



School Gardening in the City



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Urban Schools often do not have access to large areas of open space to start a school garden. Those teachers and administrators who wish to have their students participate in a gardening experience need to be a bit more creative than their suburban counterparts. Energetic and committed teachers can make this happen!



First, as with any garden, you must look at the areas of space around your school and keep records of the hours of sunlight at various parts of the school property. Ideally, the chosen area will have six to eight hours of sunlight per day. You may need to make this assessment over a long period of time, by measuring the shadows during the spring and autumn equinox and the summer solstice (see Garden Freedom Video Series for tips.) If there has never been a garden on the school property before, this planning assessment could monopolize your first year of planning. Some questions to ask:

- Is there access to a water source?
- What is the composition of the ground surface?
- How accessible is the space?

The preliminary steps to starting a garden are to build a team, locate funding sources, test the soil, make a plan, and determine a budget. Manuals with suggestions for many of these topics can be found at www.aginclassroom.org. If the garden will be located off school property, on a vacant lot adjacent to the school, there are even more requirements such as determining the ownership of the property, obtaining permission to use the property, and assessing the previous uses of that land. What appears to be an abandoned lot may still have owners who need to give permission to use the land for a garden. Some previous uses of the property may have contaminated the soil. A full soil screening test can determine if contaminants or heavy metals are present. (Applications for testing are available on line at the University of Massachusetts, Amherst site.) This test should be done even within the schoolyard as some areas may have housed sheds containing chemicals or cleaning supplies in the past. Results of a full soil test will be very helpful in knowing what amendments need to be added to the garden soil to create the most productive environment for the garden plants.



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Gardens are capable of growing with only rain for irrigation, but that is not a recipe for success. There should be an accessible, potable water source near the garden to provide a responsibly managed watering plan. Sprinklers should not be used during the middle of the day when most of the water is lost to evaporation. Drip hoses are the most efficient use of water since the water goes directly to the soil around the roots of the plants not into the air. Some plants cannot be watered later in the day without the risk of disease so the timing of irrigation is important, also. Students should learn about water conservation in the garden and how to best use this natural resource to enrich the health of the plants with the least amount of waste.

Once a site for the garden is found, there is still much preparation before gardening can begin. It is best to have a team of teachers, parents, and administrators who are all enthusiastic about starting a school garden since it will take a great deal of planning and cooperation to make this garden a reality.

- Determine the costs for materials, seeds, plants, tools, soil deliveries, compost, etc.
- What is the source of the funding?
- Do some members of the team need to attend meetings of the school board or local organizations to appeal for funds?
- Who will manage the budget and allocate funds?
- Who on the team will recruit volunteer workers?
- Are parents willing to help?
- What is the plan for the garden during school vacations and the summer?
- Who will care for the garden during this time when many of the vegetables will be ready to harvest?
- If your school has a summer program, are any of those leaders part of your team?
- How will the produce be used?
- Is your cafeteria leadership included in these discussions?
- Can some produce be used in the cafeteria or in classroom snacks?

Building a good, varied team can determine the answers to many of these questions and assure the success of your garden project.

Once the preliminary support is in place, the type of garden should be planned. Raised beds are popular in school gardens since children can easily reach plants without stepping through the garden if the beds are a maximum of 36" wide. Soil is brought in to these beds, so the risk of contamination is diminished. There are liners that can be placed at the bottom of the raised beds



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to prevent any ground contaminants from leaching into the new soil. The area does not need rototilling when using raised beds. In addition, some schools find that assigning a raised bed to each grade enhances the gardening experience for those students and produces a garden with much more variety of vegetables and flowers. However, in an urban setting, multiple raised beds may not be an option due to space restrictions. This is when imagination and “thinking outside of the box” come into play.

Vertical gardening ideas can grow a number of plants in much smaller space footprints. Frames can be built to hang rows of short gutters or even a fabric shoe holder to hold plants with shallow root systems.



There are commercial towers that hold multiple pots for planting in very little space. Trellises or netting can be used to train sprawling vines to travel vertically. Narrow raised beds, 24-36” wide, could be terraced like steps. Window boxes can be incorporated as part of the planting areas. Recycled materials like wooden pallets and black plastic can be turned into an upright garden against a wall. Commercial urban gardeners often use rooftop space and freight containers, but those are not feasible for the school garden for safety reasons. The more plants that can be grown vertically, the more production there will be in a very small space.

Many plants can also do very well when grown in containers such as clean five-gallon pails. Container gardens do need more frequent watering, additional fertilizer and compost to enrich the limited amount of soil in the container. A benefit of planting in containers is that they can be moved when necessary for the most beneficial use of sunshine and water.

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A first year garden should probably be very basic, growing vegetables that are quick to produce and reliable so that students will feel successful right away. Plants like radishes, lettuce, kale, beans, tomatoes, carrots, onion and garlic will give students a sense of satisfaction in growing their own food at different times of the school year. Starting some plants from seed as well as purchasing some transplants from a trusted source will help insure variety and more success. Older students may be interested in hydroponics, growing without soil and enriching the plants with liquid nutrients, as a novel way to grow in a small space. They might take part in a science lesson with comparisons of the success of growing some of the same plants with and without soil. Growing vegetables in a bale of straw can be an interesting experiment in hydroponic gardening. (See example on p.8.)

It is extremely important to encourage pollinators to visit the urban school garden. In a city environment, there may not be much natural forage for pollinators so be sure to plant some flowers, both annuals and perennials, that will attract pollinators close to your vegetable plants. Pollinator friendly flowers like crocus, echinacea, monarda, and even dandelions should entice bees and butterflies to your garden while also adding a colorful border. The pollinators will gather nectar for their own use and your vegetable plants will be pollinated for better yield. This is beneficial to both the garden and the pollinators!



When your garden is in the city, there may be a few more challenges, but the results are even more rewarding. An urban school garden can be used to introduce children to the joys and excitement of watching food grow, tasting a warm sun-ripened tomato or pulling a radish out of the soil. This can develop an appreciation of the amount of work needed to produce food and an awareness of the people who farm on a larger scale to produce food for our nation.



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Enjoying a healthy snack from the garden encourages students to make healthier food choices during meals with their families. Children who are exposed to gardening grow in so many ways and school gardens are often the first opportunity for this growth. So, no matter where your school is situated, make a plan and build a team and then....GET GROWING!

Examples and Resources:



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Raised bed



Vertical Trellis

Low Maintenance Seed-Starting Bed

Make a handy, small seed bed for starting plants that will not need watering for several days.

You will need:

- a clear plastic shoe box with cover
- felt material, sized to fit cover
- seed starting pots, like "peat pots", or larger seeds

Fill the plastic box with water.

Cut a piece of felt the same size as the cover, less 1/4" on every side.

Make a small cut at one end of both the felt and cover (about 3" wide).



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Cut a strip of felt 2 7/8" wide by 9" long and push most of it through the slit, leaving about 3" above the cover/felt. This strip will wick water from the box to the felt on the cover so be sure it is long enough to touch the bottom of the box.

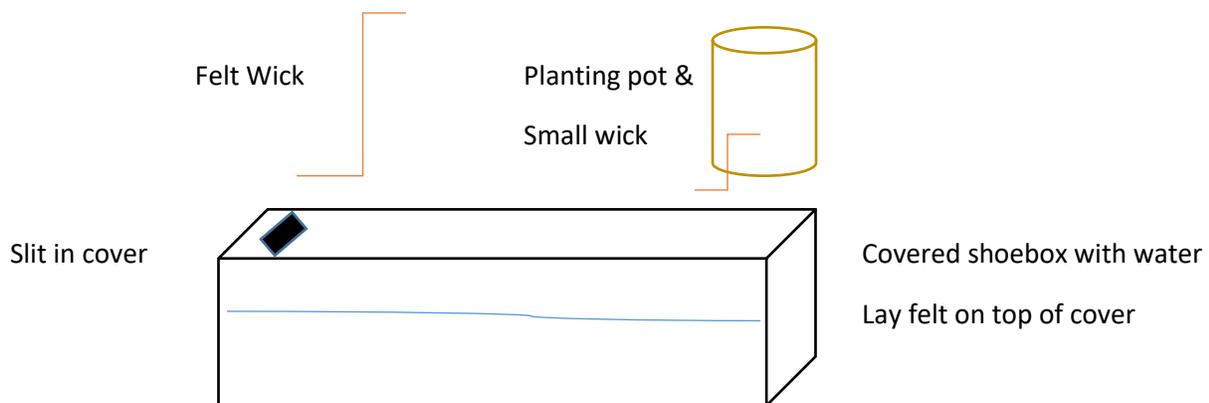
Attach the cover to the box.

Before adding potting mix to your seedling pots, cut a small strip of felt, push it through a drainage hole and let the majority of the strip rest on the dampened felt cover. This will wick moisture directly to your soil. (If you are growing plants that will remain in the pots, use larger, plastic pots to start.)

Moisten potting mix before adding to pots.

Sprinkle seeds, cover and press down so they make good contact with the soil.

You are now growing seeds and only watering when the reservoir is low. (Carefully remove cover with pots still in place, add water to box, and replace cover.)



(information from Carolina Fast Plants)

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Planting in a Straw Bale (information from West Virginia University Extension Service)

Carefully choose the placement of the bale since once it is water soaked, it will be too heavy to move. You may also want to add a barrier cloth around the edges to prevent weeds from growing into the straw as it decomposes. Turn the bale so the cut ends of the straw are on top. Straw bale planting can be a good method for growing on an asphalt playground.

Initially, bales must be kept wet for three to four weeks before planting to start the process of decomposition. This process can be shortened by adding fertilizer to the bale:

Days 1-3 Water bale thoroughly, keep it damp

Days 4-6 Sprinkle $\frac{1}{2}$ cup of fertilizer (bone meal or fish meal or compost) over the surface of the bale. Water it well.

Days 7-9 Reduce amount of fertilizer to $\frac{1}{4}$ cup and continue to water thoroughly.

Day 10 Discontinue the application of fertilizer, but continue to water.

Day 11 Check to feel if the bale is still warm. Planting cannot begin until the straw has cooled.

Sow transplants directly into the straw. Remember to keep the bale damp and add fertilizer in the early stages of plant development.

A bale can support 2-3 Tomato plants; 4-6 cucumber plants; 2-4 squash plants.

When the season is finished, add the remainder of the bale to the compost pile.



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Planting for Pollinators

Consider the average bloom time for both annuals and perennials so you will have some blossoms throughout the growing season. Flowers shaped like a flat landing surface are particularly appealing to honeybees. Other pollinators prefer tube-like flowers, so you want to have a variety bordering your vegetable garden.



Monarda (Bee Balm), Echinacea, and Sunflower are all plants that have a good “landing base” and are attractive to bees and butterflies.



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Resources

www.growveg.com (there is a fee for use)

Garden Freedom Video Series (free sample, then fee)

West Virginia University Extension factsheet, “Straw Bale Gardening”, WVU Extension Service Families and Health Programs, Cooperative Extension Service in cooperation with the U.S. Department of Agriculture.

[http://waldenlabs.com/extreme-urban-gardening-straw-bale-gardens/John Robb Dec.6, 2012](http://waldenlabs.com/extreme-urban-gardening-straw-bale-gardens/John%20Robb%20Dec.6,2012)

Carolina Biological Supply (old edition) www.carolina.com/STEM

<http://www.gardeningknowhow.com>

<http://aggie-horticulture.tamu.edu/kindergarten/CHILD/COM/COMMUN.HTM> Tips on Starting a Community Garden Factsheet

www.aginclassroom.org/ For Educators/Classroom Agriculture Start Up Guide; Siting the Garden; Container Gardening

Images:

www.PublicDomainPictures.net (Vertical gardens, vertical trellis, butterfly.jpg)
Shutterstock.com (raisedbed.jpg, monarda.jpg, dandelion.jpg, echinacea.jpg)
Bing.com/images (guttergarden.jpg, shoebag.jpeg)
Bonnieplants.com (plantinginbale.jpeg)

