

EAT SMART... IT'S IN THE GARDEN



South Carolina's Toolkit for Starting or Enhancing a School Vegetable Garden



Acknowledgments

Eat Smart...it's in the Garden! South Carolina's Guide to Starting or Enhancing a School Vegetable Garden is the result of many individuals and organizations that have devoted their time and effort to this endeavor. This toolkit could not have happened without the hard work and commitment displayed by the following people and organizations:

S.C. Department of Agriculture

Eat Smart, Move More...SC

Division of Nutrition, Physical Activity, and Obesity

2008-2009 Eat Smart ...it's in the Garden Grant Recipients

Birchwood Middle School (Dept. of Juvenile Justice), Columbia - Debbie Blackmon
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Mellichamp Elementary, Orangeburg - Amy Clegg
Pauline-Glenn Springs Elementary, Pauline - Nancy Stewart, RN
Pontiac Elementary, Elgin - Wendy Myers

2009-2010 Eat Smart...it's in the Garden Grant Recipients

Ford Elementary, Laurens - Debra Bishop
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Hugh E. Weathers
Commissioner

State of South Carolina Department of Agriculture

Mailing Address
PO Box 11280
Columbia, SC 29211

Physical Location
1200 Senate Street
Columbia, SC 29201

803.734.2210
803.734.2192 (FX)
www.agriculture.sc.gov

June 21, 2010

Welcome to our first School Gardens Workshop. Just the fact that you are taking the time from your summer break to attend today's workshop shows your commitment to promoting better nutritional practices while also teaching valuable agricultural appreciation skills to our children.

The SC Department of Agriculture is delighted to partner with *Eat Smart...Move More* and the SC Department of Health and Environmental Control Center for Childhood Obesity to create a statewide School Garden Workshop. The goal of our partnership is to develop ways to help prevent childhood obesity in South Carolina. This toolkit is a start and has been prepared to assist you in implementing a school garden in your community.

The planting of a school garden is an effective and fun way to instill the appreciation for agriculture and food production in our state's children. Each school's garden will be unique and will foster a new element of health, nutrition, exercise, and education while deepening relationships within your schools and communities. Having grown up on a farm, I know first-hand the love of the land and the satisfaction that comes from watching a tiny seed grow. And, I know first-hand that "*Nothing's fresher, nothing's finer*" than locally grown South Carolina fruits and vegetables!

Enjoy using the toolkit and please don't hesitate to call the Department of Agriculture for any questions or concerns you may have as you get started with your school garden or to share your success stories with us. I encourage you to visit our website at www.agriculture.sc.gov which will be very informative and offers links to numerous other agricultural sites.

I wish you the best as you cultivate a passion for agriculture and healthy eating habits in the future citizens of our state. I hope that you all find agriculture to be as enriching and rewarding as your Commissioner of Agriculture does! And remember, "*Nothing's fresher, nothing's finer!*"

With best regards,

A handwritten signature in cursive script that reads "Hugh E. Weathers" followed by a horizontal line.

Hugh E. Weathers

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Eat Smart... it's in the Garden Program

The Eat Smart...it's in the Garden program began as a collaborative effort between the SC Department of Agriculture and Eat Smart, Move More...SC (ESMMSC). The program provides a connection between agriculture, education, and a healthy lifestyle. It also helps the state in addressing childhood obesity.

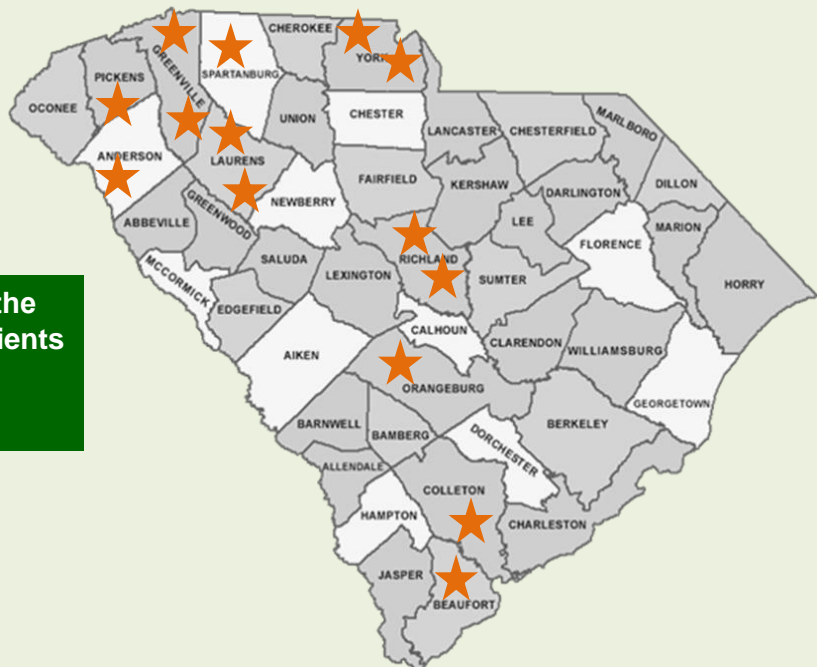
In 2008, an initial survey was distributed to contacts throughout the state to obtain general information about schools with gardens and those interested in starting a garden. Results indicated interest from many schools on how to establish a garden or how to expand or revitalize an existing garden. Through funding support of ESMMSC, five sites were awarded grants in 2008-2009 for establishing or expanding gardens in their schools. Due to the success of these initial Eat Smart...it's in the Garden sites, nine additional schools were awarded grants in 2009-2010 as shown in the map below.

This toolkit was developed based on the lessons learned from the Eat Smart...it's in the Garden grantees. It was designed to serve as a guide to help SC teachers and other school staff create, maintain, and sustain vegetable and fruit gardens in their own schools. Not every school garden in SC has to become an Eat Smart...it's in the Garden site. For a more successful, long-term sustainable effort, consider this model as you start the process of implementing a garden at your school.

If the current obesity trends continue among children, 30% of boys and 40% of girls born in the year 2000 will develop Type II diabetes, primarily due to a poor diet and lack of physical activity (see Appendix A: SC Obesity Fact Sheet – Children)

**Eat Smart...it's in the
Garden Grant Recipients**

2008 – 2010



What is an Eat Smart...it's in the Garden Program?

Eat Smart...it's in the Garden provides a model, comprehensive approach to implementing a school garden program. The program is comprised of "9 essential elements":

-  **School garden committee**
-  **Vegetable and/or fruit garden**
-  **Leveraging resources**
-  **Student involvement**
-  **Curriculum integration**
-  **Community involvement**
-  **Use of produce in school/community**
-  **Sustainability**
-  **Monitoring**



Stone Academy



Nevitt Forest Elementary

Why Garden at School?
















A School Garden is **YOUR** Toolkit for Learning

The Garden is an effective tool for promoting student learning, enhancing instruction, and increasing community involvement. The way you use the school garden will be determined by the unique needs and interests of your school community.



York Technical College Child Development Center

School Gardens can:



-  *Enhance the instruction of many SC educational standards for pre-K through grade 12*
-  *Spice up normal classroom activities and lessons*
-  *Turn the classroom into a sensory learning lab. Taste, see, smell, hear and touch food and how it affects us all*
-  *Expose students to healthy lifestyle choices*
-  *Involve students with diverse needs and talents*
-  *Encourage healthy eating and activity habits*
-  *Cultivate environmental awareness and stewardship*
-  *Expose children to new food experiences*
-  *Enhance mental and physical function*
-  *Promote student bonding and teamwork*
-  *Increase parental interaction and involvement*
-  *Encourage community participation*
-  *Provide an outlet for student stress*
-  *Increase brief exposure to sunlight to help with Vitamin D production*
-  *Offer fundraising opportunities for schools*

According to one teacher, “the students are becoming aware of the nutritional benefits of fresh produce and are more willing to try new food items. They are wanting to eat healthy.”




Planning Your Garden

The thought of having a school garden is very exciting and you may want to just “dig right in!” However, before you start the actual gardening process, there are several things to consider. This toolkit can help you answer these questions.










Why?

-  Why start a garden?
-  Why have a garden on school grounds?

Who?


-  Who will be our leadership support?
-  Who will be involved in the garden?
-  Who will be in charge of gardening activities?

What?


-  What are the purpose and goals of our school garden?
-  What is the plan to reach these goals?
-  What support do we currently have?
-  What kind of garden do we want to create?
-  What types of plants will be grown?
-  What subjects do we want to teach with the garden?
-  What will we do to link these lessons to educational standards?
-  What local resources can we utilize?
-  What local businesses will we contact for help with resources and tools needed for the garden?


One school nurse describes the principal as being “very involved” in the school garden. “[The principal] has helped the children plant their vegetables. She posted information regarding the garden in our school news program, our parents’ newsletter, and in our school district. She also helped with the ordering of supplies.”

When?


 When should we plant a garden?


Where?


 Where should we plant the garden?


 Where are our water resources located?

How?

 How will we obtain the resources needed to start a garden?

 How will we leverage local resources and funding for a garden?

 How will we maintain the garden during the school year and during the summer?

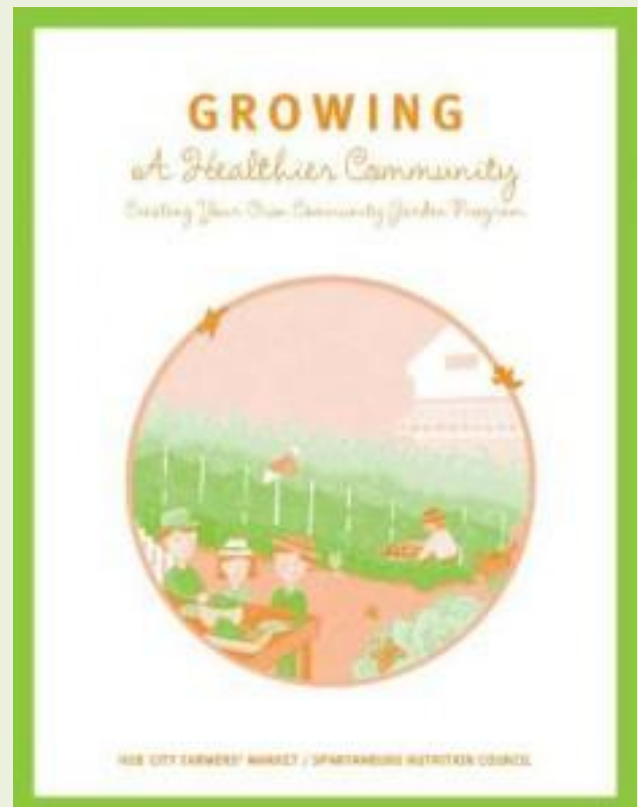
 How will we continue to sustain the garden after it is created?



York
Technical
College
Child
Development
Center

Gardening Resources

Growing A Healthier Community: Creating Your Own Community Garden Program and other resources to help with the gardening process are found in Appendix B.



The Roots of Your Garden


Establishing a school garden committee

Having a team that supports the idea for a school garden is important for the garden's success. You will need a team that can work together to plan for, create, maintain, and sustain your garden. It is helpful if the committee consists of key members that who will actively participate in the creation and upkeep of your school garden. The garden committee can be used to discuss what types of vegetables to plant, the location of the garden, the type of garden that will be planted, how to gain useful and affordable resources, and establish times to work in the garden. Within the garden committee, it is also helpful to find a dedicated and organized Garden Coordinator. This individual can also be in charge of communicating, scheduling, and organizing committee meetings and garden plans. It may also help for this person to have some gardening experience.

Individuals whom you may want to include in your school garden committee or obtain support from are listed below:

 **Principal/Vice-Principal**

 **Teachers**


 **School Nurse**

 **Food Service Staff**

 **Librarian**

 **Maintenance Staff**

 **Parents/PTO**

 **Students**

 **Community Volunteers**

Don't forget to check with your School Improvement Council (SIC) or School Health Advisory Council (SHAC) when you are in the process of planning your school garden committee!

Your school may already have an active school improvement team or other existing committee that would be willing to take on the school garden program as a priority.



Principal/Vice-Principal

The principal is a key member who can ultimately give you approval for the garden to be created. The principal can allot time for teacher workshops, help with fundraising, influence and draw in community/parental support, be involved with the planning process and recruitment of school garden committee members, and fulfill other leadership responsibilities. Principals may also be able to provide year round oversight of the garden project.

Teachers

Teachers can be involved in a number of activities including: incorporating the school garden into their lessons/curriculum, coordinating activities, planting crops, seeking resources, recruiting volunteers, and spreading information about garden activities to the community and school.

School Nurse

Having the school nurse involved with the garden will help connect the school garden to the health and well being of your students. In addition, school nurses can assist with finding curriculum connections with health, safety, nutrition, and hygiene in the garden. The nurse can also be available in case of potential bug bites or scratches.

Food Service Staff

Having food service staff on board with the garden will help to make the best use of your produce by providing resources for preparing taste tests in the classroom or by incorporating produce in the cafeteria. In addition, these members can provide leftovers from the cafeteria for composting. School food service staff can also provide guidance on food storage and safe handling practices.

*One teacher states,
“We have
tremendous support
from [other
teachers] as well as
from our assistant
principal.... [she]
attends each of our
planning meetings
and is excited about
the amount of
teaching and
learning that is
taking place
outside, using
hands-on methods.”*

Librarian and Media Specialists

School librarians and media specialists can be helpful by finding resources related to school gardening for the students, which can cultivate further interest and excitement in the garden. They can also find related literature for the teachers and parents.

Maintenance Staff

Maintenance of the garden proves to be a challenging task for many teachers and garden members, so including maintenance staff in your school garden committee may be helpful for a successful garden. Maintenance staff can help maintain the garden during the academic breaks, and assist with storage, tools, and irrigation. Additionally, maintenance staff can provide information about chemicals used on school grounds near your garden for the safety of those individuals participating in the garden or eating produce from the garden.

Parents/PTO

It is helpful to have parents involved in the school garden committee because they can provide resources, supplies, funds, and volunteer to assist in the coordination and maintenance of the garden. Some parents may even have gardening experience that can be helpful in planting, harvesting crops, and upkeep.

Students

To gain the most benefit from school gardening, students should be involved in all stages of the process. By including students in the school garden from the beginning, they gain ownership of the garden.

Community Volunteers

Volunteers from the community can identify and leverage community resources, act as a liaison for local community events and government, provide assistance with garden maintenance during the summer and school year, and provide gardening knowledge, supplies, and other resources.







*Gray Court-Owings
Elementary*

What Type of Garden is Right For Your School?

There are many types of gardens and garden themes that can be designed at schools, but the garden you choose will depend on your school's goals and purpose for the garden and the resources you have available. After reviewing your goals, choose a type of garden that fits your needs. Then, depending on what will be grown in your garden, choose a location that will best suit your produce depending on sunlight, soil, and water. Below is a quick reference chart to help you determine what type of garden is right for your school.

| | Container Garden | Raised Bed Garden | In-Ground Garden |
|-----------------|---|---|---|
| Soil | <i>Use pre-mix</i> | <i>Use pre-mix</i> | <i>Need to test before planting</i> |
| Sun | <i>Need full sun (6-8 hours)</i> | <i>Locate where you have full sun (6-8 hours)</i> | <i>Locate where plot will receive full sun (6-8 hours)</i> |
| Water | <i>Need a readily accessible water source (i.e. watering can or hose)</i> | <i>Hose, drip irrigation, or sprinkler</i> | <i>Hose, drip irrigation, or sprinkler</i> |
| Drainage | <i>Make sure to have holes in the bottom and a layer of gravel</i> | <i>Usually not a problem</i> | <i>Avoid low lying areas where water stands for more than a few hours after hard rain</i> |

Determine the right size for your garden

-  Make sure to choose a location with enough room for your garden
-  Consider the age and size of the children who will be working in the garden
-  A 12- by 16-foot plot is usually large enough to grow a variety of greens, some herbs, a few tomatoes and peppers, beans, cucumbers and even edible flowers such as nasturtiums for garnishes
-  If you do not have that much available space on your school grounds, a smaller outdoor garden can still grow some fruits and vegetables, or you can choose to house container gardens inside the classroom



Be close to a water source

In most places, rain alone is not sufficient to hydrate fruits and vegetables, so it is important to be close to a water source such as a hose bib or water spigot.



Check the soil

If growing a garden in an area of soil on your school campus, make sure to have the soil checked. Your local Clemson Extension can test your soil for you (see Appendix C). Compost and fertilizers will also help to add nutrients to your soil. If you don't have a large spot of soil on your campus, you can build a garden on asphalt by using raised beds.



Choose a sunny spot

Most vegetables need 6-8 hours of direct sunlight every day. Leafy greens such as lettuce or cabbage can handle less sunlight, but fruiting vegetables such as tomatoes need at least 8 hours of light every day. In general, you should choose a location for your garden that is to the south or west of a building in order to allow for the greatest amount of sunlight for your crops.



Ford Elementary



Greenville Children's Garden

Choosing the Type of Garden You Want to Grow

Different types of gardens include container, raised bed, and in-ground plots, just to name a few. The garden you choose will depend on the resources that you have. If you don't have adequate space on school grounds to create a larger garden, you may want to stick with an indoor container garden. If your school has an open area with an accessible water source, an in-ground plot or raised bed garden may be more suitable for your vegetable garden.

Just Getting Started?

Growing herbs in a container can be a great way to get started and they are easy to incorporate later in larger raised bed or in-ground gardens.



*York Technical College Child
Development Center*

Seed Starter Trays: To plant a seed starter tray you will need peat pods for each student in the class and a greenhouse dome to cover the tray. Peat pods should be soaked in water for about 30 minutes before students can press their seeds into the peat pods. The container garden needs to be placed near a window where it will get plenty of sunlight. Once the plants grow tall enough (about 2 inches), you can remove the clear dome.

Is a Container Garden the right fit?

Container gardens can be indoor or outdoor. You can grow your vegetables near windows or bright sunny areas. Terra cotta pots or plastic containers are readily available at most home and garden stores and are perfect for growing certain vegetables such as tomatoes and peppers.

Is an Outdoor In-Ground Plot the right fit?

To have an in-ground garden plot, find an open space on your school grounds. This area needs to be a sunny spot in which rain water does not often settle. Mark off the garden area and clear all grass, weeds, and debris. It is important to get your soil tested in order to have a proper pH level. After taking soil samples, till the area to prepare it for planting. Based on your soil analysis, you may need to incorporate nutrients by adding compost or fertilizers during or immediately after tilling. To do this, spread compost, moss, or organic matter over the soil and rake it into the top few inches of the soil. Having the correct soil pH will maximize your garden yield.

Soil Testing

** You can test your soil's pH as a classroom activity using litmus paper, or you can contact your local Clemson Extension to test your soil for you.*

•Most vegetables need a soil pH level between 6.0 and 6.8.



Nevitt Forest Elementary



Okatie Elementary

Is a raised bed garden the right fit?

Raised bed gardens can be helpful in organizing your garden in neat rows, and can also be beneficial if you have poor soil quality or drainage issues. For a raised bed garden, find a sunny location on your school campus that is close to a water source. To house your raised bed garden, you can create a square or rectangle with naturally rot-resistant cedar or other type of untreated lumber. Add nutrient rich soil to the top of the bed and then add about 1 inch of mulch (mulch helps to retain moisture around the plants). Finally, rake the top of the bed to smooth it.



*Gray Court-Owings
Elementary*

Is a greenhouse the right fit?

No matter what size the school greenhouse, students can learn about plants, investigate relationships between plants and insects, and experiment with water movement, pollination, and nutrition. How you plan to use your greenhouse will influence the type of greenhouse you build/buy. A greenhouse provides a controlled environment for growing a variety of plants. It is important to pick a location for your greenhouse that will give you adequate sunlight. Other factors to consider include shade, access to water, ease of access for students, and potting/planting areas. Determining when and what to grow will be based on your students' interest and your curriculum plans.

When, What and How to Plant

When to plant

South Carolina has a climate capable of growing many different types of fruits and vegetables year round. Planting times vary depending on the region of South Carolina where you live. For example, if you live in the Upstate, it may be beneficial to plant warm season vegetables later in the spring and cool season vegetables earlier in the fall, compared to recommended planting times for the Central and Coastal regions of the state.



Ford Elementary



York Technical College Child Development Center

What is fun and easy to grow?

- * Radishes
- * Lettuce
- * Beets
- * Broccoli
- * Beans
- * Spinach
- * Edible Flowers



What to Plant

Seeds can be started indoors between January and February and will need to be transplanted to your garden at a later time. Some vegetables, however, can be planted straight from the seed such as beans, beets, cantaloupe, carrots, corn, cucumbers, lettuce, okra, peas, pumpkins, and spinach. If you choose to grow vegetables that you will be able to harvest in a short amount of time, lettuce can be grown in 25 days and radishes can be grown in 45 days. Beets, broccoli, beans, or spinach will mature in 50 days. Additional vegetables and their corresponding planting ranges are listed in the following tables:

Warm Season Vegetables – Plant these in the spring to harvest before school is out for summer

| Plant varieties | When to plant | Days to maturity from seed |
|-----------------|------------------------|----------------------------|
| Cantaloupe | Late March –Early May | 30-35 |
| Cucumbers | Late March – Early May | 50-70 |
| Eggplant | April – May | 65-80 |
| Southern Peas | April – May | 65-125 |
| Okra | April – Mid-May | 60-70 |
| Peppers | April – May | 70-85 |
| Sweet Corn | March – April | 80-95 |
| Squash | April – Mid-May | 55 |
| Tomatoes | April – May | 55-105 |
| Beans | Late March – April | 55 |

Cool Season Vegetables – Plant these vegetables in the fall to harvest before winter break

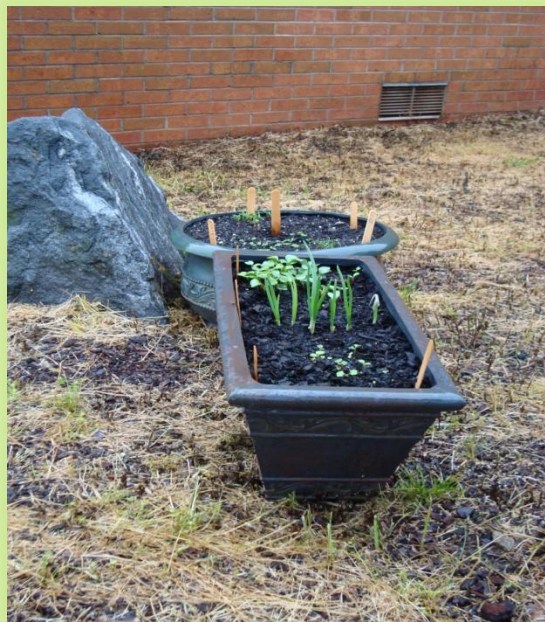
| Plant varieties | When to plant | Days to maturity from seed |
|-----------------|---------------------------|----------------------------|
| Cabbage | Early August | 60-80 |
| Carrots | Early August | 65-75 |
| Collards | August | 70 |
| Lettuce | Late August | 55-75 |
| Radishes | September - November | 21-28 |
| Spinach | Late Sept – Early Nov | 37-45 |
| Beets | Early August | 50-70 |
| Broccoli | August - Early September | 65-70 |
| Cauliflower | Early August | 60-70 |
| Turnips | September – Early October | 50-60 |

How to Plant

Once your garden area is ready, it is time to start planting seeds! Seeds should be planted in the ground at the depth that is about two times their diameter. If you began the seeds indoors and are transplanting them, make sure to place the transplants into the ground at the same level that they were growing in the containers inside. Also, it is not good to plant too deep because the roots will not be able to get enough air. If you are unsure how deep to plant seeds, check the seed packages for proper information. Once the seeds are planted, make sure to water the plants right away. For more information, see Appendix D.



As you progress with your garden, consider adding permanent varieties such as fig trees, blueberry bushes, and dwarf pear trees.



**Nevitt Forest
Elementary**

Helpful Hint:

If you want to cut down on harvest time, visit your local nursery to get seedlings.

Attracting insects to your garden will help pollinate your plants. For more information about pollination, see Appendix E.

Harvesting Resources

How to leverage local resources

In order to initially create your garden and to keep your garden thriving, you may need numerous resources. Using internal and external resources is helpful in having a successful garden. External resources can be attained through numerous methods, but grants appear to be a popular method for many SC school vegetable gardens. Recycled materials, donations, found materials, school funds, and fundraisers are additional resources that can be used for your garden.

For more information about leveraging local resources, you can contact a local SC Nursery and Landscape Association member near you. See Appendix B.



Grants

Grants are very helpful resources for schools to manage their gardens. Grant money can come from local, state, and federal government, private foundations, corporations, and other organizations. In order to receive grant money, your school will submit an application, which should be thoroughly developed and reviewed. Make sure to follow the instructions for the particular grant you are applying for and provide a persuasive argument for why you should receive money for your school garden. A list of possible grant opportunities is provided in Appendix F.

One teacher in the Upstate says “The community garden store has analyzed the garden soil and sent recommendations. They have also provided some free fertilizers. Several parents have bought and donated garden gloves for the children. A community member bought and donated recycled buckets for the grade levels to store their garden supplies. Parents provided the wood used in our garden markers and also donated all the seeds and some plants.”



Donations

Donations are another valuable resource for school gardens. Often parents, community volunteers, other teachers, and local businesses are willing to supply donations for school programs. When asking for donations, target businesses with services that match your needs and be specific and professional in your requests. Remember that donations do not just include money, but also can be in the form of supplies such as seeds, tools, and lumber. Sample letters are available in Appendix G to help you ask local businesses for donations. Remember when receiving donations, make sure to always acknowledge and thank your donors.



Fundraising

Fundraising can be a successful tool for gaining community involvement and resources for your school garden. It can also provide a positive learning experience for students. For example, harvested produce or small bunches of flowers from the garden could be sold to the local community. Other items that are created from the garden such as potpourri or paper made from pressed flowers could be sold or auctioned at a school event.

South Carolina School Garden Blog: This site is maintained by the S.C. Department of Agriculture for the purposes of sharing information and funding opportunities that may be of interest to school gardens. For example, the Bonnie Cabbage Plant program is an annual program that Bonnie Plant sponsors giving students cabbage plants to grow and compete for prize money based on the largest cabbage plant grown in every state. For more information, see Appendix B.



Ford Elementary

Choosing a Garden Theme

Sometimes having a garden theme is a creative way to make gardening a little more fun and exciting. The following themed gardens produce fruits, vegetables, and other tasty edibles:

Theme Gardens

Pizza garden or Salsa Garden: Grow toppings for pizza or make your own salsa with tomatoes, onions, and peppers

Literature Garden: Grow plants from popular childrens' books

Herb Garden: Herbs can be grown in containers or in the ground with other plants

Native American: Learn about our Native American culture by growing native crops such as maize, squash, and beans

Multicultural Garden: Learn about different cultures by growing plants from around the globe such as soybeans, yams, ginger, jicama, cassava, and Chinese cabbage

Nutrition Garden: Learn about nutrition while growing a combination of healthy vegetables

Native Plants: Grow plants that are native to the area of your school's location

Historic or Heirloom Garden: Grow plants mentioned in history such as dill, mint, and barley. You can also find and grow historic heirloom varieties of plants such as yellow tomatoes, purple peppers and white eggplant



*Artwork decorating
the Blueberry
Garden at Stone
Academy*

Tool Storage & Garden Security

It is important to give some thought to how you will store your garden tools and steps you may need to take to secure your garden. Proper storage of tools can save you time, money, and help avoid potential injuries. Storage and security options include:

- 🍅 *Shipping container – highly secure structure for storage of tools*
- 🍅 *Plastic waste bin for upright storage of long handled tools*
- 🍅 *Storage shed*
- 🍅 *Airtight and waterproof containers*
- 🍅 *Wagon for hauling tools to garden site*



*Holly Springs
Elementary*

Sticky Fingers in Gardens

As your garden grows in popularity and as produce becomes ripe for harvest, there's a chance that it could disappear. Consider if your garden will need additional security measures to preserve your produce for harvest.

Water – Keeping Your Garden Hydrated

Irrigation

Since rain is often not enough water for plants to grow., it is important to sufficiently water your plants. If you have raised beds, you will need to water the plants more frequently because the soil drains well. A rule of thumb is, if you stick your finger about 1 inch in the soil and it is dry, then you need to water your plants. Make sure to add enough water to reach the plant roots so that the roots can grow further down for a healthy plant. For smaller gardens, hoses are sufficient to water the garden, but larger gardens may require drip or soaker hose irrigation systems. For summer maintenance, drip irrigation systems will help with watering your plants and mulch will help to keep the soil moist and reduce weed growth. Water the plants during the early morning so that the water does not evaporate as quickly.

Rain Barrels

Consider rain barrels as another source of water for your garden, as they are eco-friendly, resourceful, and convenient. Placing your rain barrel underneath the gutters of the school can provide an entire barrel full of water that can later be used to water your garden. If it rains enough during the year you can save enough water in the rain barrel that you may never or rarely have to use another source of water.



*Stone
Academy*



*Okatie
Elementary*

Composting – Recycling Makes a Better Garden



Ford Elementary

Composting improves the quality of your soil. When you add compost to soil it releases essential nutrients and helps sandy soil retain the water and nutrients it needs to be healthy. Most plant materials can be used for compost, including leaves, pine needles, grass clippings, and flowers. Using compost from grass clippings in a vegetable garden is not recommended if they have been treated with pesticides. When determining the size of your compost pile, it is important to note that a large pile will be able to insulate itself and hold in the heat, but will also have to be turned more often than a small compost pile. There are a variety of composting bins available. You will need to explore the best option to meet your garden needs.

Troubleshooting Guide for Efficient Composting*

| Symptoms | Problems | Solutions |
|--|--|---|
| Rotten odor | Not enough air; pile too wet | Turn pile; add coarse, dry materials (straw, corn stalks, etc.) |
| Ammonia odor | Too many greens (excessive nitrogen/lack of carbon) | Add browns (straw, paper or sawdust) |
| Low pile temperature | Too small; not enough air or moisture; few greens; or cold weather | Make pile larger; add water while turning the pile; mix in nitrogen sources (grass clippings, manure, or a synthetic fertilizer, such as); or insulate the pile with a layer of straw or plastic |
| High pile temperature | Too large; not enough air | Reduce pile size; turn pile |
| Pests, such as rats, raccoons or insects | Meat or fatty food scraps in pile | Remove meat and fatty foods from pile; cover with a layer of soil or sawdust; build an animal-proof compost bin. |

*Excerpted from *Recycling Yard Trimmings: Home Composting*, IL 48, Revised 1997

Maintenance – Keep it Growing

Properly maintaining your garden is important for a successful and long-lasting garden. This includes weeding, watering, mulching, fertilizing, and harvesting. Properly maintaining your garden may also help prevent against pests so that pesticide use can be limited. Having the garden located nearby so that you can easily monitor it will help you to tend to it when needed. Although the majority of SC schools with fruit and vegetable gardens reported maintenance as the biggest challenge to having a garden, community and student participation can address this challenge. For example, almost all of SC schools with vegetable gardens reported students maintaining and keeping up the garden during the school year. Students, teachers, and community volunteers can also help to maintain the garden during the summer months.

Ways to maintain your garden:

- 🍊 *Grow plants suited for your garden site*
- 🍊 *Plant your garden with enough room for airflow around plants to avoid fungal diseases*
- 🍊 *Choose disease resistant plants for your area*
- 🍊 *Pull or hoe weeds regularly*
- 🍊 *Use mulch, weed cloth, row covers, or fences to keep out pests*
- 🍊 *Remove dead or diseased plants*
- 🍊 *Grow plants that will attract beneficial insects and worms . For additional information regarding helpful and harmful bugs, see Appendix E*

“The garden beds are located right behind the classrooms so they can be maintained.”

Good plants for attracting beneficial insects:

Cornflower
Sweet alyssum
Borage
Fennel
Pussy willows
Mountain mints
Corn
Ornamental grasses
Golden marguerite



Student Involvement – Academic and Physical

To keep your garden and your students healthy and happy, integrate the garden into the curriculum. Classroom time can be spent outside preparing the garden area, harvesting, composting, or maintaining the garden.

Academic Student Involvement

Although science appears to be the most commonly taught subject with vegetable gardens in SC, school gardens can be used to teach an array of subjects from mathematics and history to art and English.

Suggested ideas of how to incorporate vegetable gardens in the classroom are listed below. A more complete listing of lesson plans is located in Appendix H.

Science

Earth Science

- ✓ Create a garden weather station. Record daily measurements and compare conditions with plant growth.
- ✓ Compare and contrast the properties of different types of soils (density, air space, presence of living organisms, composition, texture, smell, appearance).

Life Science

- ✓ Observe the life cycles of plants using fast-growing plants in your classroom.
- ✓ Investigate food chains and webs.
- ✓ Demonstrate how plants are the primary source of energy for all food chains.

SC's Ag in the Classroom is a beneficial resource for your garden. See Appendix B.

"I am a firm believer that what you learn through the work of your hands will last you a lifetime versus what you learn from lecture notes. My science class has become an outdoor classroom, from nature walks, participating in different watches such as a bird count and bee count for the NWF (National Wildlife Federation) to learning about healthy eating through gardening."

Physical Science

- ✓ Use litmus paper or a test kit to test the pH of different soils. Investigate how plants respond to soils with different pH levels
- ✓ Simulate the water cycle in the indoor garden by covering it with a dome of clear plastic. Study and observe the transpiration, evaporation, and condensation of water

Mathematics

- ✓ Measure the growth rates of plants and display results on different types of graphs. Make predictions regarding future growth.
- ✓ Tally cricket chirps to estimate temperature

History/Social Studies

- ✓ Study the contribution of Native American foods and other cultures' foods to our history and diet.
Grow samples in the school garden
- ✓ Trace the path of a fruit or vegetable from the field to the table

English/Language Arts

- ✓ Keep daily garden journals documenting observations, weather conditions, and classroom activities
- ✓ Write, compile, and illustrate a collection of garden poems and stories

Music/Drama

- ✓ Make musical instruments from gourds and learn how to play them
- ✓ Learn a collection of songs that relate to food, gardens, and the environment

Arts and Crafts

- ✓ Design labels for plants to mark plantings
- ✓ Paint rocks to use as garden borders

Health/Nutrition

- ✓ Conduct a blindfolded taste test using classroom-grown vegetables and supermarket vegetables
- ✓ Create a classroom or school recipe book that features produce grown in school gardens



Gray Court-Owings Elementary

“From teaching them about the wildlife in this area to the importance of plants in our everyday lives has aided in many lessons across the curriculum. They will be gaining knowledge in different careers. Through these lessons, hopefully, [by] planting seeds in their hearts and minds... they will... want to become more involved citizens in their communities and make a difference.”

Physical Involvement

Below are some physical activities that students can participate in to help keep your garden growing strong:

🍅 **Planting:** Students can help plant the seeds or seedlings into the garden in accordance with appropriate seed depth recommendations.

🍅 **Mulching:** Students can spread 2-3 inches of shredded wood, leaves, or straw on the soil in the garden to slow water loss and decrease soil erosion.

🍅 **Watering:** If plants need watering, students can slowly water the plant at the base early in the morning. Make sure that plants are watered enough to reach the base of the roots. You can stick your finger an inch into the soil to make sure water has seeped down far enough.

🍅 **Weeding:** Once your students know what plants look like that you want to grow, they can pull out the unwanted weeds (and their roots) with their hands or by hoeing around them.

🍅 **Thinning:** When plants grow too close together, students can cut the tops off of the least healthy plants.

🍅 **Composting:** Students can help build compost piles of garden waste and organic matter in the garden to add nutrients to the soil.

🍅 **Harvesting:** When the time is right, have students carefully dig up, pluck, or snip the plants.

“The children have learned to work together hoeing, weeding, watering, and harvesting. Over 25 children have asked to spend their recess time working in the garden and one parent stated his child started riding the bus so he could work in the garden first thing in the morning.”



Community Involvement

Volunteers from the community are also a valuable tool to help maintain and sustain your garden. You will be surprised how many individuals in the community will enjoy lending a hand. Recruit volunteers through local horticulture clubs, local businesses, your local Clemson Extension, senior citizen organizations, local Boy/Girl Scouts, YMCA, Master Gardeners, Boys/Girls home programs, 4-H, FFA Students/Volunteers (PALS), volunteer fire departments, and other service organizations. Reach out to parents through newsletters, PTO/PTA meetings, open houses, and the school website.

Make sure to schedule a time to meet with the volunteers to explain the background of the garden and needed tasks, along with showing the volunteers around the garden and school. You may need to train your volunteers in order to prepare them for the specific tasks they will be doing.

Also, make sure to effectively communicate with your volunteers often, whether this is through e-mails, newsletters, web site postings or some other method, and give them feedback about their performance. It is extremely important that you and your students show appreciation for your volunteers by thanking them for all of their hard work.

With good strategies, you can gain many additional helpful hands to keep your garden looking great and growing healthy. Don't be surprised that getting the community involved can lead to the formation and development of subsequent interest groups and clubs, such as a 4-H gardening club or a school running and walking club centered around healthy eating and lifestyle habits.

"... the 'wonderful school volunteer that visits with the kindergarten class regularly and assists with the garden will weed, plant, and water when school is not in session. [He] will do whatever he can to help out. He plans to check the garden several times a week."

Different stages of the gardening process can benefit from different types of volunteers. For example, receiving help from local businesses may be more beneficial during the earlier stages such as the planning and creating processes, while service organizations may be more helpful while maintaining your garden.

Harvesting – Reaping What you Sow



Gray Court-Owings Elementary

To harvest fruits and vegetables growing above ground, pluck them from the stems. Make sure to be gentle and not pull them from the stem. To harvest those vegetables growing underground, dig them up carefully. Finally, for leafy greens, make sure not to pluck them from the ground because you may damage other plants. Instead, carefully snip them from the ground. Keep produce cool after harvesting to ensure the best quality.

For more information about how to harvest different crops, see Appendix B



Gray Court-Owings Elementary



Ford Elementary

How to make the Most of your Fresh Produce from the Garden

Examples of ways South Carolina schools with vegetable gardens have chosen to use their produce:

- *Have taste tests*
- *Eat produce during class as an activity*
- *Incorporate produce into meals served in the cafeteria*
- *Have children weigh, count, wash, slice, dice and set the table*
- *Send produce home with students*
- *Donate extra produce to local food banks, nursing homes, or shelters*
- *Sell harvested produce to raise funds for the garden*



Pauline-Glenn Springs Elementary

“Children were able to take the vegetables home and some of the parents came in and stated that they never ate eggplant before or zucchini or they appreciated the tomatoes because they used them in a salad.”

“All the children were excited about tasting the fruits of their labor. The first day that their picked salads were served, more children ordered salads than cheeseburgers. That was a first for our school.”



Ford Elementary

Using School Garden Produce Safely

Many SC schools with vegetable gardens have chosen to eat their produce during class. When using the produce from your garden, make sure to check with your school food service staff about your school rules and regulations regarding eating practices and be aware of food safety precautions. Also make sure that all students, teachers, and other members involved in harvesting and preparing food items are aware of how to handle food safely.

This toolkit provides a basic overview of food safety and safe food handling guidelines. Proper and safe handling of fresh produce from the garden will ensure a happy and healthy experience for everyone.

Tips for Fresh Produce Safety

(<http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm114299>)



When preparing any fresh produce, begin with clean hands. Wash your hands for 20 seconds with warm water and soap before and after preparation.



Certain perishable fresh fruits and vegetables (like strawberries, lettuce, herbs, and mushrooms) can be best maintained by storing in a clean refrigerator at a temperature of 40 degrees F or below.



All produce should be thoroughly washed before eating. This includes produce grown conventionally or organically at home. Wash fruits and vegetables under running water just before eating, cutting or cooking. Even if you plan to peel the produce before eating, it is still important to wash it first. Dry produce with a clean cloth towel or paper towel.



Cut away any damaged or bruised areas on fresh fruits and vegetables before preparing and/or eating. Produce that looks rotten should be discarded.



Ford Elementary

In for the Long Haul

How to sustain your garden

It is important to plan for sustainability from the beginning. Many ideas for sustaining your garden have been discussed throughout the toolkit. Based on previous experiences of *Eat Smart...it's in the Garden* grant recipients, the following tips are key to sustainability:

“Many of the students (almost half) will attend the summer enrichment program for the month of June. They will continue to weed and water as well as harvest. Many faculty and staff have volunteered to harvest vegetables and fruits over the month of July!”

- It is a good idea to plan for time each week in the garden so that students can be involved and tie this time in with the classroom curriculum.
- It is also important to be able to leverage resources in order to keep finding funds and supplies to support your garden. To do this, promote your garden in the community, connect with local contacts, and have consistent fundraising events. See Appendix I for a Sample Media Advisory and a Sample News Release.
- Having solid leadership with an organized and knowledgeable garden coordinator is critical.
- Try to consistently attract and recruit volunteers to assist with planning, funding, planting, and maintaining the garden.
- Summer maintenance can prove to be an ongoing challenge, but with sufficient planning you can maintain a year round garden. Recruit volunteers to help out in the summer and have the students who are enrolled in summer school participate in garden activities.

**Summit Drive
Elementary**



Here are some additional tips to help sustain your garden:

- 🍓 Do not let the garden be dependent on one person such as a principal or teacher
- 🍓 Make sure the garden is not an 'extra' activity, but that gardening is thoroughly integrated in many curricular areas
- 🍓 Try to highlight the garden in each school newsletter
- 🍓 Send out a letter of request for donations to parents at the beginning of the year
- 🍓 Use the school website to discuss the garden, post lessons, or blog
- 🍓 Develop a garden logo to help create an identity for consistent messaging about your school garden program



Stone Academy



York Technical College Child Development Center

To learn more about SC School Garden Survey results and to read how other SC teachers have implemented their school gardens, see Appendix J.

Monitoring Your Garden Progress

Pictures are worth 1,000 words!!! Taking pictures is a good way to keep track of the activities, progress, and influence of the garden. Many SC schools with vegetable gardens take pictures of their garden to keep track of gardening activities and to visualize their progress.



Okatie Elementary

Other ways to monitor your activities include:

- ✓ Scrapbooking and journaling
- ✓ Asking students, parents, and staff for feedback about the garden
- ✓ Monitoring student performance and involvement (tests, projects, assignments, essays)
- ✓ Creating and maintaining a school garden blog
- ✓ Distributing surveys to students or parents
- ✓ Documenting donations and financial support
- ✓ Documenting awards and recognition
- ✓ Administering awards or other forms of recognition related to garden involvement



*York Technical
College Child
Development Center*

No matter which method you choose, regular monitoring of your progress ensures the long term sustainability and success of your garden program. This information will not only be helpful for planning for the future of your school, but also for other schools, granting agencies, and other gardening programs around the nation.

The School Garden Checklist and Timeline are great tools for planning your school garden or evaluating your school garden progress! See Appendix K for additional information.



Greenville Children's Garden

Harvesting Success

Fellow teachers share their stories

Pauline-Glenn Springs Healthy Harvesters

The Pauline-Glenn Springs Youth Advisory Committee, which incorporated an on-site herb garden into cafeteria lunches, has been so successful that they decided a school vegetable garden could creatively encourage and promote healthy eating. Each crop has now been harvested by the grade level that planted it. The produce was taken to the cafeteria and used in the lunch menu. The children have enjoyed cooked cabbage; salads with spinach, green and red lettuce, and radishes; raw carrots; as well as cooked and raw squash and zucchini. The Healthy Harvesters' goal is to expand the garden next year to include a fall and spring garden with more vegetables, a strawberry patch, blueberry bushes, and to plant shrubs and bushes to enhance pollination. With increased production they would like to share crops with the small local nursing home and the Boys Home. With the new construction at the school, the district administration has agreed to connect rain barrels to the gutters so they can have more usable rain water. Pauline-Glenn Springs' staff feel that with these efforts, they can teach children to pursue higher goals of nutrition for life, as well as the desire to recycle and protect the earth.

Birchwood Middle School

Behind the fence at Birchwood Middle School, which is also a school at SC DJJ, boys ranging in age from 12 – 17 are learning. These boys are behind academically and come from all walks of life. They may be serving a sentence from thirty days to five years depending on their charges. Having students plant seeds during class to put in the greenhouse has helped them a great deal. They were excited when their seeds started sprouting, and it was a big deal for them to see the seeds grow. This started plant “therapy” for the students. Growing plants and caring for them aids in their therapy. Taking care of something, and helping it grow gives them pride. This project will help them learn to love, nurture, and share. Last, but not least it gives them a sense of ownership and teaches them responsibility and skills that will last a lifetime.

Mellichamp Elementary School

At Mellichamp Elementary, three classrooms were actively involved in their school garden, totaling around 46 students. Three to four times per week the students dutifully worked in the garden planting, watering, and weeding. With the help of the dedicated teachers and the supportive school principal, the students planted onions, tomatoes, peppers, cucumbers, squash, watermelon, and cantaloupe. One of the teachers started a photo album to document the exciting and tremendous results the garden produced for not only the children, but also school faculty and staff as well. Another creative and resourceful aspect of Mellichamp's school garden is the development of a cookbook, which features healthy recipes using the fruits and vegetables grown in their school. Not only did Mellichamp teachers create a successful school garden program, but they also made plans to continue their success with the help of their devoted students and eager staff volunteers.

Pontiac Elementary School

Students at Pontiac Elementary School are exceptionally busy outside their classrooms these days. Six classrooms and over 100 students work multiple times every week in the school garden they created. The students clean out garden beds, plant seeds, thin plants, and water. In addition, they learned how to take care of the composting, using both a tumble composter and a vermicompost system, and what a lesson that was! They planted an assortment of fruits, vegetables, and herbs, which coincided with the lesson plans the teachers mapped out for their classroom. In addition to the 100 little hands working hard in the garden, Pontiac Elementary has had an enthusiastic bunch of volunteers and supporters. From the school principals, local grocery stores, university professors, parents, and retired community members, there was never a doubt that their garden would continue to thrive.

kinder-gardeners: the power of nature to nurture

by Linda Hutchinson-Harmon

The four-year-old children in Mrs. Hood and Mrs. Harris's class are happily playing in learning centers stationed throughout the classroom. Some are building with blocks, some are playing with play dough, others are putting floor puzzles together, while several other children are playing in the home living center. Two children share the bench at the Young Explorer computer, two children are painting masterpieces at the easels, while still others are working in a small group with a teacher. Suddenly, the door to the class room opens and four 6th graders stand in the doorway with smiles on their faces. One by one the four year olds notice their special visitors and run to give them hugs and excitedly grab their hands and pull them into their classroom. All the indoor activities come to a halt because something better is about to happen — and it happens outside! This is a story about the positive power of nature in the lives of children, particularly those children who are at-risk for school failure.

The setting for the story is the Central Child Development Center (CCDC) in Rock Hill South Carolina, a public preschool with four-year-old kindergarten students (4K) and preschoolers with special needs. South Carolina does not currently have universal 4K programs, but does have optional programs like CCDC that give priority to children who would benefit from a year of high-quality preschool before attending kindergarten. Approximately 60% of the 300 4K students attending are from families at or below 150% of the poverty level and approximately 13% live in homes where English is not their primary language. The majority have not previously attended 'high-quality' preschools. Therefore, for many of our students, this is their

'first chance' to acquire experiences and skills known to be associated with success in school and in life.

CCDC currently uses the High Scope preschool framework. A staff of certified early childhood teachers and assistants plan and implement activities for children that engage them in joyful learning, teach them important and relevant skills and concepts, and encourage them to express their feelings in socially productive ways. Because we are constantly trying to find new ways to engage our children in purposeful learning, some staff are also integrating best practices from other early childhood models such as Montessori, Reggio Emilia, and the Project Approach. The next part of this story involves a program in Rock Hill Schools, called the Rebound Alternative Program, which serves middle school students (6th-8th grade) referred to the program by their home school's administrative staff or through court action. These students, for a variety of academic, social, and behavioral issues, have fallen behind and are 'at risk' for dropping out of school. Many of them have had repeated suspensions, and the Rebound Program may be their 'last chance' at acquiring the necessary social, behavioral, and academic skills to return to their home school and be successful in order to continue their education. According to Hank Hammond, the director of the Rebound Program, these students have innumerable obstacles to overcome. He said, "Most of our kids have been viewed in a negative light by almost everyone. Most parents see their assignment to the Alternative program as another sign of their troubling behavior and tell us to do whatever we want to with them. The so-called 'good kids' at their schools shunned them in order to avoid the disapproving looks and comments those kids received

from the teachers who are concerned with these associations. So the only people who will accept them are the other students who are just like them.” Despite the downward spiral many of these middle school students have been on in school, the Rebound Alternative Program is highly successful in reintegrating these students back into their home schools. The program is designed to provide intensive parent involvement in a separate setting with a maximum of 60 students and small classes. What has recently been added is a community involvement component, and that is where the story of 4K students and middle schoolers embracing nature together continues.

Forming a partnership

It was four years ago that Hank Hammond, Sylvia Echols, Co-Coordinator of CCDC, and I agreed that getting our respective students together might prove to be a very beneficial venture. We discussed the need to involve both age groups in meaningful activities; we knew there might be some concern on the part of families of the preschoolers being associated with Rebound students (there was!), and ultimately such a collaboration would depend on the teachers’ willingness to participate. Like some of the 4K students at Central Child Development Center, many Rebound students are members of overburdened, under-resourced families, and the positive attention, opportunities for achievement and competence, routines and consistency they need are lacking. Other similarities between these two groups are developmental. I have long marveled at how preschoolers, with their egocentrism, their desire for independence, industrious spirit, their compelling need to move and explore, and their rapid growth, are remarkably like typical preteens! Therefore, we knew that meaningful activities for both groups needed to be active, allow for exploration, and give both groups a sense of competence in learning to do new things. We began to

brainstorm what these joint activities could be and we agreed that something to do with nature would be best.

We addressed the issue of parental concern on the part of CCDC students by writing a letter home discussing the logistics of the collaboration, such as the older students would visit classrooms in small groups, be accompanied by their classroom teachers, and that there would be close supervision. We also shared the potential benefits to both age groups. During the first year of this venture, two parents of preschoolers attending CCDC called to express their dissatisfaction; these were parents of children who were not even enrolled in the classrooms that were participating with the students from Rebound. We explained that all of these students are in the same school district, that next year the four year olds would be in elementary schools with children this same age, and that we are an optional program which means they did not have to send their child to our school if they preferred not to. That was the end of parental opposition to date. Recruiting teachers was the easy part. Lynn Hathcock, a teacher at Rebound was the first onboard. The first teacher recruits At CCDC, Laura Reid and Joyce Newman, were experienced teachers who knew the value of classroom volunteers for 18 preschoolers!

Nature at the center of the project

The first year it was decided that the Rebound students would make birdhouses, learn valuable woodworking skills, and then bring them over to Central where our children would paint them under their watchful eyes. Each Rebound student involved also selected an appropriate book to read to the children after they completed their painting work. For students who have previously dreaded reading aloud, this was

an especially successful experience for them, and now they take every opportunity they can to read to our enthusiastic four year olds! By the end of the school year, brightly colored birdhouses were hung all over our school campus attracting a variety of birds for children to enjoy for years to come. The next year, with more classroom teachers at Central volunteering to become part of this collaboration with Rebound students, bulbs were planted around the school building; and special team landscaped a small area in front of our school, planting a crepe myrtle tree and brightly colored bulbs as a memorial garden for one of our children who had died the previous year. From then on, it has been tended with loving care by new students and serves to remind us all of the fragility and value of all the young lives who pass through our school.

During the 2007-2008 school year, a very ambitious gardening project was undertaken by a new group of Rebound students and several additional Central teachers. Lupe Harris, one of our assistant teachers who is also an experienced gardener, suggested we expand

the experiences Central children were already having growing plants indoors in a variety of containers and move to outdoor gardening! Once again Lynn Hathcock willingly volunteered her students at Rebound. We decided they would build large, sturdy raised bed gardening boxes, under the supervision of experienced carpenters, and bring them to Central. The middle school students also learned some basics of growing plants from Master Gardeners. Additional hands-on lessons, supervised by Mrs. Harris, on selecting soil and fertilizer, spacing plants, pruning, weeding, and harvesting were eagerly learned when the Rebound students visited Central. Now they were ready to 'assist' the four year olds who would look upon them as 'Master Gardeners.'

After the Rebound students had carefully constructed four large gardening boxes and many

large bags of soil were purchased, they accompanied the district's Operations department trucks and helped unload everything outside the CCDC classrooms. It proved to be an exciting day for all: the big trucks, the loading dollies, the large bags of soil, and the placing around the area of the bright orange 'protective fencing.' Rebound students were 'in charge'; and it was obvious something important was happening at Central for everyone involved. The rest of the year would be a testament to the power of nature in the lives of all the students and staff involved.

First, the four year olds helped the Rebound students shovel dirt into the raised beds carefully placed in a special gardening area next to the 4K classroom and on the edge of the playground. Being outdoors shoveling dirt may seem like an onerous task to some adults, but these children really enjoyed it! Just being outside and playing in dirt and mud is an activity that many children are experiencing less and less. Many children go home to spend more time indoors watching television or playing video games than their parents did. And experts believe that this generation of children will interact with nature less than any previous generation.

As the year progressed, seasonal vegetables, flowers, and herbs (many donated by local farmers and nurseries) were rotated through the garden boxes. The Rebound students visited their partner classrooms at CCDC regularly and brought various herbs and plants and 'supervised' the four year olds who maintained a strong interest in the activities throughout the year.

Connecting the project with best practice in ECE

As in any good preschool program, activities related to the outdoor gardening project were

integrated into 'inside' activities. A few examples our creative faculty implemented were as follows:

- Children measured, charted, and graphed the growth of selected plants.
- Teachers read selected books on the topic and put related books into various centers (reading nook, home living, science).
- Activities from the "Color Me Healthy" curriculum were incorporated, including the color parade where children dressed up as various vegetables (the teachers did too!) and all families were invited.
- Live worms were ordered and children put some into the gardening boxes, while those living inside in 'the viewing house' enabled children to learn about their important role in the growing process.
- Children dictated or wrote their own stories and illustrated their own personal interests related to the project.
- Harvested vegetables were weighed, washed, and 'tasted' in small groups, and teachers provided vocabulary for the names, colors, and flavors.
- Making salad for snack, with the invited students from Rebound as their guests, was a highlight for the four year olds.

During the most recent school year, 2008-2009, we received two important grants for sustaining the 'KinderGardeners' project:

One from the Rock Hill School District Foundation and one from the SC Department of Agriculture. A unique 'trough' was built between 30 feet of playground fencing and the plastic climbing equipment surround that became a beautiful flower and herb garden. Several classrooms are experimenting with hanging vegetable containers and growing beans up lattice also attached to our playground fencing. Now five of the eight classrooms serving 4K are gardening outdoors and the bounty includes lettuce, tomatoes, squash, cucumbers, green beans, and a variety of beautiful

flowers and herbs. The grants enabled the school to invest in 'infrastructure' equipment and supplies such as wheelbarrows, tools, compost bins, and a cistern guaranteeing that 'Kindergardening' will continue at the school for many years.

Program Benefits

As we all reflected on the outcomes of this continuing project to both groups of students, benefits were identified. The preschoolers benefited from this program in the following ways:

- This long-term gardening project maintained their attention and interest throughout and therefore provided children with a deeper understanding of such preschool science and mathematical understandings as, food and nutrition, weather, seasons, ecology, measurement, temperature, and time.
- All students, regardless of ability, were interested and able to participate in all project activities.
- Children used the garden as a way to cope with stress: digging, weeding, and watering plants.
- Children developed skills of scientific inquiry such as observing, describing, questioning, and predicting.
- Children learned new vocabulary through meaningful experiences.
- They were introduced to a variety of healthy foods that they may not have been exposed to outside of school.
- The preschoolers had opportunities for more one-on-one conversations when the Rebound students were visiting. Time was also allotted for 'playground' fun, and the visitors were willing to play ball, hide and seek, talk, and listen to their young admirers.
- The preschoolers were beginning to understand the importance of taking care of their environment, lessons they will hopefully take with them into adulthood.

The middle school students benefited from the project in the following ways:

- The students always looked forward to going to Central because the four year-olds clearly admired them, and, it was a situation that many of them have never had, someone who actually looked up to them.
- The participating teachers and the entire Central staff were very welcoming and praised the students in the Rebound program for their appropriate interactions with the children. This was another first for some of them since, they had never received praise in an educational setting before.
- The project enabled the middle school students to learn new skills and develop a feeling of competency and usefulness. Often educational settings only reward achievement (academic, sports), but children also increase their self-esteem through activities that value competence and usefulness. Mr. Hammond commented that, “by viewing themselves as competent and helpful it may teach them that those positive behaviors far outweigh the so-called benefits of negative behaviors.”
- Science and math skills were taught through active, hands-on activities; and by teaching something to a younger child, it reinforced that learning for the middle school students.
- And finally, since incorporating community service into the Rebound Alternative Program (with the preschool nature project being the largest), the success rate for these students has gone from 90% a few years ago to 99% this past year. We like to think that the power of nature to nurture and strengthen vulnerable children is in large part responsible for these students’ successful ‘second chance.’

Conclusion

The Central Child Development Center for Pre-K has invested in nature to increase the academic, health, and social readiness of

our students for kindergarten. Project Rebound staff has collaborated with us to increase the successful reintegration of their students back into their home schools. The collaboration has been deemed a successful investment by both programs.

During the last week of school, all the Rebound students who had participated in this year’s project came to visit our school one last time. It was a happy occasion, as every one of them was going back to their home school, hopefully experiencing more success than before. They brought each of the participating preschoolers, who would also be moving on to kindergarten better prepared for success, a gift — a small tomato plant.

Author, **Linda Hutchinson-Harmon**, holds a master’s and doctoral degrees in Early Childhood Education and Curriculum and Instruction, respectively, from the University of North Carolina at Chapel Hill. She is currently the Co-Coordinator of Central Child Development Center for Pre-K, Rock Hill Schools, Rock Hill, South Carolina, and Adjunct Faculty in the Department of Child and Family Studies at University of South Carolina.

For More Information

Web sites

www.colormehealthy.com
www.kidsgardening.com
<http://school.discovery.com/lessonplans/programs/killerbees/>
(grades 6-8)

Acknowledgment

‘Kinder-Gardeners’ team at Central Child Development Center
(2008-2009)

Linda Hutchinson, Coordinator
Faculty:

Susan Ermer, Ginger Adams,
Susan Lang, Michelle Brumfield,
Ann Hood, Lupe Harris, Amy Vilag,
Laura Reid, Joyce Newman

State School Garden Coordinator - A Key to SC's Success

There are a number of key initiatives that have contributed to South Carolina's implementation of school garden programs across the state, at various age levels. Effective and regular communication seems to be the key to most of these recommendations, which include:

1. **Survey & Evaluation Tools** – using simple questions and e-mail surveys such as Survey Monkey, allows one to quickly get a grasp of what's currently going on with school gardens. We used our initial survey to identify existing school gardens in SC and to identify the overall interest in implementing a school garden. This information helps show the dynamics and existing attitudes towards school garden programs, which lead to the Eat Smart... It's in the Garden mini-grant program implementation. Schools were invited to apply for the grant funding based upon their responses to the survey. Schools are surveyed annually to evaluate the ongoing interest and needs of school throughout the state.
2. **Bloggng & Social Networking**- A simple, public blog was created that allows the coordinator to share current information, articles of interest and grant resources to school and community garden programs. Most importantly, the blog allows participants to give feedback and to share information with each other immediately. Programs such as Facebook, MySpace and Twitter can also be just as effective.
3. **Quarterly e-Newsletter** - Allows teachers and community leaders to regularly access information and articles of interest related to school gardens, as well as sharing success stories. The newsletter is easy for teachers to print and share with other teachers, or to e-mail and forward to parents and other volunteers working with the school garden program.
4. **Site Visits** –Face to face communication with schools can have a huge impact, especially on the students. It provides accountability for the participating schools and gives the coordinator first hand knowledge of the successes and challenges many schools may face.
5. **Media** - Using the media, sending out regular press releases can be extremely helpful for sharing success stores and can lead to unexpected offers of support. For example, following one press release about a Eat Smart, ...it's in the Garden program in the spring of 2010 led to the school being contacted by a local donor who wanted to donate a piece of land within a block or two of the school!! Sharing the success of the garden program can lead to other donations as well including people volunteering their time, tools and materials. (See Appendix I for a sample press release and media advisory).
6. **Photos & Books** – Taking and sharing photos is extremely important. It provides accountability for the schools sharing the information and inspiration for those thinking about starting their own garden. Sharing of recommended books and media resources is also very important.
7. **Interns & Volunteers** – There are a lot of moving parts with a statewide school garden program. Using interns and volunteers to help with various tasks such as running the blog site, researching information, organizing workshops and formatting newsletters is the way to go.
8. **Rewards/recognition program** – a primary role of the statewide coordinator is to provide some type of accountability and/or reward or recognition program for schools that have implemented a statewide program that includes the 9 essential elements of an Eat Smart, ... It's in the Garden program.
9. **Linking schools with Resources** – The coordinator has the benefit of approaching other statewide groups such as seed dealers, landscapers and other organizations who might want to support school gardens. Linking schools with local farmers and extension agents is also a valuable tool.

Appendix A:

OVERWEIGHT AND OBESE CHILDREN IN SOUTH CAROLINA

The Problem

- 31.5 percent of S.C. high school students are overweight or obese.¹⁴
- Nearly 48 percent of all black rural children ages 10 - 17 years old in S.C. are overweight or obese as compared to 22.8 percent of white rural children².
- Over 25 percent of low-income children ages 2 - 5 are overweight or obese in S.C.³.
- Among low-income children, a larger percentage of Hispanic children aged 2-5 years old (16.6 percent) were overweight as compared to White (14.9 percent) and African American (13.4 percent) children in the same age range³.
- There are more Hispanic (20.3 percent) low income children who are obese as compared to White (13.4 percent) and African American (12 percent) low income children³.
- Nationally, rates of children who are obese have tripled since the late 1970s, while rates of adolescents aged 12-19 have more than doubled in the same time period⁴.
- Overweight adolescents have a 70 percent chance of becoming overweight or obese adults⁵.
- If current trends continue, 30 percent of boys and 40 percent of girls born in 2000 will develop Type 2 diabetes, primarily due to a poor diet and lack of physical activity⁶.

Overweight children are at increased risk for:

- High blood pressure
- Type 2 diabetes
- Asthma
- Sleep apnea
- Depression
- Poor self-esteem⁵

Risk Factors

Poor Diet and Physical Inactivity

- Only 20 percent of middle school students and 17.1 percent of high school students eat five or more servings of fruits and vegetables per day^{8, 1}.
- Of high school students in S.C., 62 percent do not meet recommended levels of physical activity¹.
- Over 60 percent of high school students did not attend physical education classes at all during an average school week¹.
- On an average school day, 50.9 percent of middle school students watched television for three or more hours¹.
- South Carolina leads the nation in the percentage of children (54.5 percent) who don't participate in after-school team sports or lessons².
- South Carolina ranks 35th in breastfeeding rates through three months⁷.



What are the solutions?

1. **Rethink your drink** - replace sugar-sweetened beverages such as soda and sports drinks with water, 1% milk*, or 100% fruit juice.
2. **Resize your portions** - bigger is not always better.
3. **Tame the tube** - limit TV time to less than two hours per day.
4. **Move more everyday** - children need at least 60 minutes of activity per day.
5. **Eat more meals at home** - aim for at least five family meals per week.
6. **Eat more fruits and vegetables** - make colorful fruits and vegetables a big part of your diet.
7. **New moms should breastfeed their babies** - breastfeeding for at least six months reduces the risk of childhood overweight and obesity.

*For children over the age of 2

To learn how you can support school and community efforts to adopt policies supportive of healthy eating and active living, visit <http://www.EatSmartMoveMoreSC.org/options-for-action>.

¹Definition of overweight: at or above the 95th percentile for body mass index, by age and sex; at risk is 85th to 95th percentile for body mass index.

²South Carolina Youth Risk Behavior Survey, 2007.

³PHSC report finds overweight, obese kids more likely to live in rural America, "Arnold School of Public Health, University of South Carolina, 14 Sept. 2007, 17 Sept. 2007, <http://www.sph.usc.edu/news/rovalko08.htm>.

⁴PodKSS, 2004.

⁵Centers for Disease Control, National Center for Health Statistics (2000). NHANES IV short report. US Department of Health and Human Services. (2001). The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity. (Rockville, MD): US Department of Health and Human Services, Public Health Services Office, Office of the Surgeon General.

⁶Mohit Narayan, K. (2003). The Journal of the American Medical Association, 290: 1884-1890.

⁷National Immunization Survey, 2005.

Visit <http://www.scdhec.gov/health/chcde/p/obesity/index.htm> for more information on obesity in South Carolina.

Fact sheet prepared by:
South Carolina Department of Health and Environmental Control
Bureau of Community Health and Chronic Disease Prevention
Chronic Disease Epidemiology
1800 St. Julian Place
Columbia, SC 29204
(803) 545-4400
















South Carolina Department of Health and Environmental Control

www.scdhec.gov

Promoting and protecting the health of the public and the environment

HL-025373 4/09

Appendix B: Resources

-  SC School Garden Blog
www.scschoolgardens.blogspot.com
-  Eat Smart...it's in the Garden Newsletter
<http://agriculture.sc.gov/content.aspx?ContentID=789>
-  Clemson Master Gardeners' *School Gardens Handbook*
<http://www.clemson.edu/extension/county/greenville/programs/horticulture/index.html>
-  California School Garden Network's *Gardens for Learning*
<http://www.csgn.org/>
-  Hub City Farmers' Market – *Growing a Healthier Community: Creating Your Own Community Garden Program*
<http://www.hubcityfm.org/gardening/community-garden-manual/>
-  South Carolina's Ag in the Classroom Program
<http://www.scfb.org/getinvolved/agintheclassroom.aspx>
-  South Carolina Nursery and Landscape Association
<http://www.scnla.com/>
-  Appalachian Sustainable Agriculture Project *Growing Minds*
<http://growing-minds.org/>
-  National Gardening Association Kids Gardening
<http://www.kidsgardening.com>
-  National Farm to School Network
<http://www.farmtoschool.org>
-  A Planning Guide for Edible School Gardens
<http://www.deq.state.ok.us/pubs/lpd/EdibleGardens.pdf>
-  Got Dirt?
http://dhs.wisconsin.gov/Health/physicalactivity/pdf_files/GotDirt_09.pdf
-  Garden Guides - Harvesting
<http://www.gardenguides.com/harvesting/>

Planning a Garden

Home garden vegetables can be grown abundantly in most areas of South Carolina with proper care. Many who have grown vegetables for the excellent fresh flavor or as a hobby now find home gardening profitable with today's high food costs.

The number of home vegetable gardeners is steadily increasing in the state. Success or failure of home vegetable production can depend on many things, but some major reasons for failure are negligence, not following the proper instructions and not keeping up with current vegetable developments.

Planning the Vegetable Garden

When planning a garden, it is important to ask a few basic questions:

- Who will be doing the work? Will the garden be a group project with family members or friends who will work willingly through the season to a fall harvest, or will you be handling the hoe alone in between camping and swimming? Remember that a small weed-free garden will produce more than a large, weedy mess.
- What do you and your family like to eat? Although the pictures in the garden catalog look delicious, there is no value in taking up gardening space with vegetables that no one eats. Make a list of your family's favorite vegetables, ranked in order of preference. This will be a useful guide in deciding how much of each vegetable to plant. Successive plantings of certain crops, such as beans, can be harvested over a longer period of time and increase your yield. As you plan, list recommended varieties and planting dates.
- How do you plan to use the produce from your garden? If you plan to can, freeze, dry

or store part of the produce, this will be a factor not only in planning the size of the garden but also in selecting varieties. Some varieties have much better keeping quality than others. Care should be used in choosing the seeds, making sure the varieties you select are adapted to your area and intended use.

- Finally, how much space is available? How much area can be converted into usable garden space, and how much garden do you need? Do not plant more garden than you need.

Additional Planning Hints

- Plan the garden on paper first. Draw a map showing arrangement and spacing of crops. If you wish to keep the garden growing all season, you may need a spring, summer and fall garden plan.
- Plan the garden and order seeds by January or February. Some plants may be started indoors as early as January.
- In your plan, place tall and trellised crops on the north side of the garden so they will not shade the shorter vegetables.
- Group plants by length of growing period. Plant spring crops together so that later crops can be planted in these areas after the early crops mature. Consider length of harvest as well as time to maturity. Place perennial crops to the side of the garden where they will not be disturbed by annual tillage. Finally, practice crop rotation. Try not to plant the same vegetable or a related vegetable in the same location year after year.

Table 1. Planting Chart — Dates to Plant in South Carolina

| Vegetable | Piedmont | | Central | | Coastal | |
|--------------------------|----------------------------------|------------------------|-----------------------------------|-------------------------|----------------------------------|-------------------------|
| | Spring | Fall | Spring | Fall | Spring | Fall |
| Asparagus | Early Feb.- Late Mar.(crowns) | — | Late Jan.- Early Feb. (crowns) | — | Early Jan.- Late Feb.(crowns) | — |
| Beans, Snap | Apr. 15-30 | Aug. 1-15 | Apr. 1-15 | Aug. 5-20 | Mar. 15-30 | Aug. 15-30 |
| Beans, Pole | Apr. 15-30 | July 15-25 | Apr. 5-20 | July 20-30 | Mar. 20-30 | Aug. 1-10 |
| Beans, Half- runner | Apr. 15-30 | Aug. 1-15 | Apr. 1-15 | Aug. 5-20 | Mar. 15-30 | Aug. 15-30 |
| Beans, Lima | May 1-15 | July 1-15 | Apr. 5-20 | July 20-30 | Mar. 20-30 | Aug. 1-10 |
| Beans, Pole Lima | May 1-15 | July 1-15 | Apr. 5-30 | July 15-20 | Mar. 20-Apr. 15 | July 20-30 |
| Beans, Edible Soy | May 10-June 15 | — | May 10-July 1 | — | May 10-July 15 | — |
| Beets | March 1-30 | Aug. 1-15 | Feb. 1-28 | Aug. 1-20 | Dec. 15-Jan 30 | Aug. 1-20 |
| Broccoli ¹ | Mar. 1-15 | July 1-30 | Feb. 20-Mar. 10 | July 20-Aug. 15 | Feb. 15-Mar. 1 | Aug. 10- Sept. 15 |
| Brussels Sprouts | — | July 15-Aug. 15 | — | Aug. 1-15 | — | Aug. 1-15 |
| Cabbage ¹ | Feb. 15-Apr. 1 | July 1-30 | Jan. 15-Mar. 1 | July 25-Aug. 10 | Dec. 1-Jan 15 | Aug. 1-15 |
| Cantaloupe & Honeydew | Apr. 15-May 15 | June 15-30 | Apr. 1-15 | — | Mar. 10-Apr. 10 | — |
| Carrots | Mar. 1-15 | July 1-30 | Feb. 10-28 | Aug. 1-15 | Dec. 15-Jan 30 | Aug. 1-20 |
| Cauliflower ¹ | Mar. 1-15 | July 1-15 | — | July 25-Aug. 10 | — | Aug. 1-20 |
| Collards | — | July 1- Aug. 30 | Feb. 25-Mar. 20 | July 15-Aug. 15 | Feb. 20-Mar. 15 | Aug. 1-25 |
| Cucumbers | Apr. 15-May 15 | July 1-15 | Apr. 1-15 | Aug. 1-10 | Mar. 20-30 | Aug. 1-20 |
| Eggplant ¹ | May 1-15 | July 1-15 | Apr. 10-25 | July 10-20 | Mar. 25-Apr.10 | July 20-25 |
| Garlic | — | Sept. 1- Oct. 30 | — | Sept. 15-Nov. 15 | — | Oct. 1-Nov. 30 |
| Kale | — | Aug. 15-Sept. 15 | — | Aug. 15-Sept. 15 | — | Aug. 15- Sept. 15 |
| Lettuce | Mar. 1-15 | Aug. 15-25 | Feb. 1-28 | Aug. 15-25 | Dec. 20-Feb. 5 | Aug. 15-25 |
| Mustard ² | Feb. 1-Mar. 15 | Aug. 15-Sept. 15 | Jan. 15-Feb. 25 | Aug. 15-Oct. 1 | Jan. 1-Feb. 25 | Aug. 15-Oct. 1 |
| Onion, Sets | Mar. 1-30 | Sept. 1-Oct. 30 | Feb. 15-Mar. 15 | Sept. 15-Nov. 15 | Feb. 1-Mar. 1 | Oct. 1-Nov. 30 |
| Onion, Plants | Mar. 1-30 | — | Feb. 15-Mar. 15 | — | Feb. 1-Mar. 1 | — |
| Onion, Seeds | — | — | — | Sept. 15-Oct. 15 | — | Oct. 1-Oct. 30 |
| Okra | May 1-15 | June 15-30 | Apr. 10-30 | June 15-30 | Apr. 1-20 | June 15-June 30 |
| Peanuts | May 1-15 | — | Apr. 15-May 15 | — | Apr. 25-May 15 | — |
| Peas, Garden | Feb. 1-15 | — | Jan. 20-30 | — | Jan. 10-20 | — |
| Peas, Southern | May 1-June 30 | — | Apr. 10-30 | June 20-30 | Mar. 25-Apr. 15 | Aug. 1-10 |
| Pepper ¹ | May 1-30 | July 20-25 | Apr. 5-25 | July 15-25 | Mar. 25-Apr. 10 | July 20-25 |
| Potatoes | Mar. 15-30 | July 1-15 ³ | Feb. 20-Mar. 10 | July 15-30 ³ | Feb. 1-15 | July 15-30 ³ |
| Potatoes | May 10-June 10 | — | May 1-June 15 | — | Apr. 15-July 1 | — |
| Pumpkins | — | June 1-15 | — | June 15-30 | — | July 1-15 |
| Radish ² | Feb. 15-Mar. 15 | Sept. 1-30 | Feb. 1-28 | Sept. 1-Oct. 25 | Jan. 1-Mar. 1 | Sept. 1-Nov. 1 |
| Rutabaga | — | Aug. 1-20 | — | July 25-Aug. 10 | — | Aug. 1-20 |
| Spinach ² | Feb. 15-Mar. 15 | Sept. 15-30 | Feb. 1-28 | Sept. 15- Oct. 20 | Jan. 1-Feb. 25 | Sept 15-Nov. 10 |
| Sweet Corn ² | Apr. 15-30 | — | Mar. 20-Apr. 30 | — | Mar. 10-Apr. 30 | — |
| Squash, Summer | Apr. 15-May 15 | July 1-20 | Apr. 1-20 | Aug. 1-15 | Mar. 20-Apr. 10 | Aug. 10-25 |
| Squash, Winter | Apr. 20-May 15 | — | Apr. 15-30 | — | Mar. 20-Apr. 10 | Aug. 10-25 |
| Tomato ¹ | May 1-May 30 | July 10-20 | Apr. 5-25 | July 10-20 | Mar. 25-Apr. 10 | July 25-30 |
| Turnips ² | Feb. 20-Apr. 1 | Sept. 1-15 | Feb. 1-Mar. 10 | Aug. 1-Oct. 1 | Jan. 1-Mar. 1 | Aug. 25-Oct. 15 |
| Watermelon | Apr. 20-June 30 | — | Apr. 1-30 | June 15-30 | Mar. 25-Apr. 20 | — |

¹Transplant plants.

²For longer harvest season, plant at intervals during suggested dates.

³Seed potatoes for July planting and fall harvest may have to be mailed-ordered (usually unavailable from local garden supply stores).

Table 2. Vegetables Planting Chart

| Vegetable | Seed (100-foot row) | Row Spacing (inches) | Planting Depth (inches) | Approximate Days to Harvest |
|--------------------|------------------------|-------------------------|----------------------------|--------------------------------|
| Asparagus | — | 36 x 18 | 4 crowns | 2 years |
| Beans, Snap | ¾ pound | 36 x 2 | 1 | 50-60 |
| Beans, Pole | ½ pound | 36 x 4 | 1 | 60-70 |
| Beans, Half Runner | ½ pound | 36 x 2 | 1 | 55-65 |
| Beans, Lima | ¾ pound | 36 x 3 | 1½ | 65-75 |
| Beans, Pole Lima | ½ pound | 36 x 6 | 1½ | 70-75 |
| Beans, Edible Soy | ½ pound | 36 x 3 | 1 | 60-70 |
| Beets | ½ ounce | 30 x 2 | ¾ | 50-60 |
| Broccoli | ½ ounce | 36 x 18 | ½ | 60-70 |
| Brussels Sprouts | ½ ounce | 36 x 18 | ½ | 90-100 |
| Cabbage* | ½ ounce | 36 x 12 | 3 | 60-80 |
| Cantaloupe | 1 ounce | 60 x 24 | 1 | 75-85 |
| Carrots | ¼ ounce | 30 x 1 | ¼ | 60-70 |
| Cauliflower | ¼ ounce | 36 x 18 | ½ | 60-70 |
| Collards | ½ ounce | 36 x 8 | ½ | 60-70 |
| Cucumbers | 1 ounce | 60 x 12 | 1 | 50-60 |
| Eggplant* | — | 36 x 18 | 3 | 70-80 |
| Kale | ½ ounce | 36 x 1 | ½ | 50-55 |
| Lettuce, Leaf | ¼ ounce | 30 x 2 | ½ | 40-70 |
| Lettuce, Head | ¼ ounce | 30 x 12 | ¼ | 30-50 |
| Lettuce, Mustard | ½ ounce | 30 x 2 | ½ | 40-60 |
| Onions, Green | 1 quart | 30 x 2 | 1½ sets | 35-45 |
| Onions, Bulb | ½ ounce | 30 x 3 | ½ seed | 100-120 |
| Okra | 1 ounce | 36 x 9 | ¾ | 60-70 |
| Peanuts | ¼ pound | 30 x 4 | 1½ | 100-120 |
| Peas, Garden | 1 pound | 36 x 1 | 1½ | 65-80 |
| Peas, Southern | ½ pound | 46 x 4 | 1½ | 75-85 |
| Pepper* | — | 36 x 18 | 3 | 60-70 |
| Potatoes, Irish | 12 pounds | 36 x 12 | 3 | 90-110 |
| Potatoes, Sweet* | — | 36 x 8 | 3 | 120 |
| Radish | ½ ounce | 24 x 1 | ½ | 25-30 |
| Rutabaga | ½ ounce | 36 x 12 | ¾ | 100-110 |
| Spinach | 1 ounce | 30 x 2 | ½ | 50-60 |
| Sweet Corn | 4 ounce | 36 x 10 | 1 | 80-95 |
| Squash, Summer | 1 ounce | 36 x 15 | 1 | 50-60 |
| Squash, Winter | ½ ounce | 60 x 48 | 1½ | 90-120 |
| Tomato* | — | 60 x 24 | 4 | 70-80 |
| Turnips | ¼ ounce | 30 x 2 | ½ | 60-70 |
| Watermelon | ½ ounce | 60 x 60 | 1½ | 80-100 |

*Transplants

Excerpted from the South Carolina Master Gardener Training Manual, EC 678.

Prepared by Bob Polomski, Extension Consumer Horticulturist, Clemson University. (Revised 01/05. Images added 1/09.)

This information is supplied with the understanding that no discrimination is intended and no endorsement by the Clemson University Cooperative Extension Service is implied. All recommendations are for South Carolina conditions and may not apply to other areas. Use pesticides only according to the directions on the label. All recommendations for pesticide use are for South Carolina only and were legal at the time of publication, but the status of registration and use patterns are subject to change by action of state and federal regulatory agencies. Follow all directions, precautions and restrictions that are listed.

Site Selection

The garden should be as small as possible to cut down on unnecessary work. In South Carolina, gardens should receive at least six hours of direct sun each day. Leafy vegetables can tolerate partial shade; vegetables that produce fruit, such as peppers and tomatoes, must be grown in full sun.

Avoid planting your garden close to or beneath trees and shrubs because shade and the competition for nutrients and water may reduce vegetable growth. If a garden must be planted near trees, reserve the sunniest spot for vegetables grown for their fruit or seeds.

Plants grown for their leaves or roots can be grown in partial shade. Because water is required by vegetables, especially during droughty periods, a site within close proximity to the house should be considered; this site is usually located close to an abundant water supply. Also, people are more likely to work in the garden and check for pests when the garden is close to the house.

When soil or landscape space is unavailable, vegetables can be grown in containers. As long as light, water and soil volume requirements are met, container-grown vegetables can be placed anywhere: sidewalks, patios, window boxes, porches or balconies. More information on vegetable gardening in containers is available in [HGIC 1251, Container Vegetable Gardening](#).

Sloping areas are satisfactory if managed properly. Contour the rows to the shape of the slope (plant around the hill). Construct terraces if erosion results even with contoured planting.

Gardeners with poorly drained or steeply sloped sites can improve their sites through the use of raised beds. A permanent raised bed can be created with used cross ties, concrete blocks or similar rot-resistant material. The completed form can then be filled with a mixture of good topsoil and compost. Permanent raised beds are easy to maintain, and require less effort to control weeds and overcome poor soil or site problems. Raised beds can be any size, but narrow beds (about 3 to 4 feet wide) will allow the gardener to reach the center of the bed without stepping into the bed. More information on raised beds is available in [HGIC 1257, Raised Beds](#).

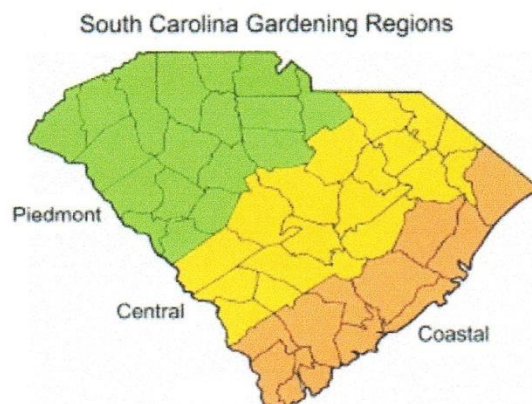
Season of Planting

The time at which vegetables are planted outdoors depends on the cold hardiness of a particular species or cultivar. Vegetables can be divided into two categories based on temperature requirements: cool-season and warm-season crops.

Cool-season vegetables originated in temperate climates and have their favorable growth period during the cool parts of the year. Cool-season crops grow poorly in summer heat. Though cool-season crops continue to grow well past the earliest freeze in the fall, they should be started early enough to mature before hard freezes are expected.

Warm-season crops primarily came from subtropical and tropical regions and require warm weather for seed germination and plant growth. They are injured or killed by freezing temperatures and should not be planted outdoors in the spring without protection or until the danger of freezing temperatures is past. Warm-season crops planted in the summer to mature in the fall should be planted early enough so they can be harvested before the killing freeze in the fall.

To determine when to plant cool- and warm-season vegetables in South Carolina, refer to Table 1. Knowing the number of days required to reach maturity, a gardener could determine the appropriate planting time for seeds and transplants by using the average dates of the first and last freezes in their area.



Piedmont: Abbeville, Anderson, Cherokee, Chester, Edgefield, Fairfield, Greenville, Greenwood, Lancaster, Laurens, McCormick, Newberry, Oconee, Pickens, Saluda, Spartanburg, Union and York counties.

Central: Aiken, Allendale, Bamberg, Barnwell, Calhoun, Chesterfield, Clarendon, Darlington, Dillon, Florence, Kershaw, Lee, Lexington, Marion, Marlboro, Orangeburg, Richland and Sumter counties.

Coastal: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Hampton, Horry, Jasper and Williamsburg counties.

Appendix E: Pollination and Bugs – Balancing the Good and the Bad

Here is what you want to **KEEP** in your garden

Reprinted with permission from the Clemson Master Gardeners' School
Gardens Handbook, (except for the section on Pollination which is original material for this Toolkit).

Pollination

In order for plants to grow and mature, they must be pollinated. So, it is important to attract insects and animals to do this. For example, squash, cucumber, melons, onions, broccoli, radishes, cabbage, and turnips are just some of the vegetables needing insects for a high yield of good produce. Bees are probably the most commonly known pollinator, but attracting other insect such as flies, moths, butterflies, wasps, and beetles will help pollinate your plants. Hummingbirds and bats are also helpful pollinators. In order to attract pollinators, plant a variety of blooms and include flowers that have a lot of pollen and nectar. Also, having water nearby will help to attract pollinators in the hot summer. Try to avoid or limit pesticide use, but if insecticide is necessary, use it in the early morning or after dark when pollinators are not as active.

Be careful! Some plants that attract butterflies are also very toxic. Avoid plants such as rhododendron, oleander, & chrysanthemum in your vegetable garden.



Lady Beetle

Adult and immature lady beetles eat lots of different types of pests, including aphids, scale insects and other small insects. One lady beetle can eat 62 aphids a day!

Praying Mantis

Mantids have huge appetites! They eat lots of different types of garden pests. Mantids even sometimes eat small frogs!





Zelus luridus Photo by M. Blanford

ASSASSIN BUG

The assassin bug eats many different insects, including the fall webworm, tent caterpillar, Mexican bean beetle, and June beetle.

EARTHWORM

Earthworm poop (called castings) is some of the best fertilizer around! Earthworms also help till the soil.

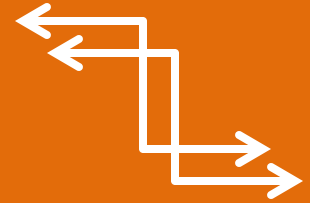


BUMBLE BEE

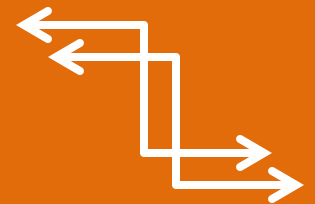
Bumble bees help pollinate the plants in our gardens.

BRACONID WASP

This wasp lays its eggs in or on many different types of insects, including caterpillars, flies, wasps and beetles. The braconid wasp larvae then feed on the host, slowly killing it.



REMEMBER: Be aware of your students' allergies when they are exposed to certain beneficial insects such as wasps and bees!



Here is what you want to REMOVE from your garden:

Reprinted with permission from the Clemson Master Gardeners' *School Gardens Handbook*

TOMATO HORNWORM

Tomato hornworms are very large – sometimes up to 4 inches long! They can quickly eat the leaves of a tomato plant.



APHID

Aphids are very small (less than 1/8 inch). You often find them clustered together on the stems of plants. Aphids suck the sap out of plants and can cause disfigured leaves, buds and flowers.

GRUB WORM

Grub worms are the immature (larval) stage of many different kinds of beetles. Grub worms feed on the roots of grass, vegetables and other garden plants.





GRASSHOPPER

Grasshoppers have chewing mouthparts. They can eat large amounts of plant material in a very short period of time!

JAPANESE BEETLE

Adult Japanese beetles feed on over 275 different types of plants. They quickly eat the leaves. Roses are a favorite treat!



MEALY BUG


Mealy bugs like to suck the sap out of plants. They can often be found on indoor houseplants.



Appendix F: Grant Opportunities


For current grant opportunities, check the SC School Garden blog and the Eat Smart...it's in the Garden newsletter:


www.scschoolgardens.blogspot.com


 Love your Veggies School Grant Program
http://www.loveyourveggies.com/school_grants.php


 Youth Garden Grants
<http://www.kidsgardening.com?YGG.asp>

 National Gardening Association Grant
<http://www.kidsgardening.com/grants.asp>

 PTA Healthy Lifestyles Award
<http://www.pta.org/Documents/hl-application.pdf>

 Mantis Awards for Community and Youth Gardens
<http://www.kidsgardening.org/grants/mantis.asp>

 Bayer Advanced “Grow Together with Roses” School Garden Awards
<http://www.kidsgardening.org/grants/rosegrant.asp>

 Hansen’s Natural and Native School Garden Grant
<http://www.kidsgardening.org/grants/naturalandnative.asp>

 Healthy Sprouts Awards
<http://www.kidsgardening.com/healthysprouts.asp>

 America the Beautiful Fund – Free seeds
http://www.america-the-beautiful.org/free_seeds/index.php

 Heinz Wholesome Memories Intergenerational Garden Award
<http://www.ngagardenshop.com/campaigns/show/5668>



Appendix G: Sample Donation Request Letters

Date

Name of Business

Address of Business

City, State Zip Code

Dear *(potential funder)*,

The *(enter appropriate grade(s))* grade children at *(insert school name)* have planned a school vegetable garden that will include a birdhouse and journaling benches. They are hoping to plant the garden in the Spring and they are asking for your help.

Please consider donating some of the tools we will need for this new garden. We need hand trowels, rakes, and hoes for our *(insert #)* students. Whatever you are able to provide us would help out. Our children would love to use wheelbarrows and wear garden gloves!!

We will have a groundbreaking ceremony this Spring in the garden in front of the school. You and your staff are invited to help break ground for the first plants that will be grown. We will provide more details closer to the date, but we hope you will be able to join us!

Thank you very much for your help.

(insert your name) and the students of *(insert school name)*

(Insert School Contact Information)

(Students can even sign their names at the bottom to personalize the letter even more.)

(Date)

(Business or organization name)

(Address)

Dear (Potential funder name),

(Your school name) is interested in beginning a garden project for our _____ classrooms. With limited funds in our budget for special projects, we are unable to cover the cost of this activity. We are therefore requesting that community partners join us in implementing this worthwhile program for our children.

Gardens are a special kind of learning center for school-aged children. A garden:

- Encourages fruit and vegetable consumption.
- Promotes physical activity.
- Provides an opportunity for students to connect with nature.
- Helps students better understand the origin of food.

The gardening project proposed for (Your school name) will begin with lessons about how plants grow. Each child will participate in the planting, harvesting, and maintenance of the garden. Children will be able to care for and watch the progress of their growing plants as they connect to where their food comes from.

This request is being submitted to (Potential funder name) to fund the materials and supplies needed for the _____. The proposed plan is to plant the garden in (Month). If funding is approved, please remit to:

(Your school name)

(School address)

| Funding Request Includes: | | | |
|-------------------------------------|-----------------|------------------|-------------------|
| Item | Quantity | Unit Cost | Total Cost |
| Seed Starter Tray with 25 peat pods | 3 Trays | \$6.50 | \$19.50 |
| Seeds (beans and corn) | 2 Bags | \$4.00 | \$ 8.00 |
| Total | | | \$27.50 |

Thank you for your consideration of this proposal. If you have any questions or would like more detailed information about this project, please feel free to contact me. I look forward to hearing from you soon.

Sincerely,

(your name here)

Appendix H: Home-Grown Lesson Plans

How to integrate gardening into curriculum

Adapted with permission from the Clemson Master Gardeners' *School Gardens Handbook* and the California School Garden Network's *Gardens for Learning*.

Science

Earth Science

- Create a garden weather station. Record daily measurements and compare conditions with plant growth
- Compare and contrast the properties of different types of soils (density, air space, presence of living organisms, composition, texture, smell, appearance)
- Simulate soil erosion in your classroom garden.
- Observe the difference in soil loss when water is splashed on a tilted, planted pot and on a tilted, unplanted pot
- Study local geology and put together a display of the soil and rock types found in your area

Life Science

- Distinguish and describe differences and similarities between living and non-living things
- Observe the life cycles of plants using fast-growing plants in your classroom
- Study the various conditions that different plants need in order to grow
- Compare the things people need to the things plants need
- Create experiments investigating what happens when plants are exposed to different amounts of light, water, air, space, and nutrients
- Investigate the functions of different plant structures (cotyledons, roots, stems, leaves, flowers, fruits, and seeds)
- Dissect flowers and seeds and create experiments to investigate how light, heat, and moisture affect germination

- Explain to students that some characteristics are inherited and others are caused by the environment
- Discuss photosynthesis
- Discuss how plants adapt for survival
- Research adaptations of seeds for dispersal and adaptations of flowers for attracting pollinators
- Observe pollinators in the garden
- Investigate the impact of environmental changes on plants
- Study wildlife and insects along with their habitats
- Investigate food chains and webs
- Demonstrate how plants are the primary source of energy for all food chains
- Raise and then release beneficial insects into the garden

Physical Science

- Use litmus paper or a test kit to test the pH of different soils. Investigate how plants respond to soils with different pH levels
- Simulate the water cycle in the indoor garden by covering it with a dome of clear plastic
- Study and observe the transpiration, evaporation, and condensation of water
- Cover pots with cellophane of different colors to screen out all but one wavelength of light from plants and observe plant growth
- Observe how energy changes to matter during photosynthesis

Mathematics

- Measure the growth rates of plants and display results on different types of graphs
- Make predictions regarding future growth
- Use standard and nonstandard units of measurement
- Design a sun dial
- Tally cricket chirps to estimate temperature
- Host a bean race
- Plant a number of beans at the base of a trellis and track their growth on a chart
- Determine the rate of growth and award the fastest plant a blue ribbon
- Using information from seed catalogs, predict dates of germination

- Using information from seed catalogs, predict dates of germination and maturity
- Plan backward from a desired harvest date to determine when each crop should be planted
- Measure your garden parameters and calculate the area
- Use graph paper to make a map to scale of your garden
- Calculate amounts of fertilizer to use per quart and per liter of water
- Chart temperatures of the air and soil in your garden in Fahrenheit and centigrad
- Determine the weight and volume of soil mix when wet and dry
- Determine the volume of soil in a rectangular window box
- Investigate vegetable prices in a supermarket
- Track the amount of produce harvested in your garden and use the market prices to determine the value of your harvest
- Count the number of seeds planted and the number of seeds that sprout and calculate the germination rate
- Calculate serving sizes of different fruits and vegetables using common cooking supplies
- Measure the height of a group of plants and determine the mean, median, and mode
- Make a recipe that uses fruits and vegetables from the garden and requires various measuring techniques

History/Social Studies

- Research and report on cultural or ethnic differences in food consumption and gardening practices
- Research agricultural history and create a timeline of important events
- Visit some local farms and interview farmers about choice of crops, growing practices, marketing, and farm history
- Contact, report on or volunteer services at a local food bank, gleaning project, and food cooperative
- Study the contribution of Native American foods and other cultures' foods to our history and diet
- Grow samples in the school garden
- Research the histories of classroom garden plants
- Discover where they originated, the impact they've had on our diets, and how today's varieties differ from the original plants

- Locate their origin on a map and then trace their movement around the world
- Use the Thanksgiving holiday to explore meals throughout history and the different crops grown and harvested at that time of the year
- Complete a site analysis of the school garden and create a garden map noting important features, including a north arrow
- Trace the path of a fruit or vegetable from the field to the table
- Use the classroom garden to complement a study of the influence of climate on food production
- As a class, develop garden rules and then vote on them
- Interview experienced community members, local farmers, or senior citizens about their gardening/farming experiences
- Research and report on how other cultures use and control insects

English/Language Arts

- Keep daily garden journals documenting observations, weather conditions, and classroom activities
- Write, compile, and illustrate a collection of garden poems and stories
- Study and learn how to use seed catalogs
- Write and compile a class gardening book with gardening skills and advice
- Contact and write to a pen pal in another school garden program
- Read the daily newspaper and bring in any articles related to gardening, food, farming, nutrition, hunger, etc.
- Research the growing habits of the school garden plants using the Internet and reference material
- Write letters to local merchants explaining the school gardening program and asking for donations
- Write thank you notes to volunteers and garden sponsors
- Brainstorm different adjectives to describe each plant in your garden
- Study new vocabulary that relates to plants and gardens
- Publish a class newsletter with student articles about the garden and distribute it to other classrooms and parents
- Write step-by-step instructions for common garden activities

- Follow written instructions to perform a garden task like planting seeds
- Read books and stories about plants and gardens
- Write a research paper on a favorite plant, including source citations
- Prepare and deliver a presentation about the garden for other students, teachers, and parents
- Learn about the origins of scientific plant names
- Read a garden magazine article highlighting a plant and distinguish between the facts and opinions presented by the writer
- Research the nutritional value of your favorite garden vegetable and then write a script for a 60-second advertisement designed to get more people to grow and eat it.

Music/Drama

- Make musical instruments from gourds and learn how to play the
- Create and perform a garden-inspired dance expressing the growth of a seed or the opening of a flower bud
- Pantomime various gardening tasks (transplanting, fertilizing, sowing seeds, pollinating)
- Learn a collection of songs that relate to food, gardens, and the environment
- Listen to the music of composers inspired by nature
- Create a skit about food safety
- Using a movie camera with single-frame capability, make a time-lapse film of a plant growing
- Write parodies of well-known songs, turning them into gardening song
- Hold a harvest festival square dance
- Take a garden-themed piece of children's literature and do reader's theater with it

Arts and Crafts

- Create paintings and drawings of garden plants
- Paint a class garden mural to hang in the hallway for parents' night
- Make a seed mosaic
- Create a color wheel collage using pictures from old seed catalogs
- Make prints using paint and stamps made from various plant parts
- Draw your dream garden

- Build clay or tissue paper models of flowers
- Use leaves to make crayon rubbings or fossils in clay
- Paint a classroom mural using samples of different soils as the medium
- Design labels for plants to mark plantings
- Design T-shirts for your garden program
- Design a logo for your garden
- Paint rocks to use as garden borders
- Put together a photo essay of the garden
- Design and build a garden project: birdhouse, birdbath, birdfeeder, solar oven, garden sculpture, cold frame, weather station, etc.

Health/Nutrition

- Compare the importance of nutrients in the health of humans and plants
- Study the nutritional value of the various crops in your garden
- Identify the parts of the plant represented by common fruits and vegetables
- Discuss the difference in nutritional value of various plant parts
- Study adaptations of plant parts that make them good food sources
- Sprout various seeds for eating
- Conduct a blindfolded taste test using classroom-grown vegetables and supermarket vegetables
- Experiment with food preservation techniques, such as drying, freezing, and canning
- Grow a salad garden and give students a chance to sample the harvest with a salad party
- Invite a grocery store employee to talk to the class about where their products come from
- Visit a local farm
- Create brochures with information on daily food intake recommendations
- Plan a day's menu that includes all components of a balanced diet
- Keep food journals that highlight how many fruits and vegetables are eaten and describe any new produce tried.
- Invite chefs from the community to do cooking demonstrations for students and parents.
- Coordinate a cooking lesson in your school's kitchen using the produce your class has grown
- Ask cafeteria managers to share safe food handling information and provide tours of school kitchens

- Ask cafeteria managers to share safe food handling information and provide tours of school kitchens
- Invite a registered dietician to visit classrooms and discuss healthy food choices and healthy preparation methods in connection with MyPyramid.gov
- Create a classroom or school recipe book that features produce grown in school gardens
- Use MyPyramid.gov to help you choose a healthy diet
- Come up with tasty recipes that use lots of fruits and vegetables and little fat or sugar
- Compare the nutritional content of different colors of a specific variety of vegetables grown
- Graph the Vitamin A content in the lighter colored greens and in the darker greens
- Contrast this with other vegetables
- Research and compare fruits and vegetables with various origins
- Identify cultural dishes and their preparation methods
- Host an international day and provide samplings of fruits and vegetables from those cultures
- Visit a local farmers' market or start a school farmers' market
- Grow and use fresh herbs to flavor your dishes with natural ingredients and decrease the use of salt in recipes
- Create a school announcement promoting fruits and vegetables.

Appendix I: Sample Media Advisory

Townville Elementary School Garden Harvest Event

FOR IMMEDIATE RELEASE

May 28, 2010

Contact: Jane Smith

Garden Coordinator

(803) 123-4567

MEDIA ADVISORY

WHAT:

WHEN: Wednesday, June 9, 2010 – 2:00 p.m. – 4 p.m.

WHERE: Corner of Main and Oak Streets, Townville, S.C.

WHO: Everyone is invited!!

Public invited to the School Garden Harvest Event

TOWNVILLE, S.C. –

Principal John Doe and the City Council invite everyone to attend the Harvest Dinner of the Townville Elementary School Garden at the corner of Main and Oak Streets in Townville, S.C. Hugh Weathers, Commissioner of Agriculture, will be on hand to greet everyone at 2:00 p.m.

Children and teachers from Townville Elementary have been nurturing and growing fresh tomatoes, peppers, sweet corn and a variety of other fresh vegetables all spring, and now they want to share the fruits of their labor with the community!

What better way to celebrate summer than with a meal from the fresh produce grown in the school garden and fresh flowers grown by the students and teachers at Townville Elementary. Parking will be available in the school parking lot out front.

To participate in this wonderful event or for more information about the Townville Elementary School Garden Harvest, call Jane Smith, garden coordinator, at (803) 123-4567.

###

Sample News Release

Townville Elementary School Garden Receives Grant

FOR IMMEDIATE RELEASE

May 28, 2010

Contact: Jane Smith

Garden Coordinator

(803) 123-4567

Townville Elementary School Garden Receives Grant

TOWNVILLE, S.C. – Representative Joe Farmer announced today that the Townville Elementary School Garden is the recipient of a USDA specialty crop grant. The specialty crop grants program is administered by the South Carolina Department of Agriculture, under the direction of Hugh Weathers, Commissioner of Agriculture.

Representative Joe Farmer, working with Commissioner Weathers and Principal John Doe, was able to secure the grant to improve the garden site to make it more sustainable and to expand the number of crops that can be grown during the school year. Established in 2009 at Townville Elementary School outside the school library, the School Garden enjoyed a very successful inaugural year, integrating participation from all grade levels, K-5, as well as community participation through the local Boy Scouts troop and volunteers from the local Master Gardener club. The garden also receives supports from its partnership with the Townville Feed & Seed store, the City of Townville and Clemson University Extension Service.

“While our funds were limited, we are pleased to provide some assistance to the Townville Elementary School Garden,” said Commissioner Weathers. “The garden is off to a great start. I want to thank all involved, but especially want to thank Representative Joe Farmer for his continued interest in increasing the consumption of fresh South Carolina produce and healthy lifestyle choices for students, through his support of the Townville School Garden project.”

The garden is looking towards the future with plans to improve and create a new support group, Friends of the Garden, has been established to help raise additional funds for these projects.

The school garden is open to the public during school hours. Anyone interested in visiting the garden, volunteering to help and maintain the garden, or anyone who wishes to receive monthly e-mail updates from the school garden coordinator, Jane Smith, is encouraged to call 803-123-4567.

###

Appendix J:

2009 South Carolina School Gardens Survey Results

Across South Carolina many schools are taking the opportunity to use school gardens for experiential learning labs. A 2009 survey of South Carolina schools captured:

- ✓ 64 schools have active school gardens of some type.
- ✓ 31 of these 64 schools reported growing vegetable and/or fruit gardens (see map on next page).

School gardens varied in type and size with schools reporting in-ground plots, raised beds and container gardens.

38 schools without gardens reported having an interest in starting a vegetable garden

56.3%



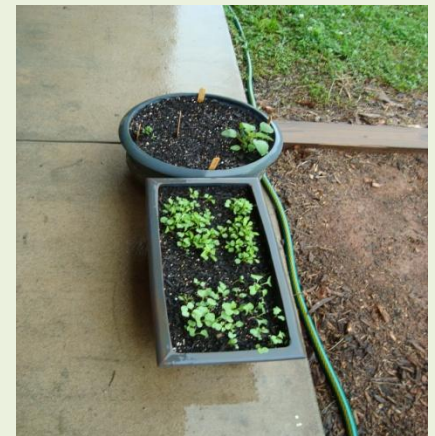
In-Ground at Okatie Elementary

39.1%



Raised Bed at York Technical College Child Development Center

32.8%



Container Garden at Nevitt Forest Elementary

Bringing the Garden into the Classroom

- 🍅 The majority of schools with vegetable and/or fruit gardens connected classroom lessons with national and/or state education standards.
- 🍅 All schools with vegetable and fruit gardens reported integrating garden related activities into school curriculum.
- 🍅 Very few respondents with vegetable and/or fruit gardens reported curriculum integration as a challenge.
- 🍅 The top four curriculum areas in which the vegetable and/or fruit garden was integrated include:
 - ✓ Science
 - ✓ Agriculture
 - ✓ Nutrition
 - ✓ Health
- 🍅 Two unexpected areas in which teachers reported curriculum integration with the garden were:
 - ✓ Art
 - ✓ History/social studies
- 🍅 The majority of schools with fruit and vegetable gardens reported using the produce from the garden. Of these, almost all reported eating the produce during class.



Stone Academy

South Carolina Teachers Speak

Teachers with a vegetable and fruit garden who responded to the survey provided several comments about the benefits of school gardens. Some of their reasons for having a garden include:

- ✓ Experiential education
- ✓ Consumption of produce/changes in fruit and vegetable preferences
- ✓ Increased awareness of plant life
- ✓ Hands on experience
- ✓ Student appreciation for nature
- ✓ Student/community involvement
- ✓ Student pride
- ✓ School beautification



Words of South Carolina teachers:

- “Students begin to understand that science is more than what is published in a textbook or taught in a classroom inside a school.”
- “More students are engaged. Student focus and creativity has improved, according to parents whose student previously did not ‘enjoy’ science.”
- “My students got motivated more when their seeds started growing and they could actually see the plants. The transferring from their cups to the ground was wonderful. They took a lot of pride in their garden and were proud of their ownership.”
- “Enough harvest was gathered that we were able to send a basketful to our local children’s shelter.”
- “The students are becoming aware of the nutritional benefits of fresh produce and are more willing to try new food items. They are wanting to eat healthy.”

Appendix K: School Garden Checklist

Instructions: Use this checklist in order to plan for your school garden or to evaluate the comprehensiveness of your garden program. A comprehensive Eat Smart... it's in the Garden project will have all 9 essential elements.

| Essential Elements | Definition | Questions to Ask | Examples | Present/ Absent |
|---|---|--|---|--------------------|
| Establishing a School Garden Committee | A school garden committee can be responsible for planning, organization, implementation, and monitoring of the school garden. The committee may also seek additional funding, in order to ensure the sustainability of the school garden. | <ul style="list-style-type: none"> -Do you have a similar health-related committee already established at our school? -Who do you need on our school garden committee? -Who will be willing to actively participate in our school garden committee? | <ul style="list-style-type: none"> -A School Health Advisory Committee that is already in place can act as a school garden committee. <li style="padding-left: 20px;">- /PTO - School Improvement Council | |
| Vegetable/ Fruit Garden | When planting your garden you are required to have vegetables, but you can include other options as well such as fruit, herbs, and/or flowers. | <ul style="list-style-type: none"> -What do you want to grow in your garden? -What is appropriate to grow where you live? -Do you want to grow produce that will be harvested before students get out of school for the summer/winter? | <ul style="list-style-type: none"> -<u>Vegetables</u>: tomatoes, cucumbers, squash, green beans, radishes, broccoli, cabbage, onions, potatoes, peas, peppers, zucchini, corn, lettuce, spinach, radishes -<u>Fruit</u>: strawberries, watermelon, cantaloupe, figs, blueberries -<u>Herbs</u>: rosemary, basil, chives, parsley, dill, cilantro, lavender -<u>Flowers</u>: marigolds, wildflowers, and nasturtiums | |

| Essential Elements | Definition | Questions to Ask | Examples | Present /Absent |
|-------------------------------|--|--|--|-----------------|
| Student Involvement | Student involvement in your school garden refers to the types of activities the students participate in related to the garden. | <ul style="list-style-type: none"> -How will the students be involved in the garden? -How often will the students be involved in garden related activities? | <ul style="list-style-type: none"> -Prepare garden area -Plant/harvest -Maintain garden (watering, weeding, etc) -Compost | |
| Curriculum Integration | Curriculum integration is how the school garden is incorporated into the academics in the classroom; different subjects, projects, concepts, lessons, etc. | <ul style="list-style-type: none"> -How is the garden going to be integrated into the classroom curriculum? -How many and what subjects do you want to incorporate into the garden? | <ul style="list-style-type: none"> -Create art projects -Use composting to teach about recycling and decomposition -Use the plants growth to teach about the life cycle of plants -Incorporate into the lessons on measurement in math -Teach about the senses -Discuss natural resources, climate, weather, and their role in the garden -Incorporate into science lab activities or nutrition lessons | |
| Community Involvement | Community is defined as parents, organizations, volunteers, etc. | <ul style="list-style-type: none"> -What kind of community involvement would you like to have? -What kind of community involvement will you need? -How will you get the community involved in the garden? | <ul style="list-style-type: none"> -Write an article for a local newspaper about the school garden and ask for community help/donations. -Seek out local Master Gardeners for help. -Partner with organizations such as the Boy/Girl Scouts of America to help build/create your garden. | |

| Essential Elements | Definition | Questions to Ask | Examples | Present/Absent |
|--|---|--|--|----------------|
| <p>Use of Produce in the School</p> | <p>The produce grown in the school garden should be used in the school or community to increase access to and consumption of fruits and vegetables.</p> | <ul style="list-style-type: none"> -How will you use the produce grown in the garden? -What do you want to/can you do with the produce? | <ul style="list-style-type: none"> -Give the students the produce to take home to their families -Use the produce for taste-testing or snacks in the classroom -Serve the produce in the school cafeteria -Donate produce to a local charity -Sell the produce at a local farmer's market | |
| <p>Sustainability Planning</p> | <p>Sustainability planning includes plans and ideas of how to make your school garden last year after year. This should include smaller scale items such as who will take care of the garden during the summer months, and large-scale items such as yearly sustainability.</p> | <ul style="list-style-type: none"> -While planning your garden, consider how you will integrate it and sustain it in the future. -What support, materials, resources, etc. will you need to sustain your garden? | <ul style="list-style-type: none"> -Have volunteers, parents, or community member water, harvest, and take care of the garden when school is not in session -Have teachers or other school staff members take care of the garden when school is not in session -Have students in summer school/summer programs maintain the garden when school is not in session -Sign up to share responsibility of garden maintenance -Apply for additional grants if needed in order to sustain your garden -Seek out materials or resources that you will need to continue the sustainability of your garden | |

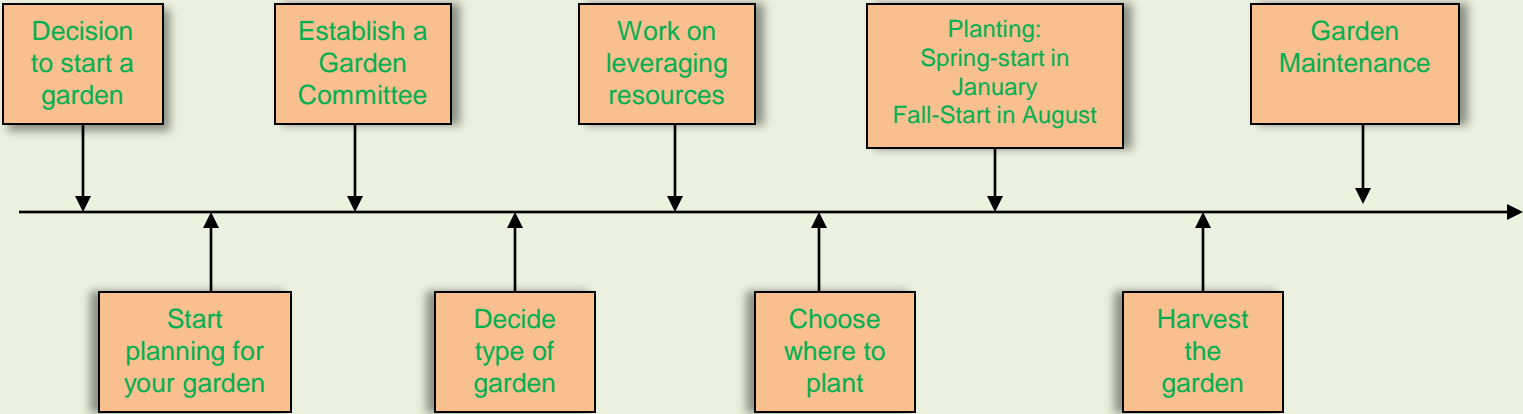
| Essential Elements | Definition | Questions to Ask | Examples | Present/Absent |
|--------------------|---|---|--|----------------|
| Monitoring | Evaluation/monitoring is essential for keeping track of your school garden's growth and development, as well as the impact of the garden on your school, students and community volunteers. | <ul style="list-style-type: none"> -How will you monitor the impact of your garden? -How will you share your successes? -What resources will you need in order to monitor your garden? | <ul style="list-style-type: none"> -Take pictures -Document awards and recognition -Document feedback from school staff -Document feedback from parents or students -Document donations and financial support -Create and maintain a school garden blog -Conduct a survey -Create a scrapbook or journal | |



Gray Court-Owings Elementary

Appendix K: Timeline

Use this timeline to insert dates that are appropriate for your school garden. This creates a one page, quick reference sheet for everyone to use and see the schedule of the proposed garden.



Okatie Elementary