Pick when bulbs (thickened stems) reach 2 to 4 inches in diameter; depends on variety.

Leeks: Pull when leeks are 1 to 11/2 inches in diameter and before the ground freezes. flavor and seed stalks begin.

Lettuce: If growing leaves, pick when outer, older leaves are 4 to 6 inches long. If growing heads, pick when it is moderately firm and before seed stalks start. Leaves taken from either leaf or head lettuce can be harvested once the leaves are 4 to 6 inches long. New leaves provide a continuous harvest throughout the growing season. Once lettuce ages the leaves will produce a milky substance and become bitter. **Muskmelon**: Pick when the base of the fruit stem begins to separate from the fruit. The fruit is almost ripe when the separation begins, but will be fully ripe when a crack appears completely around the base of the fruit stem.

Mustard: Pick when outer leaves are 8 to 10 inches long. New leaves will provide continuous harvest, until flavor becomes too strong and the leaves become tough in texture from hot weather. Seeding again in late summer will provide for a crop with a milder flavor and tender texture.

Okra: Pick when young and tender pods are 3 to 4 inches long, but still bright green.

Onions: For green onion sets, pick when onions are 6 to 8 inches tall. Harvest any with round, hollow seed stalks when they appear. Continue harvesting onions until all are used. Mature onion sets do not store well. If planted from seeds or plants, harvest when tops fall over and begin to dry. Pull with tops on and dry them in a protected place, cutting tops 1 inch above bulb for further drying.



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Tomatoes: Pick when fruits are fully colored. For fully ripe tomatoes, leave completely red fruits on healthy plants for 5 to 8 days during the warm, sunny days of August and very early September. Pick only fully ripe tomatoes for juice or canning to ensure full flavor, good color, and maximum sugar content. Tomatoes will ripen indoors if picked at a mature green stage or when some color is showing.

Turnips: Pick when roots are 2 to 21/2 inches in diameter, but before heavy fall frosts.

Watermelon: Pick when watermelon is full size, dull in color,

and the portion touching the

soil turns from greenish white to cream. The tendrils nearest a

melon will curl and dry up when a melon is ripe.



The Illinois Extension Offers some great resources on growing vegetables.

For Growing Guides for Specific Crops Visit

http://web.extension.illinois.edu/vegguide/ growing.cfm

When you have a large harvest there are many ways to keep the produce from going to waste. Canning, Freezing, and Dehydrating are all great ways to preserve fresh vegetables. Root crops like potatoes can also be stored in cool, dry places for extended periods of time.

For More information visit: http://web.extension.illinois.edu/ foodpreservation/index.cfm





Step 8: Preparing for the Next Season

After the Growing Season:

• **Remove old vegetable plants:** After you have harvested all you can from a plant remove the whole plant from the garden. This will help to prevent future pest and disease problems. Discarded vegetables can be used to create compost for the next growing season.

- Add Organic Matter: Add in organic matter in the fall after the summer growing season. Types of organic matter that can be added include finished manure compost, leaves, grass clippings, compost, green manure, crop residues, or peat moss. Organic matter should be incorporated about six to eight inches down into the soil. It may be helpful to plant a summer cover crop and dig this under in the fall, since finding help in the summer may prove difficult and will require lots of water to deal with the hot temperatures of this area. Manure can be placed in a late fall garden to aid in soil building. Throughout the winter the manure will decompose, adding nutrients to the soil.
- **Tilling:** Tilling can be done by hand or with a rototiller. For raised or doubledug beds you can easily turn the soil over using a garden hoe and rake, or a spade or fork. Turning the soil is important so that microorganisms present below the surface can decompose any materials and build strong soil structure in the entire bed. Do not till or work the soil when it is wet! This destroys the soil structure and creates clumps that make the soil harder to work later on.
- Saving Seeds: Seed saving is one way to show students the full life-cycle of a plant. In order to store seeds you must let the crop go to seed. Plants have various ways of producing seed. Grasses, mustards, and lettuces produce seeds through "bolting". When a plant bolts it shoots up a thicker stem that contains seeds. Many of these seeds are very tiny and can travel in the wind. To capture these seeds, place a plastic bag over the tip of the seeded head and tie off with a rubber band. As the wind blows the plant around, the seeds will be captured in the bag and can then be saved. Other vegetables produce seeds with a fleshy protective layer. Seeds for these varieties will be mature when the outer cover of the plant starts to change color. This occurs with crops such as tomatoes, eggplants, peppers, cucumbers, etc. Saving tomatoes seeds is a more in-depth process, which involves some fermentation. Beans and Peas produce pods of seeds and are easily saved.

For more information visit: <u>http://urbanext.illinois.edu/hortihints/0008c.html</u>

Month By Month Garden Guide:

January Start and/or finish your garden plan and records. Read up on things you have not had time to read (books, magazines, articles, etc. about crops, planting, trees/ shrubs/ etc.). Begin planting your spring seeds (depending on your plan). This would be a time to start Asian greens, broccoli, cauliflower, cabbages, and other vegetables that need a long time to start and prefer cooler weather. Start fundraising for spring garden materials.

February Begin starting spring seeds indoors (depending on plan). Early February you will start broccoli, cauliflower etc. Towards the end you can start lettuce, spinach, and other greens indoors. This allows for earlier harvest. Continue fundraising for spring garden materials.

March Begin preparing your beds (add compost or other soil amendments, till beds, etc.) Begin planting seeds and seedlings. When planting seeds be sure to read the package for when the best time would be to plant. Usually lettuce and spinach can be direct seeded fairly early. Peas are one crop that should be sown as soon as the soil is workable. Spring planting usually falls around the same time as spring break, be sure to take this into account when planning. Mid to late March is best, but keep an ear out for frost warnings, and cover beds as needed. If you want to plant tomatoes in May for a longer season, you can start Tomatoes indoors around the second week of March. Continue fundraising for summer and fall.

April Maintenance, harvest, begin summer seeds indoors (depending on plan). Definitely start tomatoes if you are planning on them for summer. Continue fundraising for summer and fall.

May Maintenance, harvesting, start summer seeds indoors (depending on plan). Turn over beds for summer planting (depending on plan), plant summer seeds and starts outside (depending on plan). Squashes and melons do not do well as transplants, so this would be a good time to plant those seeds in garden beds. Finish up fundraising for summer and fall. Set up a summer maintenance committee to manage the watering and harvesting at the garden. Summer cover crops can also be utilized if there is lack of help for the summer season. **June** Maintenance, harvesting, turning over your beds for summer (depending on plan), planting your summer seeds and starts outside.

July Maintenance, harvesting, begin planting seeds for fall indoors (depending on plan) these would be your Asian greens, broccoli, cauliflower, cabbage, Brussels sprouts, etc.

August Maintenance, harvesting, begin planting seeds for fall indoors (depending on plan). Start up fundraising for fall.

September Maintenance, harvesting, turn over beds for fall. Plant fall seeds and starts outside. Continue fall fundraising.

October Maintenance, harvesting, continue your fall plantings, plant your seeds for winter crops indoors (spinach, kale, etc.).

November Maintenance, harvesting, begin to close up garden for winter, cover your remaining plants, plant your winter crops (depending on plan). You can overwinter some crops if you want an early spring crop. Some carrot varieties can be placed in the ground and overwintered, kale, and hardier greens can also be overwintered.

December Final closing down of garden, covering of plants still in the ground, finish up records, start planning (if there is time).



Part 3:

Gardens in the Cafeteria

Things to Know:

When incorporating gardens into the food served through the cafeteria there are key things to consider:

- 1. How can produce from the garden be served so that it abides by state and federal food safety guidelines?
- 2. What can the cafeteria staff best utilize with their current resources (labor, tools, space).
- 3. How much can the garden space produce? Is it enough for the cafeteria?
- 4. What sorts of recipes can be made that kids will eat and like?
- 5. How can we incorporate cafeteria composting into the garden?

The following guide is a brief introduction to serving produce grown in the school garden in the school's cafeteria. As with anything, the process will often be a lot of trial and error, but the reward is great. Students will learn to appreciate vegetables, which will aid in their overall wellness.

Safe Food Guidelines

There are no specific laws that separate garden produce from produce purchased through a distributor. The trick with using garden produce in the cafeteria, is to use the same practices designated by safe food handling guidelines. Below are some guidelines given by the Illinois Department of Public Health as well as the USDA. Before starting a garden, meet with the food service director to discuss some key issues. It is important to know what the cafeteria could use and has the infrastructure to process before planting. Some restrictions for serving produce occur when schools have contracts with a management company or other vendor.

Pre-Garden Construction Considerations:

- Prior to constructing the garden be sure to test the soil for any
- contamination from heavy metals or pollutants.
- Do not place the garden near trash receptacles, storm-water drains,
- septic systems, etc.
- Do not use treated lumber, tires, or one-time use plastics in the garden.
- Ensure there will be access to clean, tested water.
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Growing and Harvesting:

- Do not use manure or unfinished compost in the garden. This can contain harmful pathogens.
- Do not allow students or volunteers to work in the garden when sick
- (especially if symptoms include vomiting and diarrhea).
- Have students and volunteers wash their hands or wear clean gloves when handling produce.
- Keep all tools clean. Sanitize clippers used for cutting produce
- (especially leafy greens).
- Place harvest in clean, sanitized, food-grade containers.
- Keep containers clean and sanitized before and after use.
- Bring produce immediately to cafeteria kitchen to be cleaned and stored.

Safe Food Tips...

Cleaning and Storing Produce:

- Produce should be washed at a temperature no more than 10°F colder than the produce.
- Do not wash berries until they are ready to be eaten. Unwashed produce
- should have the dirt brushed off and be placed in clean plastic bags or
- containers for storage.
- Dry washed produce thoroughly with a clean paper towel prior to storage.
- Use clean, food-grade storage containers placed 6 inches above the ground.
- Produce in need of refrigeration should be kept at a temperature of 44°F.
- Produce that does not need to be refrigerated (potatoes, onions, tomatoes,
- etc.) should be stored in a cool, dry, pest-free well ventilated area.
- Preparing and Serving:
- Always thoroughly wash hands before and after handling produce. If using gloves, wash hands prior to putting gloves on.
- Rinse produce under cool, running, potable water. Scrub hard vegetables such as melons and cucumbers with a clean produce brush.
- Any leftover cut, cooked, or prepared produce should be stored in clean,
- airtight containers at 44°F or less.
- Prepared produce (such as that used in a salad bar) should not be on display
- for more than five hours. Any unused produce after this time should be
- composted.

Additional Resources:

USDA Food Safety Tips for School Gardens:

http://nfsmi.org/documentlibraryfiles/PDF/20110822025700.pdf

USDA Farm to School Safety Programs:

http://www.fns.usda.gov/cnd/f2s/faqs_safety.htm

University of Illinois Cooperative Extension Food Safety and Preservation:

http://web.extension.illinois.edu/cook/eb124/

FDA Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables http://www.fda.gov/downloads/Food/GuidanceComplianceRegulatoryInformation/

GuidanceDocuments/ProduceandPlanProducts/UCM169112.pdf

Serving Garden Produce:

Top Things To Grow:

When choosing vegetables to grow for the cafeteria be sure to ask the kitchen manager what they would be able to make use of. It is good to start with staples that kids will eat and the staff knows how to prepare. Another important thing to consider is how much yield a particular crop will produce. Cafeterias often need large quantities of ingredients, so the higher yielding plants are great for this. Below are some examples of foods that have high yield, are easy to prepare, and most kids are willing to eat. Experiment with the arugula and other mysterious veggies after kids realize that the vegetables from the garden are tasty. Potatoes, Carrots, Snow Peas, Melons, Squash/ Zucchini, Tomatoes, Cucumbers, Blackberries or Raspberries, Green Beans...

Growing Herbs:

Growing a perennial herb garden is another way that the school garden can provide for the cafeteria. Fresh herbs are also packed with nutrients! Some commonly used herbs would be: Basil, Parsley, Chives, Cilantro, Thyme, Rosemary, Sage, etc. The kitchen manager may be able to suggest herbs they can make use of.

Salad Bars:

Salad bars are great ways to provide a variety of fresh vegetables from the garden. Lettuce, Spinach, and other greens could serve as a base spring mix. Tomatoes, cucumbers, onions, snow peas, corn, berries, carrots, and other vegetables could be available to students as well. Students may be more apt to try salad if they have taken part in the growing and harvesting of the vegetables.

Gardens in the Cafeteria...

Example Schedule for Harvest day: 1. Garden Leader decides what produce is ready to be harvested in the garden. 2. Garden Leader takes harvest containers to school kitchen to clean and sanitize. 3. Garden Leader gathers the recording sheet and scale. 4. Student harvesters are collected from the classroom. Be sure the students are not sick. 5. Have students thoroughly wash their hands. 6. Garden leader will show students what is ready to harvest and examples of what ripe and ready produce looks like when ready to pick. 7. Students harvest produce and place in sanitized containers. 8. Rinse large chunks of dirt off produce with garden hose. 9. Students weigh produce and record the weight and their names on the recording sheet. 10. Produce is then taken to the kitchen manager. 11. Harvest containers are then cleaned and stored, along with the scale and recording sheets. Source: Slow Food Denver Seed-to-Table School Garden Alliance)

Composting in the Cafeteria:

Fírst Steps:

- 1. Share ideas and seek support from school community.
- 2. Develop a committee.
- 3. Research school composting operations.
- 4. Clearly define scope of the project.
- 5. Follow the school system protocol for developing new programs.
- 6. Get support from all components of the school community.

Roles:

- Administration: Introduce staff to program at the beginning, remind
- students about the program throughout the year, find ways to fit
- compost tasks into routine staff duties, encourage inclusion of
- composting concepts into curriculum.
- **Teachers:** Integrate compost components into curriculum, monitor food
- sorting at lunch period, supervise student workers. Consider providing a
- PowerPoint teachers can show to introduce students to the compost program.
- Students: Responsible for sorting lunch wastes, can form a "compost team" of 10-12 students to manage the composting program, can help with the maintenance of compost bins. *Get students involved at the start of the school year*.
- **Town Recycling Coordinator:** Great resource when learning the compost process, as well as helping to decide on bin size, type, or construction.
- **Custodial Staff/Public Works:** Should be consulted on placement of bins so they do not hinder their current work roles. Can incorporate grounds waste into compost (wood shavings, grass clippings, leaves, etc.)
- Kitchen Staff: Provide food preparation scraps (vegetable peelings,
- coffee grounds, old produce) for bins.
- **Parents:** May have compost knowledge or desire to help with the school compost program. Parents should be incorporated into the compost committee.



Composting...



Promoting the Program:

- **Compost Awareness Week:** Plan a week at the start of school to get students excited and introduce
- students to the compost program.
- America Recycles Week: Includes the week of November 15.
- Earth Day: April 22nd
- International Compost Awareness
- Week: First week of May
- Compost Poster Contest: Have each
- class create a poster to show proper
- composting tasks or the process of
- composting.
- School Compositing Club
- **Community Business Donations:** Donations could be for supplies to build compost infrastructure, or to provide prizes to distribute for student participation.

Materials Needed:

- Pitchfork or garden fork
- Work gloves
- Clip-board with record sheets
- Steady supply of bulking materials (leaves, twigs, wood chips, etc.)
- Labeled food barrels with wheels for use in cafeteria.
- Sifting screen (hardware cloth
- stretched over a wood frame)
- Compost Bins (built or bought premade)
- Cloth rags
- Shovel
- Wheelbarrow

- Student Employment: Can be used if school has a work-study program to get compost program up and running at the start.
- Grade-Level Competitions: Have classes compete for who can do the best job at properly sorting materials during lunch hour.
- **Coupons:** Pass out school store coupons when students participate in the composting program.
- **Student Council:** Have the student council include the compost program into their tasks to come up with other incentives to get students involved.
- **Prize Drawing:** Have students who participate, place their name in for a drawing

Sample Sign for Cafeteria Receptacles For the Compost Pile

- Bagels (with cream cheese is OK)
- Bread (with mayonnaise is OK)
- Cereal (with milk is OK)
- Cookies
- ♦ Fruit all parts
- ♦ Pasta
- Pizza
- Rolls (with butter is OK)
- Salad (with dressing is OK)
- Soup
- Vegetables raw or cooked
- Waffles (with syrup is OK)
- NO MEAT

Choosing your Bin:

Building your own bin allows you to meet the needs of your school. Before jumping in and constructing bins, here are some things to consider:

Location: Pick a spot located behind the school or behind a partition on level ground. Be sure that food bins can be easily transported to this area. Leave at least three to four feet between the bins and the walls. Avoid placing your bin near the

dumpster, this will prevent pest issues and will also keep workers from associating the smell of trash with compost.

Size: For a school, a 4x4x4 foot bin will be suitable for a cafeteria producing 50 pounds of waste a day. Bins can be wider than 4 feet, but do not make the bin taller than 4 feet for ease of use. Monitor the amount of waste produced in a week before deciding on bin size. Constructing multiple bins allows for more storage and quicker curing of compost. Compost can be transferred from one bin to the next as it matures,





with the end product being finished compost for your school garden!

Building Materials: When deciding on materials to use for your compost bins, consider the long-range life of the materials as well as their cost and availability. Avoid pressure-treated wood as it can leach chemicals into the compost. Cedar is a great wood to use due to its rot resistance. For a low-cost option wooden shipping pallets are a suitable size and can be found at various businesses around town. Pallets, however, may not last as long as other materials. Recycled Plastic lumber is another suitable material for bin construction, but is one of the highest in cost. The initial cost of plastic lumber, however, is offset by its long-term durability. All bins will need to lined with heavy-gauge, quarter-inch or half-inch hardware cloth and secured with galvanized fence staples.

Cost: The expense of compost bins and tools varies based on materials chosen. Check and see if a local lumber yard would be willing to make a donation, or if there are parents or staff at the school with access to resources. Buying materials through a large school-wide or town-wide purchasing may also be a way to save money. Tools can be found fairly inexpensive at a gardening store or a second-hand store. Most costs involved with composting are involved in the initial construction. Once bins are established there will be maintenance here and there that should be low in cost. Use of volunteer labor will also help to keep composting at a low cost. Check and see if

Composting...Day to Day Tasks

Students and staff will need training prior to be assigned tasks. A schedule can then be set up that will work around the lunch schedule, availability of volunteers, and what works for kitchen and custodial staff involved.

Daily Task for a supervised 2-3 Student Team (15 minutes):

- 1. Collect Food Scraps: At lunch food scraps will be deposited into designated containers
- in the cafeteria and kitchen. Food barrels in the cafeteria should be located where
- students sort their trays. One or two labeled food barrels in the kitchen should be
- enough for food preparation scraps, leftover food, and coffee grounds. Waste should be transported to the compost bin daily. Students will take these containers and consolidate
- them into one container that is lined with a plastic trash bag.
- 2. Weigh Food Scraps: Students will weigh the bag of food scraps and record the amount of food. By recording the weight the total amount of food processed in a given amount of time can be tracked, which shows the savings schools may receive in terms of solid waste disposal fees. Weight records can also be used for constructing math problems. Science classes can track and analyze the compost operation, including the amount of
- food processed.
- 3. Transporting Food Scraps to Compost Bins: Barrels will be wheeled out to the bins.On the way out students should grab work gloves, pitchfork.
- 4. **Spreading Food Scraps:** Lining the food waste barrels with plastic trash bags will make managing the food waste much easier. These bags will then be emptied into the compost bin and spread around, not piled in the center. Compost bins with removable front panels make it easier for students to complete this task.
- 5. Layering with Bulking Material: Spread a few inches of wood chips, wood shavings, or
- leaves with a pitchfork, covering the food completely. This will help deter animals. The lid should then be latched.
- 6. **Cleaning-Up:** Students use cloth rags and water to wipe off the shovel then store the equipment and return the barrel to the cafeteria.

Weekly Tasks: (or as needed)

Checking and Maintaining Bin: The supervising adult should report any structural problems with the bins to the project director so they can be fixed quickly to avoid safety issues and animal entry. Paths will have to be maintained to bins when it snows.

Turning the Pile: Bulking material will aid in maintaining air circulation in the pile. Over time these air pockets will fill, leading to lack of oxygen. Lack of oxygen in the pile slows decomposition and leads to a strong odor. A drop in temperature of compost is a sign that the pile needs to be turned to incorporate oxygen. Turning the pile simply means mixing up the materials using a garden for or pitchfork to move the pile from one bin to the next (if using multiple bins). This will move cooler portions of the pile to the warm center while also adding air to the pile. The temperature of the pile should raise back up within a few days. The pile may also need to be turned when the bin is full. This task can be completed by a group of students, each taking a shovelful at a time to the next bin.

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Composting ... Finished Compost

Overview:

The total amount of compost material produced will be about two thirds the weight of food wastes put into the bins. The final product produced through successful composting will be a dark, crumbly, sweetsmelling compost. It takes about a year to produce fully finished compost. The nutrients and salt content of compost will depend on the types of food waste being used. If a lot of processed or salty foods are frequently placed into the compost bins, it is important to cure the compost before applying it in your garden. Curing simply means letting it sit for a while so that it can become neutral in pH and low in unstable nitrogen and soluble salts. To see if compost is ready you can test the soil yourself or send it off to be tested through the Illinois Extension. Salty compost will harm or even kill plants in a garden, so it is important to have it tested before applying it to your garden beds.

Uses of Finished Compost:

- Soil amendment for school garden: test prior to using
- Potting soil component: Mix with equal amounts of sand and/or vermiculite, and peat moss. If compost is high in salts, use less in potting mix.
- Mulch (top dressing) around existing plants: This is great for around the school's trees, shrubs, and other perennials
- **Compost tea for watering plants:** Collect drainage from burlap
- bags of wet compost.

Part 4:

Gardens in the Classroom

The benefits of fruit and vegetable consumption are numerous, but it can often be a struggle to get children to try new things. Incorporating the garden into not only health education, but across all disciplines, is a way to get students excited about trying new foods. This portion of the toolkit will give some broad ideas of incorporating gardens into your curriculum. There are no shortage of lesson plans available, so this is merely a way to get the wheels turning.

Currículum Basícs

Literature:

- There are many books to choose from that educate children on how things grow and the benefits of gardens.
- Use books to read aloud and to aid
- children in investigating the story in
- the garden.
- Have students create poems or stories
- about the garden and share around the school.

Social Studies:

- Study historical gardens and practice
- those techniques in the garden. For
- example: Victory Gardens, Three-
- Sisters Growing Method.
- Study the history of various plants and their cultivation and/or uses in various cultures throughout history.

Science:

- Students can study the lifecycle of various plants and insects found in the garden.
- Science journals can chronicle the
- various insects found in the garden and
- discuss their role in the garden
- environment.
- Older students can learn how to test
- soil while also learning about pH and
- various minerals and soil components.
- Students can study the role of various parts of plants.
- Pollination, Photosynthesis, etc.

Math:

- Estimating and counting seeds
- Measuring height, weight, and volume of plants, soil, and seeds.
- Ratios with the use of the square foot gardening technique.
- Students can discover naturally occurring ratios and patterns by dissecting various plants.

Art:

Plant a rainbow garden with a variety of different colored fruits and vegetables. Have children illustrate the rainbow through painting, drawing, or song. Utilize leaves, flowers, seeds, etc. for art projects. For example: Have students create decorative vases with seeds for mothers day.

Other:

Older students can create business models for the garden. Students
will incorporate costs of materials
and labor and calculate profit
delivered by finding market value
for various types of produce.
Have students create a short play
that illustrates natural processes
they have witnessed in the garden.
Have students submit photographs
and stories onto a blog created for
the garden.

Handy Resources:

Other:

The Princeton Schools Garden Cooperative: Garden Planning for All Grades & Lesson Plans!

http://plainfieldgardenclub.org/uploads/1754/GardenCoopGuide10-6-07.pdf This source is based off New Jersey Curriculum Standards but could be easily adapted. The packet covers lesson plans for early childhood education to grade 7.

Got Veggies? A Youth Garden-Based Nutrition Education Curriculum http://www.dhs.wisconsin.gov/publications/P0/P00228.pdf

This packet has lesson plans focused around improving child nutrition though handson interaction in a garden environment.

Victory Gardens: Handbook of the Victory Garden Committee War Services, Pennsylvania State Council of Defense

http://www.earthlypursuits.com/VictoryGardHandbook/VGHv.htm

This site is a guide that could be used to incorporate Social Sciences into garden lessons by mirroring similar techniques found in the manual.

School Garden Weekly

http://schoolgardenweekly.com/tag/lesson-plan

This site is full of additional resources for lesson plans that involve school gardens.

Garden ABC's: Lesson Plans and Curricula

http://gardenabcs.com/Lessons.html

This site has lesson plans aimed at getting educators started at creating lesson plans based around school gardens.

The resources available are limitless! Many teachers will be able to go through their curriculum standards and find straight-forward ways to incorporate gardens into their classrooms. Encourage educators to make use of the garden space by creating an environment that will allow children to be able to complete a lesson in the actual garden. This will involve having a seating area and rules established for proper garden etiquette. Don't be afraid to try new things! Gardens serve as hands-on teaching tools that benefit all students.

Additional Resources

Part 5:

As the farm to school movement is gaining more popularity it is nearly impossible to keep up with all the publications popping up across the country. It is hoped that this toolkit will equip you to set out and start a successful learning garden, but there are some other great resources that may be of use as well.

Additional Resources...

How to Grow More Vegetables...

By: John Jeavons.

For those interested in learning more about bio-intensive methods of growing, this book is a great resource. The book is full of information, but is suggested for a gardener with at least some experience.

Smart Gardener

http://www.smartgardener.com/

This website provides beginning to advanced gardeners with tons of tools! The site is free to use and includes a program that allows you to map out and plan your garden beds for the season. With your garden plan, a calendar of when to start seeds, plant, etc is included. The site also features handy articles for answers to all gardening questions. Great for beginning gardeners!

Organic Gardening

http://www.organicgardening.com/

This website is a great resource for researching pest and plant problems. Growing guides can be found for almost any crop, as well as innovative growing methods and trends.

University of Illinois Extension

http://web.extension.illinois.edu/state/hort.html

The UI Agricultural Extension provides resources on gardening. Your local extension agent can also help identify pests or diseases or answer other questions.



Fun Books...

Roots, Shoots, Buckets, and Boots: Activities To Do In The Garden:

By: Sharon Lovejoy

This book consists of a variety of themed garden ideas. Even theme provides a plan and planting recipe. The book also has other fun activities children can take part in at the garden.

Square Foot Gardening

By: Mel Bartholomew

This book is an in depth guide on square foot gardening. If you are interested in practicing the square foot gardening method at your school, this book may prove to be a very useful resource.

Kids Container Gardening: Year Round Projects for Inside and Out

By: Cindy Krezel

This book features a variety of container garden projects that are easy and fun for kids to do on their own. The book also provides a glossary of terms, a listing of plants used in the book, a list of resources, and numerous photographs to guide students.

The Vegetables We Eat

By: Gail Gibons

This illustrated book introduces children to a large variety of vegetables, why we eat them, and the nutrition they provide for us.

Jack's Garden

By: Henry Cole

This rhyme book discusses a child creating his garden with colorful pictures.