

A Guide to School Gardens



Getting Started

Are you thinking about starting a school garden? ... Great idea! School gardens are gaining momentum as a valuable new platform for student learning. There are many great reasons to plant a school garden. It can provide authentic learning about healthy eating, science, the environment and help students make meaningful links between classroom concepts and life skills (Food and Agriculture Organization, 2009).

School gardens can be beneficial for the school community as they can influence health, learning and the school culture. School gardens reinforce classroom learning in a variety of subjects and involve important skills such as problem solving, planning and critical thinking. Hands-on gardening experience is also a great way to help young people understand and appreciate how food is grown.

Growing food promotes an increased consumption of vegetables and fruit. School gardens can also reap other benefits such as social inclusion, co-operation, motivation to learn and promotion of student achievement.

The goal of this guide is to assist you in creating and sustaining a school garden.

*I've learned
so much
about growing
vegetables!*



Reaping the Benefits

School gardens provide many benefits for the school community (i.e. students, teachers, parents).

Learning Benefits

School gardens can:

- increase a student's motivation to learn.
- allow for the development of leadership skills
- enable students to draw on different skill sets and interests that may not be highlighted in the classroom.
- Educators can use gardening as a way to support learning in math, science, history and other areas.

For example, to support math, students can practice selling produce or graph the growth of plants.

School Culture Benefits

School gardens can:

- allow for development of leadership skills.
- foster a sense of belonging amongst all involved.
- allow students to celebrate different cultural foods.
- help students of different backgrounds to connect over a common activity.
- allow students to organize themselves and work together toward a common goal.
- help to foster a sense of school pride.
- promote sharing (of harvest/tools/resources).
- allow parents that may not have formal academic skills to comfortably participate in a school activity.
- reduce discipline and classroom management problems.

Health Benefits

School gardens can:

- provide stress relief and relaxation, which contributes to positive mental health.
- encourage participation in physical activity, which also contributes to positive mental health.
- assist with the development of endurance, flexibility and strength.
- encourage students to eat more vegetables and fruit.

See Appendix A
for school garden
classroom ideas!



6 Steps to Building your School Garden

- ☐ Step 1- Seek Approval
- ☐ Step 2- Gather Your Team
- ☐ Step 3- Create a Plan
- ☐ Step 4- Getting into the Garden
- ☐ Step 5- Maintaining Your Garden
- ☐ Step 6- Measuring and Celebrating Your Success!

Appendices:

Appendix A: Curriculum Connections

Appendix B: Other Supportive Resources

Appendix C: Local Community Resources

Appendix D: School Newsletter Insert



Step 1- Seek Approval

It is important that your school's administration is aware and supportive of a school garden.

Things to consider:

- Request a meeting with your principal to propose the idea.
- Be prepared to share the benefits of a school garden and success stories from other schools.

Step 2- Gather Your Team

It is important to gain support from the school community for the garden to be successful.

Things to consider:

- Identify who should be involved in the project. Volunteers could include:
 - principal/vice principal
 - teachers
 - educational assistants
 - parents/grandparents
 - students
 - community members
 - custodial/facilities staff
- Determine who will be the garden lead/coordinator. It may help if this person is available throughout the project and over the summer.
- Look for community members who may have gardening skills, knowledge and/or equipment and resources to help out.
- Consider who will tend to the garden's needs over the summer months.



Step 3- Create a Plan

Once you have a list of all the people interested, arrange a meeting to discuss the purpose/goal of the school garden and create a plan on how to carry-out your school garden project.

Determine a Goal- Goals can help provide direction for the garden.

Examples of a school garden goal:

- “Our school will create a garden that will supply produce to the school’s breakfast and snack program”
- “Develop a garden that will be used as a teaching tool for students”

Budget/Funding

Determining your budget and the funding available for your project can help you to determine the size and type of garden that is feasible.

Things to consider:

- Make a detailed and realistic budget. Resources needed may include tools, fertilizers, seeds and mulch. There could also be unexpected costs. Seek out donations from the school community and local businesses including farmers. Donations can include money and/or materials (e.g. seeds, soil, tools and equipment).
- Involve your students in fundraising projects (e.g. plant sales, walk-a-thons etc. See Appendix B for more information on funding school gardens).



Select a Type of Garden

Based on available resources, decide what type of garden would help you to reach your goal.

Things to consider:

- Include the school community to develop a sense of ownership/school spirit.
- Determine what you would like to grow and how much.
- Research different types of gardens (see below for examples).
- Consider repurposing existing flower beds.
- Survey school grounds to determine how much space is available.

Classroom Activities:

- Ask your students to draw their dream gardens.
- Have your students research the sun, water and soil needs for different plants. This information can then be used to pick a garden type/location.

Types of gardens:

Containers – a garden contained within a planter/container. They require the smallest amount of space, care and time and are ideal for paved yards.

Raised Beds – a garden contained within timbers or a frame. They are commonly selected for school gardens. See Appendix B to learn more about building a raised bed.

Rows – a larger garden that requires equipment to be mechanically tilled.



Select a Location

There are many things to consider when choosing where to place your garden.

Things to consider:

- **Sunshine:** Minimum 6 hours of direct sunlight is needed for most vegetables during the months of May to October.
- **Gentle south slope or level:** This helps to maximize exposure to sunlight.
- **Far away from trees and weeds:** Trees and weeds compete with plants for resources.
- **Protection from the wind:** Wind can damage plants. Choose locations near buildings, hedges or larger plants/shrubs.
- **Soil quality:** For a row garden, conduct a soil analysis to determine soil quality. A soil testing kit can be found at your local garden store. Choosing a raised bed or container garden reduces the need for soil testing.
- **Near a water supply (outdoor tap or rain barrel):** Prevent mosquitoes by not letting rain water stand in a rain barrel for more than a week and close the lid tightly.
- **Easy access for students:** Choose an area close to the classroom and accessible to people with varying physical abilities. A garden that is visible and accessible is easier to incorporate into the curriculum on a regular basis.

Get Your Supplies

The size and type of the garden will determine the tools needed.

Things to consider:

- Try to have enough tools for a group of students so that everyone is able to work at the same time.
- Consider a variety of tool sizes to meet different ages of children.
- Choose a convenient location to store tools and equipment. Decide beforehand who will have access to the key if tools are kept in a locked area.
- Ensure tools are age appropriate and students know how to use them safely.



Choose Your Plants!

Things to consider:

- Research what types of plants will work for your garden type and site location.
- Pick plants that are harvested during the school year.
- Choose vegetables that can be cleaned and eaten raw (e.g. tomatoes, carrots).

See Appendix B for more information on types of plants and planting schedule.

Step 4- Getting into the Garden

Now that you have your plan, it's time to start growing!

Things to consider:

- Use a planting schedule to help determine when seeds or seedlings need to be planted. Some plants can be started inside in containers (e.g. beans).
- Outdoor planting can start after the risk of frost has passed.
- Check seed packages to ensure adequate spacing between plants as they grow.
- Plan to involve students in as many steps as possible.
- Make sure students are aware of safety guidelines.
- Ensure students wear hats and sunscreen when working outside.

Consider choosing plants based on a theme. For example a "salsa garden" would contain the ingredients to make homemade salsa (e.g. tomatoes, onions, cilantro and jalapenos).

Tip:

Be creative! For example, a garden coordinator, who helped create a garden near a soccer field, enlisted the help of soccer parents as volunteer weeders during practice.



Step 5- Maintaining Your Garden

Maintaining a garden will require help from students and volunteers. It can also provide continued educational opportunities for students.

Things to consider:

- Regular maintenance may include watering, weeding, thinning, mulching, composting and monitoring for pests.
- Inorganic or organic mulch can be put on top of the soil surface to provide a protective layer, suppress weed growth and conserve soil moisture. It can also provide a walkway between plants for students and volunteers.
- Work with your custodial staff or facilities department to come up with a plan for composting.
- Ensure that volunteers will have access to tools and water on weekends and in the summer. Rain barrels beside the garden may make access easier.
- Get creative! Local community agencies, churches, sports clubs, daycares, youth programs and senior homes may be interested in helping.



Overcoming Common Challenges

Summer Maintenance

Things to consider:

Plan beforehand who can care for your garden over the summer and create a schedule/ sign-up sheet. Possible volunteers could include:

- school families
- local community agencies, churches, sports clubs, daycares, youth programs and senior homes
- youth looking to collect community service hours
- custodian or summer maintenance staff
- container gardens can be sent home with teachers or students over the summer

Vandalism

Things to consider:

- Place gardens in a location that is visible to the community.
- Create anti-vandalism signs with students.
- Connect with neighbors in the area and ask them to keep watch and alert the garden lead of any concerns.
- Create a mobile garden. Grow plants in containers with handles or wheels that can be moved out into the sun during the day, but secured indoors after school hours.

Pests

Things to consider:

- The best practice is to monitor the garden regularly. Insect and disease problems are easiest to fix if caught early.
- Fencing may keep larger animals out.
- Mulching and creating walkways that are open may help reduce the amount of wildlife.
- Use natural pest reduction options such as homemade or natural outdoor bug sprays and animals decoys.



See Appendix
B for more
information on
natural pesticides

Growing and Learning

Connect the garden activities to the curriculum and watch both your students and garden grow.

Things to consider:

- Make sure students are aware of safety guidelines.
- Share classroom ideas with other teachers.
- See Appendix A for classroom ideas.

Step 6- Measuring and Celebrating Your Success!

There are many ways to measure and celebrate your school's gardening success.

Things to consider:

- Review your goals to see if they were met.
- Keep track of barriers and things that worked well. This will help you with planning for next year.
- Share updates and successes often with the school community. This often can help keep everyone involved and interested in your project.
- Remember to acknowledge all your volunteers and those who participated in the project.

Enjoy Your Harvest! One of the greatest rewards of growing a garden is the harvest.

Things to consider:

Harvested vegetables and fruit can be used in a variety of ways depending on what types of plants you choose and how much is grown. Produce can be:

- used in the cafeteria
- donated to a food bank
- used by school at a school barbeque

When using your produce it is important to consider safe food handling principles. For example: Wash hands, surfaces and utensils with warm soapy water. Rinse all fruit and vegetables under cool running water and use a brush to clean them.

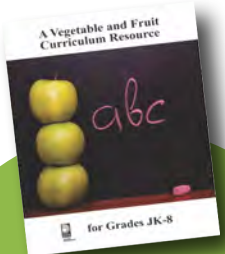


Appendix A: Curriculum Connections

Educators can use gardening as a way to support learning in various subject areas including math, social sciences and English. School gardens can be used to teach students about:

- natural processes (e.g. where food comes from, how vegetables grow, planting times and techniques preparing soil)
- environmental impacts (e.g. improving air and water quality, pesticides/controlling pests, composting/fertilizing, creating biodiversity)
- food skills (e.g. growing and preparing vegetables or fruit)

If you are looking for subject specific classroom activities, check out the table below!

| Subject | Activity Ideas for: Primary, Junior and Senior Students |
|--|---|
| English/ Language Arts | <ul style="list-style-type: none">• Using a variety of resources, engage students in research about what types of plants to grow.• Have students choose a vegetable. Write what is already known about the vegetable. Identify questions to be researched.• Create a garden journal. Visit the garden weekly and have students keep a journal of what they notice when they are there.• Create a cook book of recipes using garden vegetables for the school lunch program.• Visit the garden and explore it using all senses. Write a poem to describe the experience. |
| Health Education  | <ul style="list-style-type: none">• Make a list of vegetables and fruit growing in the garden and research what nutrients you can get from those plants.• Have students consider using what they have in the garden with the other food groups to plan a well rounded meal for a day.• Have students harvest vegetables and fruit from the garden for a snack. Have students compare these snacks with processed snack foods.• Categorize activity level of all jobs required in preparing, planting, harvesting and maintaining your garden.• Research nutritional values of plants grown in the garden and what is required for a healthy body. Identify other plants you could grow to meet these needs.• Prepare posters that show the benefits of plants on the environment and post them around your school. |

Check out the Vegetable and Fruit Curriculum Resource for more activity ideas:

durham.ca/healthyeating

| Subject | Activity Ideas for: Primary, Junior and Senior Students |
|---------------------------|---|
| Mathematics | <ul style="list-style-type: none"> • Have students count the number of plants in a row. Have students pull weeds and keep track of the number of weeds they have pulled. • Count and record the number of different plants. Have students use the data collected and create pictographs using the vegetables to illustrate the number of plants in the garden. • Estimate the length and width of the garden, rows and paths and heights of plants. Estimate and measure using standard or non-standard units (e.g. count steps). • Estimate the amount of potting soil needed to fill plant plots of various sizes. Using measuring containers fill pots and record capacity. • If collecting weather/ temperature data for science activity, have students create a line graph to interpret data. • Have students create garden plans. Use seed catalogues to determine which vegetables to plant. Determine how much of each vegetable is wanted, size of garden, length of rows and number of seeds required. |
| Physical Education | <ul style="list-style-type: none"> • Students can walk around the garden making sure to walk on paths. Listen to the sounds of the garden. • Participate in gardening activities such as carrying water, digging and raking. • Develop and discuss safety rules in the garden. • Take responsibility for keeping the school garden clean and tidy. Visit on a regular basis to pick up litter and to keep weeds under control. • Use a variety of tools and identify the muscles that each tool uses. Have students develop a stretching program specific to gardening. |



| Subject | Activity Ideas for: Primary, Junior and Senior Students |
|-----------------------|---|
| Science | <ul style="list-style-type: none"> • Observe a variety of plants. Have students describe what they see. Describe similarities and differences among plants. Identify and compare stems, leaves, flowers and roots. • Set up a catch device to measure the amount of rain fall. • Research when the first frost of the year is likely to occur. Gather materials such as old sheets and tarps and cover the plants when frost warnings are issued. • Start transplants inside in planters/ pots. Have students read seed packets and follow directions. Plant one seed per container and label. Discuss various growing conditions and grow them under those conditions. • Identify and describe the animals/plants of the garden habitat and the conditions under which they live. Research sunlight, water and nutrient requirements and compare the requirements of animals/plants. • Set up a weather station in the garden. Record data daily. • Search plants for worms/ insects and identify their structural features. Research the effects of these pests on the plants/ garden. |
| Visual Arts | <ul style="list-style-type: none"> • Draw pictures of plants. Place plants on large map of garden. • Make a scarecrow in the form of a robot using materials from around the house. • Cut out pictures of plants from seed catalogues and create a collage. • Observe plants in the garden. Use coloured clay to model a variety of vegetables. • Create signs for the garden to mark the different types of plants. |
| Social Studies | <ul style="list-style-type: none"> • Make a list of all the activities required to have a garden/farm. Have students identify everyone who contributes to these jobs and who they are in the community. • Use the garden to study soil erosion. |

Appendix B: Other Supportive Resources

1. Ministry of Agriculture: Planting Schedule/ Frost Dates <http://www.omafra.gov.on.ca/english/crops/facts/climzoneveg.htm>
2. Ministry of Agriculture: The Online Gardener's Handbook 2010 <http://www.omafra.gov.on.ca/english/crops/gardbk/ghtoc1.htm>
3. Ministry of Agriculture: Home Gardening Fact Sheets <http://www.omafra.gov.on.ca/english/livestock/urbanagbib/communitygardening.htm>
4. Canadian Organic Growers (COG) Ottawa Chapter: <http://cog.ca/ottawa/growing-up-organic/guo-school-garden-resources/> It is a national charitable organization that provide resources specific to school gardens. Their resources include the following:
 - How to build raised garden beds: <http://cog.ca/ottawa/growing-up-organic/guo-school-garden-resources/>
 - Ontario Curriculum Connections to school gardens
 - Summer Maintenance Documents: Summer Garden Instruction and template letter with check boxes for families to sign up for a single week during the summer.
5. Ontario Eco Schools: <http://ontarioecoschools.org/>
6. Health Canada: Homemade pesticides http://www.hc-sc.gc.ca/hl-vs/alt_formats/pacrb-dgapcr/pdf/iyh-vsv/life-vie/homemade-artisanaux-eng.pdf

Funding and Grants for School Garden

Fundraising School Garden toolkit: Includes tools to help estimate costs, letter templates for seeking sponsorship from local business, lists of funding agencies, tips for writing grant applications and much more. <http://cog.ca/ottawa/growing-up-organic/guo-school-garden-resources/>

** Durham Region Health Department is not responsible for the content of the external sites or for that of subsequent links. These links are provided as a reference for information purposes only.

Appendix C: Local Community Resources

For a list of community gardens:

Durham Integrated Growers (D.I.G)

<http://www.durhamdigs.ca/contact-us/>

Durham Master Gardeners:

<http://www.durhammastergardeners.ca/>

** Durham Region Health Department is not responsible for the content of the external sites or for that of subsequent links. These links are provided as a reference for information purposes only.



Let's Plant the Seed for Healthy Eating!

Our school community would like to start a school garden to get students excited about healthy eating. A garden can provide students the opportunity to:

- Learn the knowledge and skills they need to make healthy food choices.
- Understand how food is grown and appreciate fresh fruits and vegetables.
- Apply classroom learnings from a variety of subjects in a creative way.
- Enhance their leadership and teamwork skills.
- Bring the entire school community together to do a fun project.

To make our garden a success, we are looking for support from our community. If you would like to learn about how you can help, please contact the school for more information.

If you would like more information on starting a school garden please, visit the Durham Region Health Department's webpage durham.ca/healthyeating to download a copy of the resource "A Guide to School Gardens."

References:

- Berlinic, K. Community Gardens, School Ground Greening. Research Report, Saskatchewan School Boards Association. Retrieved from: <http://www.saskschoolboards.ca/old/ResearchAndDevelopment/ResearchReports/StudentsDiverseNeeds/07-06.pdf>
- Carlsson, L., & Williams, P. L. (2008). New approaches to the health promoting school: participation in sustainable food systems. *Journal of Hunger & Environmental Nutrition*, 3(4), 400-417.
- Dow, C. L. (2006). Benefits and barriers to implementing and managing well rooted community gardens in Waterloo Region, Ontario. http://www.together4health.ca/files/DOCS_ADMIN-%23644919-v1-CHERYL_DOW_S_CG_RESEARCH.pdf
- Food and Agriculture Organization of the United Nations. (2009). Setting up and running a school garden: teaching toolkit. Retrieved from <http://www.fao.org/docrep/012/i1118e/i1118e00.htm>
- Halton Food for Thought. (n.d.) School edible garden toolkit. Retrieved from http://www.haltonfoodforthought.com/uploads/Edible_Garden_Toolkit.pdf
- Knai, C., Pomerleau, J., Lock, K., & McKee, M. (2006). Getting children to eat more fruit and vegetables: a systematic review. *Preventive Medicine*, 42(2), 85-95.
- Masset, E., Haddad, L., Cornelius, A., & Isaza-Castro, J. (2012). Effectiveness of agricultural interventions that aim to improve nutritional status of children: systematic review. *BMJ*, 344.
- Miedema, J.M., Desjardins, E., & Marshall, K. (2013). Not just a passing fancy: how community gardens contribute to healthy and inclusive neighbourhoods. Retrieved from http://chd.region.waterloo.on.ca/en/researchResourcesPublications/resources/Community_Gardening_Storytelling_Project.pdf
- Nova Scotia Department of Agriculture (2014). Nova Scotia school garden resource guide. Retrieved from http://novascotia.ca/agri/documents/education/program_schoolgarden-guide.pdf
- Ozer, E. J. (2007). The effects of school gardens on students and schools: Conceptualization and considerations for maximizing healthy development. *Health Education & Behavior*, 34(6), 846-863.
- Robinson-O'Brien, R., Story, M., & Heim, S. (2009). Impact of garden-based youth nutrition intervention programs: a review. *Journal of the American Dietetic Association*, 109(2), 273-280.



Do you want more
information for your
school? Contact your
school's public health
nurse or the Durham
Health Connection
Line 1-800-841-2729



**HEALTH
DEPARTMENT**

Durham Health Connection Line
905-668-2020 or 1-800-841-2729
durham.ca/healthyeating

If you require this information in an accessible format,
contact 1-800-841-2729

