The Learning Grounds

Guide for Schools

Toyota Canada Inc. and its Dealerships – Proudly supporting outdoor classrooms in Canadian schools.
Evergreen and Toyota Canada Inc. with its Dealerships are working together to ensure that children’s school environments are as nurturing as possible. The Toyota Evergreen Learning Grounds Program represents a commitment to contribute positively to the health and well-being of future generations by educating children about the importance of restoring and preserving the environment. Teachers, students and community members are invited to participate in a nation-wide effort to reclaim Canada’s school grounds and to create healthy learning environments.

Toyota Evergreen Learning Grounds Charter

The Evergreen and Toyota Canada Inc. partnership represents a shared commitment to positively contribute to the school grounds, environment and emotional and physical development of Canada’s children.

We believe that the provision of educational resources and the support of caring citizens will transform school grounds into healthier, more dynamic places for learning.

We believe that by combining Toyota’s commitment to corporate social responsibility with Evergreen’s ecological restoration practices we will enhance our combined reach and the quality of business, community and learning.

We commit our organizations to lead by example, and to provide measurable and meaningful resources and support to Canada’s schools and to the communities in which we work.

It is our sincere intent to foster a new spirit of community involvement and environmental stewardship within the hearts and minds of Canada’s future: children and youth.

Geoff Cape, Executive Director, Evergreen
www.evergreen.ca

Mr. Kenji Tomikawa, President and CEO, Toyota Canada Inc.
www.toyota.ca
WELCOME TO LEARNING GROUNDS

This guide will help you get started with your school ground greening project. You will learn what you need to do in order to plan and implement your project.

PLANNING AND DESIGN

1. The Big Picture
   A step-by-step task list for your project. Tasks are accompanied with a reference for more information and a recommended timeline. Completion of many of these tasks will help you with your funding application.

2. Developing Your Project Team
   An overview on organizing your team of students and teachers.

3. Sizing Up Your Site
   How to map your school ground and then figure out where you want to plant.

   An overview on choosing native plants for your project.

5. Planting Heritage Varieties of Vegetables & Berries
   Planting heritage varieties of vegetables and berries.

6. Maintenance Strategy
   How to develop a maintenance strategy for your planting project.
Organizing Your Planting
A step-by-step program to organize your project.

Templates
Sample notices to organize planting and maintenance work, and request donations; a letter to the neighbours; and a sample thank-you letter.

SUPPORTING MATERIALS

Designing for Shade
Shade Assessment tools and a tree shadow template will help you create a shade strategy so that shade is where you want it.

Plantwatching
A national program to monitor global warming by recording bloom times of temperature-sensitive plants and trees.

Site Map
A sample of what a site map looks like once the site inventory and analysis is complete.

Site Plan
Samples of site plans for different garden designs.

All ABOUT EVERGREEN

Background Sheet on Evergreen
Useful tips for when you prepare a press release or a report on your project.
Planning and Design
The Big Picture
The Big Picture

Your Road Map

An Overview of the School Ground Greening Process

NOTE: The order of these steps may vary.

1. GETTING STARTED
   a) Form a Committee
   b) Research
   c) Brainstorm
   d) Survey—Students, Staff and Neighbours
   e) Common Themes—Your Top 3-5 Ideas

2. PLANNING
   a) Draft a Statement of Purpose
   b) Size Up Your Site
   c) Design Plan and Approval of Concept
   d) Decide What You Are Planting This Spring—Start Small and Do It Well!
   e) Maintenance Plan
   f) Approvals for Design Plan
   g) Fundraising—Funding Application

3. GETTING IT DONE
   a) Planting
   b) Publicity
   c) Maintenance

4. EVALUATION
   b) Next Steps
What is The Big Picture?
The Big Picture will guide you through all the things that need to be done in order to organize a school ground greening project. Use it as a road map to plot your strategy and adapt it to your particular project.

What will you find in the List of Tasks?
The tasks are based on what other schools have found useful in planning and implementing their projects. Use it to guide your efforts and ensure success.

Why do you need Learning Grounds Resources?
Each task is linked to a Learning Grounds Resource—check them out if you need clarification or more information.

NOTE: AHD refers to the book entitled All Hands in the Dirt. (http://evergreen.ca/downloads/html/all-hands/)
LGG refers to this guide book.
A Crack in the Pavement Video (https://www.nfb.ca/film/crack_in_pavement_digging_in)
(https://www.nfb.ca/film/crack_in_pavement_growing_dreams)

How do you get it all organized?
The Recommended Timeline will help you plan;

• What has to be done; and
• When it needs to be done by in order to have your Funding Application completed on time

START SMALL AND DO IT WELL!
## 1. GETTING STARTED

### A) Form a Committee

- **Task**
  - Plan a meeting with your committee.

### B) Research

- **Task**
  - Start your research with a review of Evergreen resources.
  - View the videos. Involve staff, students, parents & the community.
  - Check out this resource if you need to convince anyone about the benefits of your project.
  - Take a walk around the site with your committee.
  - Visit other schools that have greening projects or check out what other schools have done on the Evergreen’s on-line project registry.

### Resources

- **LGG Ch.2**
- **Print & on-line resources**
  - http://www.evergreen.ca/get-involved/resources/
  - *A Crack in the Pavement*
  - *Nature Nurtures*
- **LGG Ch.3, AHD p. 23–28**

### Recommended Timeline

- September
- September–October
- September–December
- May–August
| C) **Brainstorm**  
<table>
<thead>
<tr>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brainstorm some ideas for your school ground. Involve staff, students, parents and the community.</td>
</tr>
<tr>
<td><strong>Resource</strong></td>
</tr>
<tr>
<td>LGG Ch.2</td>
</tr>
<tr>
<td><strong>Recommended Timeline</strong></td>
</tr>
<tr>
<td>September–October</td>
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| D) **Survey**  
<table>
<thead>
<tr>
<th>Task</th>
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</thead>
<tbody>
<tr>
<td>Conduct a survey of staff and students to see how they feel about their school ground and what changes they would like to see.</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
</tr>
<tr>
<td>AHD p. 25–31</td>
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<tr>
<td><strong>Recommended Timeline</strong></td>
</tr>
<tr>
<td>September–November</td>
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</tbody>
</table>

| E) **Common Themes**  
| (Your top 3-5 ideas)  
<table>
<thead>
<tr>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organize the feedback from the brainstorming and survey results into categories and note the most popular ideas.</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
</tr>
</tbody>
</table>
| LGG Ch.2  
| AHD p. 29–31 |
| **Recommended Timeline** |
| September–November |
| Analyze the results of your brainstorming session and the results of your survey to determine the top three to five ideas. |
| **Recommended Timeline** |
| November |
## 2. PLANNING

### A) Draft A Statement Of Purpose

<table>
<thead>
<tr>
<th>Task</th>
<th>Resources</th>
<th>Recommended Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are you trying to accomplish and why?</td>
<td>AHD p. 20 &amp; Nature Nurtures</td>
<td>November</td>
</tr>
<tr>
<td>What are the benefits of your project?</td>
<td>LGG Ch.3, Ch.12 AHD p. 23–28</td>
<td>September–November</td>
</tr>
</tbody>
</table>

### B) Size Up Your Site

<table>
<thead>
<tr>
<th>Task</th>
<th>Resources</th>
<th>Recommended Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obtain a site plan of your school and the surrounding school grounds from the office or school board.</td>
<td>AHD p. 23</td>
<td>September–November</td>
</tr>
<tr>
<td>Create a map of your school ground using the guide in your package. This is easier to do in nice weather!</td>
<td>LGG Ch.3 AHD p. 12, 42–43</td>
<td>September–November</td>
</tr>
<tr>
<td>Choose a planting site. This is based on the findings and analysis of your site map.</td>
<td></td>
<td>September–November</td>
</tr>
<tr>
<td>Check with your school board grounds and maintenance people that the site you have chosen is appropriate.</td>
<td></td>
<td>October–November</td>
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<tr>
<td>C)</td>
<td>Design Plan and Approval of Concept</td>
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<tr>
<td>Task</td>
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<tr>
<td>☐ Draw your plan.</td>
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<tr>
<td>☐ Choose your native trees, shrubs and vines.</td>
<td></td>
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</tr>
<tr>
<td>☐ Choose your heritage vegetables and berries.</td>
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<td></td>
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<tr>
<td>☐ Create a planting/design plan.</td>
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<td></td>
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<tr>
<td>☐ Set specific goals and objectives.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Does your project need a name, slogan or logo?</td>
<td></td>
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<table>
<thead>
<tr>
<th>D)</th>
<th>Decide What You Will Plant This Spring</th>
</tr>
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<tbody>
<tr>
<td>“Start Small And Do It Well”</td>
<td></td>
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</table>

| Task                                                                                      |
| ☐ This applies to projects that will be planted over more than one year or season.        |

| E) | Maintenance Plans |

| Task                                                                                      |
| ☐ Plan maintenance for all seasons.                                                      |
| ☐ Make sure your summer maintenance plans are in place.                                  |

<table>
<thead>
<tr>
<th>Resources</th>
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</thead>
<tbody>
<tr>
<td>Draw your plan. AHD p. 41–42</td>
</tr>
<tr>
<td>Choose your native trees, shrubs and vines. LGG Ch.4</td>
</tr>
<tr>
<td>Choose your heritage vegetables and berries. AHD p. 41–42</td>
</tr>
<tr>
<td>Create a planting/design plan. AHD p. 41–42</td>
</tr>
<tr>
<td>Set specific goals and objectives. AHD p. 33–36</td>
</tr>
<tr>
<td>Does your project need a name, slogan or logo? AHD p. 33–36</td>
</tr>
<tr>
<td>Resources</td>
</tr>
<tr>
<td>This applies to projects that will be planted over more than one year or season. AHD p. 45–46</td>
</tr>
<tr>
<td>Make sure your summer maintenance plans are in place. AHD p. 47</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommended Timeline</th>
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</thead>
<tbody>
<tr>
<td>Draw your plan. December–January</td>
</tr>
<tr>
<td>Choose your native trees, shrubs and vines. December–January</td>
</tr>
<tr>
<td>Choose your heritage vegetables and berries. AHD p. 41–February</td>
</tr>
<tr>
<td>Create a planting/design plan. AHD p. 41–February</td>
</tr>
<tr>
<td>Set specific goals and objectives. AHD p. 33–December</td>
</tr>
<tr>
<td>Does your project need a name, slogan or logo? AHD p. 33–March</td>
</tr>
<tr>
<td>Resources</td>
</tr>
<tr>
<td>This applies to projects that will be planted over more than one year or season. AHD p. 45–46</td>
</tr>
<tr>
<td>Make sure your summer maintenance plans are in place. AHD p. 47</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Recommended Timeline</th>
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</thead>
<tbody>
<tr>
<td>E) Maintenance Plans</td>
</tr>
<tr>
<td>☐ Plan maintenance for all seasons. AHD p. 47</td>
</tr>
<tr>
<td>☐ Make sure your summer maintenance plans are in place. AHD p. 47</td>
</tr>
</tbody>
</table>

**LGG** – refers to this guide  **AHD** – All Hands in the Dirt
<table>
<thead>
<tr>
<th>F) Approvals</th>
<th>Resources</th>
<th>Recommended Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td>LGG Ch.7, AHD p. 57</td>
<td>December–January</td>
</tr>
<tr>
<td>Obtain the necessary approvals for your design from:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ School administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ School custodians</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ School board grounds and maintenance people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Neighbours (if applicable)</td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>G) Fundraising</th>
<th>Resources</th>
<th>Recommended Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task</td>
<td><a href="http://www.evergreen.ca/get-involved/funding-opportunities/">http://www.evergreen.ca/get-involved/funding-opportunities/</a></td>
<td>January–February</td>
</tr>
<tr>
<td>Toyota Evergreen Learning Grounds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Prepare your budget.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>☐ Submit your Evergreen Funding Application.</td>
<td>AHD p. 49–54</td>
<td></td>
</tr>
</tbody>
</table>

**Deadline:** Check back to our website http://www.evergreen.ca/
### 3. GETTING IT DONE

#### A) Planting

<table>
<thead>
<tr>
<th>Task</th>
<th>Resources</th>
<th>Recommended Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call Before You Dig (utilities).</td>
<td>LGG Ch.7, AHD p. 57</td>
<td>February–March</td>
</tr>
<tr>
<td>Purchase plants</td>
<td>LGG Ch.7</td>
<td>January–April</td>
</tr>
<tr>
<td>Planting Day–Dig in! (and remember to get some great planting day photos)</td>
<td>LGG Ch.7</td>
<td>April–May</td>
</tr>
<tr>
<td>Planting must be complete by the end of May</td>
<td>AHD p. 57–59</td>
<td></td>
</tr>
</tbody>
</table>

#### B) Publicity

<table>
<thead>
<tr>
<th>Task</th>
<th>Resources</th>
<th>Recommended Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take some “before” pictures.</td>
<td>LGG Ch.7, AHD p. 59</td>
<td>September–March</td>
</tr>
<tr>
<td>Organize some publicity for your event.</td>
<td>LGG Ch.7</td>
<td>February–March</td>
</tr>
<tr>
<td>Take “after” pictures.</td>
<td>AHD p. 11, 12, 46</td>
<td>May–June</td>
</tr>
<tr>
<td></td>
<td>LGG Ch.7</td>
<td></td>
</tr>
</tbody>
</table>
### 4. EVALUATION

#### A) For Toyota Evergreen Learning Ground Funded Recipients

<table>
<thead>
<tr>
<th>Task</th>
<th>Resources</th>
<th>Recommended Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Send in your “before” and “after” pictures to Evergreen.</td>
<td>Via e-mail or snail mail</td>
<td>May–June</td>
</tr>
<tr>
<td>☐ Return the completed Evergreen Evaluation.</td>
<td>Evergreen Evaluation</td>
<td>May</td>
</tr>
<tr>
<td>☐ Complete a short final report using Evergreen’s final report template. Include information such as expected and unexpected outcomes, statistical information, any media coverage the project received, receipts for items purchased, and photos complete with signed Model Release Forms</td>
<td></td>
<td>May–June</td>
</tr>
</tbody>
</table>

#### B) Final Evaluation And Wrap-Up

<table>
<thead>
<tr>
<th>Task</th>
<th>Resources</th>
<th>Recommended Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Send thank-yous and reports to your supporters.</td>
<td>AHD p. 54</td>
<td>May–June</td>
</tr>
<tr>
<td>☐ Prepare an outline of your future plans.</td>
<td>AHD p. 61–65</td>
<td>February–May</td>
</tr>
</tbody>
</table>
DEveloping Your Project Team
How to Build an Effective Team

1. The Participatory Process
   - Having a wide range of people involved (i.e. staff, students, parents and the community) is the best way to plan and complete a project. It ensures a broad base of support that will sustain the project for many years.
   - To learn more about key people to include in your project, refer to AHD p.7.

2. A Summary of the Team’s Skills and Interests
   - Once you have gathered together all those interested in your project, find out what skills and areas of interest you have available in your group.
   - Check out the skills inventory in AHD p. 15. Copy this form and distribute to all those interested in participating.

3. Group People Into Task Areas
   - Using an organizational chart (like the one below), note who is interested in each area. This will help you identify what skills are present and what additional skills your team requires.
   - Even if there is only a small group of people involved, divide the tasks to focus efforts and define areas of responsibility.
   - If you have several people interested in the same area, they can share responsibility for the task.

How to Use the Organizational Chart:
   - Create your own list of tasks to put across the top of the chart. Refer to The Big Picture for ideas.
   - Committee members can choose which areas they would like to be involved in.

<table>
<thead>
<tr>
<th>Name</th>
<th>Planning</th>
<th>Fundraising</th>
<th>Planting</th>
<th>Maintenance</th>
<th>Publicity</th>
<th>Other</th>
</tr>
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<tbody>
<tr>
<td>Cam</td>
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<td>✔</td>
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<td>refreshments</td>
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<td>Debby</td>
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<td>✔</td>
<td></td>
<td>✔</td>
<td></td>
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<td></td>
<td>✔</td>
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<td>Elizabeth</td>
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<td>✔</td>
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</table>
Brainstorming

Brainstorming encourages creativity and participation from everyone in the group. It can also be useful in decision making when you are looking at all possible options. Best of all—it can be quite fun! Here’s how it works:

Overview—Before you start:
- Do a quick overview of where the group is at in the planning process and what this meeting is all about.

Brainstorming Objectives—Be clear on the objectives of the exercise.
- Example: To come up with creative ideas for greening our school ground
- Mention if there are any requirements or restrictions—i.e. the principal will only let us work in the front of the school. Or, we can only obtain grant money for native plant species.

Set Ground Rules—These can vary, but should include:
- There is no such thing as a bad idea—all get recorded.
- Take risks and encourage everyone to contribute.
- Be creative.
- No interrupting while someone is offering an idea.
- No commenting on an idea during the brainstorm. Treat each other with respect, no ridicule.

Select a Note Taker—The role of the note taker is to:
- Record all of the ideas offered by the group members onto chart paper for all to see.

Brainstorm!—Some suggestions to get you started are:
- Encourage all ideas to be spoken out loud.
- Be spontaneous.
- Build on each other’s ideas.
- Keep energy high by allowing ideas to flow quickly, one after another.
- Respect each other’s right to be heard.
- Respect your note taker!
- Wrap up when you run out of ideas.
- For large numbers it may be useful to break into smaller groups.

Find Common Ideas
- Discuss each idea on your list.
- Group ideas into common themes. This will organize the input and show you which themes had the most suggestions.

Set priorities. Have each member of the group choose three to 10 of their favourite ideas in order of preference. Total them and see which items are most popular. This will help your group set priorities.
Next Steps
- Research the top three to five ideas.
- Include them in your design plan.
- Determine your action plan and who will do what.

Productive Meetings

With a few simple guiding principles, meetings produce exceptional results in a minimum amount of time. For some helpful tips on how to conduct your first meeting see *AHD p.13*.

Decision-Making Models

Groups usually need to determine a method for decision making. One or more of the following decision-making models may be useful to you as your project evolves.

**Consensus Decision Making**—Here is a way to make decisions that respect different points of view—through consensus. These decisions take all opinions into account. *AHD p.8*.

**Sub-committee Model**—Sub-committees work on specific tasks and make decisions that they report to the larger group.

**Voting**—Decisions are made with a vote or tally to determine the most popular choice.

**Hierarchical**—The leader or chairperson of the group makes a decision based on information supplied by the members.

Consult With The Experts

There will be times when you may need to consult with the “experts”: staff from a plant nursery, landscape supervisor, maintenance staff and/or people with previous experience. *AHD p. 42*.

Meeting Times

Many schools have had difficulties finding convenient times for all team members to meet. Use *Doodle* to find a meeting time. Use *Google Drive, GoToMeeting* for an online meeting.
Sizing Up Your Site
A site inventory that documents the physical features and patterns of use of your site will help you successfully choose your locations for planting and prevent future problems. This activity offers an opportunity to involve a community resource person such as a landscape architect, biologist, ecologist, forester, conservationist, cartographer or field biologist.

ON A COPY OF YOUR SCHOOL’S SITE MAP (AH D P.23) DRAW THE FOLLOWING FEATURES IN COLOUR

- **Green**  ▸ existing vegetation (shrubs, trees, grass and flowers)
- **Red**  ▸ active play areas (sports fields, baseball, sandpits, etc.)
- **Orange**  ▸ passive play areas (gathering spots, benches, seating)
- **Yellow**  ▸ proposed planting area (approximate size)
- **Blue**  ▸ wet areas or natural water sources (where does water collect seasonally?)
- **Brown**  ▸ where people walk (natural pathways)
- **Purple**  ▸ fences, telephone poles and property lines
- **Black**  ▸ paved areas other than parking (i.e. sidewalks, tennis courts and running tracks)

THEN LABEL THE FOLLOWING ON YOUR MAP

North  ▸ Compass direction with arrow

<table>
<thead>
<tr>
<th>Utilities</th>
<th>Patterns Of Use</th>
<th>Built Features</th>
<th>Natural Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>hydro lines</td>
<td>entrances and exits</td>
<td>portables</td>
<td>hills</td>
</tr>
<tr>
<td>water pipes</td>
<td>dark areas</td>
<td>parking</td>
<td>slopes and ditches</td>
</tr>
<tr>
<td>hydrants</td>
<td>garbage bins</td>
<td>bike racks</td>
<td>windy areas</td>
</tr>
<tr>
<td>gas lines</td>
<td>routes for fire drills</td>
<td>benches</td>
<td>compass orientation</td>
</tr>
<tr>
<td>overhead wiring</td>
<td>after-school activities</td>
<td>goal posts</td>
<td>adjacent parklands</td>
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<tr>
<td>sewers</td>
<td>piles from snow plows</td>
<td>basketball hoops</td>
<td>woodlots</td>
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<td>storm drains</td>
<td>maintenance challenges</td>
<td>worksheds</td>
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<tr>
<td>cable TV</td>
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<td>taps</td>
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<td>night lighting</td>
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With this information you can speak to the grounds and maintenance staff regarding a site for your project.
OTHER THINGS TO CONSIDER

SOIL: conditions, types, existence of earthworms

MICROCLIMATE: sun, wind direction, shade, sheltered areas

SIGHT LINES and safety issues

SITES of previous vandalism

HISTORY/CULTURE of the site and community.

WILDLIFE sighted on or near school grounds through the seasons

NATIVE SPECIES of plants existing in your immediate neighbourhood

Key Questions to Consider

Selecting a site for your planting is based on analysis of the information collected on your site map. Some of the details will render certain sites obvious poor choices and eliminate them immediately. For example, you will not want to plant in the middle of a soccer field. For more information on the Site Mapping, please refer to AHD p. 23–31.

Ask yourselves the following questions and use your site map to determine the answers. There may be considerations unique to your school or project, so try to think of other questions and do your best to address them when choosing your site.

- Is your site accessible to students?
- Are you planting in the midst of a frequently used pathway?
- Will the proposed planting area fit into the school community in an aesthetically pleasing way?
- Could you build on existing natural features? For example, are you enhancing a wetland or extending a windbreak?
- Are you choosing native vegetation that is already growing successfully in the community?
- Have you considered the logistics of maintenance? How difficult will it be to water? Can a hose reach the plantings? If not, do you have an alternate plan?
- Where does snow get piled up when shoveled or plowed in the winter? Will this damage your small trees? Are your plants salt tolerant? Do they need to be?
- How moist is the ground in the spot you are considering? Will your plants thrive in that level of moisture?
- Have you checked with the maintenance department, the main office and the police about required sight lines for safety, fire drills and security? (see codes and safety standards in Design Ideas) (http://www.evergreen.ca/get-involved/resources/school-ground-greening/)
- Is there a minimum distance required between trees and the school building or fences?
- Are there any community concerns?

TIPS

- Make several copies of your site plan.
- Large plans will need to be reduced.
- Keep one as a master.
- This task can be shared by several students or done as a class activity i.e. a mapping activity for geography.
- If students collect different information, compile the results onto one master plan. You can use tracing paper for this task to see each layer of information.
Choosing Native, Trees, Shrubs And Wildflowers
WHY CHOOSE NATIVE TREES, SHRUBS AND WILDFLOWERS?

What are Native Species?
Native species of trees, shrubs and vines are those that occur in the region in which they evolved. Plants evolve over time in response to climate and interactions with other species inhabiting the community. Thus, native plants possess certain traits that make them uniquely adapted to local conditions. Check our our Evergreen Native Plant Database [http://www.evergreen.ca/get-involved/resources/native-plants-and-invasive-species/] and our recommended plants list at [http://nativeplants.evergreen.ca/lists/]

1. Native species have adapted to:
- local soil and climate conditions; and
- local levels of rainfall.

2. Native species:
- have evolved with local insects and wildlife, providing them food and habitat;
- rarely have pest problems;
- require little to no watering once established;
- do well in poor soils and will flourish without fertilizer;
- offer us the opportunity to study plants that are part of our natural heritage; and
- are beautiful!

3. Re-introduction and restoration of native plant communities contributes to:
- wildlife habitat;
- biodiversity; and
- a local seed source.

4. Planting a diversity of species provides:
- a means of coping with drought and disease; and
- provides wildlife with a more nurturing habitat. The more diverse the vegetation, the more diverse the wildlife attracted to the area.

One of your project’s goals may be to prevent the loss of local native plant species. It has been estimated that as much as 25 to 30 per cent of Canada’s natural flora are rare or endangered; by growing native species you are part of a movement to protect biodiversity.
THINGS TO CONSIDER WHEN CHOOSING NATIVE TREES FOR YOUR PROJECT:

- Where are the leaves going to drop? Are there neighbours or any others who will be affected by this? Will blowing leaves be a problem?
- Will leaves need to be raked and disposed of? If this is a problem, consider trees with small leaves that will blow away i.e. honey locust.
- Where and at what time of day will the shade be cast? Do you want people to be able to enjoy the shade?
- Where does the shade of neighbouring trees fall? Will this affect the trees that you are considering?
- Are there any obstructions overhead? Will your trees grow into this?
- Is there anything your tree’s canopy will obstruct? Will it hang over a neighbour’s yard?
- Are you choosing nut trees? Some schools cannot plant nut trees due to nut allergies (anaphylaxis).

Compaction Strategy—Have you considered how to keep the soil at the base of the tree from becoming compacted and smothering the tree?

Solutions:
- Plant in a garden.
- Weave a fence around the base.
- Plant ground cover.
- Install protective caging around trees in active play areas and add the link to the design in Landscape & Child Development http://www.evergreen.ca/downloads/pdfs/Landscape-Child-Development.pdf
  Page: 117 Detail. 1.02
- Surround with a living fence (i.e. oats, wheat, rye, sunflowers, birdseed or corn).
- Build bench seating around the tree will sometimes work if you watch where the feet will go.

What is compaction?

Compaction occurs when the soil over the tree roots is compressed by foot traffic. The soil in this condition has fewer air spaces making it difficult for tree roots to grow.

How does your spot affect the energy needs of surrounding buildings? Does it provide a windbreak or sun block to reduce energy needs?

Is your tree too close to the school? Will people be able to climb onto the roof once the tree grows?

When planning for a forest-like setting, put in canopy trees first (possibly pioneer species*) then add under-story species, and finally the forest floor.

Consider planting both deciduous and evergreen trees.

Investigate the tree communities in your province. Some trees are naturally found growing together and you can recreate these communities on your school ground.

What size tree will you plant? What is the shape of the mature canopy? Does this have any implications for your site? Do you want heavy or dappled shade?

What to consider when choosing nursery stock: (see chart on the next page)
  - Shrubs are usually sold in containers or bare root.
Types of Nursery Stock

**Whips (cm*) or Seedlings**

**BENEFITS**
- Best for large planting areas.
- Fast growing seedling trees can become very tall in five years.
- Very easy to plant.
- Grown from seed they promote a diverse gene bank.
- Cheapest.

**CHALLENGES**
- Easily vandalized.
- Higher mortality.

* (cm) is the height measurement

**Bare Root (mm** or cm**)**

**BENEFITS**
- Bare root trees adapt quickly and grow faster than ball and burlap or container stock.
- In four years they can overtake the caliper trees.
- Good size for individuals to plant.
- Cheaper than caliper, potted or ball and burlap material.

**CHALLENGES**
- They must be planted early in the spring before they leaf out.

**Caliper (mm**)**

**BENEFITS**
- Immediate effect and instant gratification.
- Survive best if vandalism is a problem (min. 47 mm caliper).

**CHALLENGES**
- Take longer to become established.
- The root ball is very heavy and hard to maneuver so they are very difficult for individuals to plant.
- Expensive.

**THINGS TO CONSIDER WHEN CHOOSING NATIVE SHRUBS FOR YOUR PROJECT:**

- Native shrubs can provide beautiful spring **colour** when they bloom and provide a valuable source of **food** (through their berries) for birds.
If **young children** visit the site, consider planting only edible berries such as serviceberry and elderberry.

Start with small stock (i.e. bare root) and plant in a **well wood-mulched** bed (at least 15cm deep).

Cardboard (or thick newspaper sections) under the mulch will help keep aggressive weeds under control.

For the first few years of growth the **space between these shrubs** can be planted with reseeding annuals such as cosmos, poppies and calendula. Or plant this space every year with sunflowers or nasturtiums until the shrubs have filled in. This will get you over the “is this all there is?” stage.

Also consider planting this space as a **theme garden** such as: bird food, butterfly, colour, scent, kitchen (herbs, salad, veggies), cereal bowl (oats, wheat, buckwheat, corn), medicinal, herb, pizza (toppings or looks like pizza) or giant (large plants).

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**THINGS TO CONSIDER WHEN CHOOSING NATIVE WILDFLOWERS FOR YOUR PROJECT:**

- Choose plants with soil, sun and moisture requirements that closely match the conditions of your site. You can obtain information from a grower’s catalogue. You also need to know the bloom time, colour and height.
- Native plants already growing on local remnant sites are indicators of suitable species and can give you hints about the growing conditions in your community.
- Existing native trees and other plants should be preserved.
- Plant for diversity, imitating natural patterns.
- Pay attention to edge vegetation. Does it need to be low growing? Does it need to be vigorous to maintain an edge? Will spreading varieties be able to be easily controlled?
- Consider plants that are known to attract wildlife, for example, butterfly gardens.
- Use plants that provide year-round interest, remembering that most students won’t be around during the summer months. Look for species that flower in spring and fall.
- You may also wish to use species that are drought-tolerant to minimize summer maintenance requirements.
- Some plants are unsuitable for school grounds, such as those that are toxic, have attractive but poisonous berries or sharp thorns.
Planting Heritage Varieties of Vegetables and Berries
Why Grow Food on School Grounds?

The benefits of growing food on school grounds are multiple, from making highly nutritious snacks available for students (nutrition is highest in vegetables when they are fresh picked) to encouraging children to eat vegetables (kids love to eat what they grow themselves).

What are Heritage Varieties of Vegetables and Berries...and Why Grow Them?

Heritage varieties of vegetables and fruit have been grown by humans over many generations. They are very rare now since modern agriculture has selected only a handful of food crops to grow. According to Seeds of Diversity, 75% of the 100,000 vegetables and fruit varieties in North America today are endangered. By planting heritage varieties, school communities can help maintain food plant diversity and learn about the tastes, colours, shapes and cultural uses of plants, while providing nutritious food for students.

What to Grow?

Check out our web site for information on what to grow on school grounds and where you can find species that might be of particular interest to your school. (http://www.evergreen.ca/downloads/pdfs/Food_Gardening_for_Schools.pdf)

Corn, Beans and Squash—The Three Sisters
Research about the fascinating history of The Three Sisters, tips for planting them and recommended species.
Tips for planning successful vegetable patches at schools:

- Determine whether there is enough volunteer commitment to water and weed a garden in the summer months (5 people is a good number). Coordinate a watering and weeding schedule for the hot summer months. If you have enough volunteers, you can plant your summer garden.
- Select an area near water access and out of the way of foot traffic.
- Prepare the soil in fall by laying down layers of newspaper, manure and leaves (approximately 1 foot thick) to kill off grass. This makes for less need to turn sod in the spring (this is especially useful when working with younger children).
- Plant peas, radishes and lettuce in spring for spring harvest.
- Plant vegetables that need more water together and make sure to grow lots of drought tolerant plants (e.g. herbs).
- Mulch heavily to help moisture stay in the ground and the weeds down.
- Plant edible flowers, cherry tomatoes, and unusual looking veggies.
- Grow plants that others don’t recognize. They are less likely to be stolen!
- Plant sunflowers in late June for September flowers.
- Integrate garden visits with arts, literature, curriculum.
- Avoid Pumpkins they tempt vandals.

**Plus Beans and More Beans**

Beans are good for the soil (they add nitrogen), drought tolerant and easy and fun to grow. Evergreen is working with Seeds of Diversity (www.seeds.ca) to protect the diversity of beans in partnership with schools. Read The Bean Keepers story below and if it inspires you to try helping out, we’ll send you some beans and be there to answer questions. After you grow the beans, we ask that you collect a few to send back to Seeds of Diversity for safe keeping in their public heritage seed bank. *Kids can make a valuable contribution to conserving the diversity of 2000 varieties of beans across Canada!*

**Berries**

Historically, native fruit species were important to indigenous peoples and European settlers. Some of these have been cultivated and cross-bred for many years and are now considered heritage varieties. Native berries that are edible, but not altered through cultivation (i.e. strawberries, raspberries, blackberries) are listed on our native plant database at http://nativeplants.evergreen.ca/

**Spring Crops**

Use vegetable varieties that can be planted in early spring and harvested before the end of the school year. We suggest sowing the seeds when the soil is soft and can be worked easily (usually mid-March in coastal B.C., late April in most of Southern Quebec and Ontario, early May in Northern Ontario, Northern Quebec, Maritimes, Prairies, and interior B.C.) Most varieties that we recommend can be harvested by mid-June.
Not long ago in a town named Tumbleweed, there was a terrible drought.

One year, it hardly rained in May. It hardly rained in June and July, and it didn’t rain at all in August.

When fall came, the farmers harvested the scrawny crops. The pumpkins were too small for carving into jack o’ lanterns and the carrots were too tiny for snowmen’s noses. The corn was so little that everyone ate five or six cobs at Tumbleweed’s harvest festival. There wasn’t even one watermelon to share.

The adults were worried.
“What if there’s no rain next year?” asked Ms. Krauss, the kindergarten teacher.
“We won’t have enough of our favourite foods,” said farmer Elijah Bernstein.
“Not enough beans, that’s for sure,” said farmer Joe Piper.
“We’ll have to cancel the harvest festival next year,” said Emma Jones, Tumbleweed’s mayor.

On Sunday afternoon after the harvest festival, Paolo and his friends met at the tree house as they did every week.
“No watermelons, no jack o’ lanterns and no harvest festival next year!” he exclaimed.

Jim asked, “What can we do?”
Ellie had a bright idea. “We could grow food. Then we could still have the harvest festival.”
“But what do we know how to grow?” asked Olivia.
“I know how to grow beans,” said Paolo’s youngest sister Maria, who had grown them with Ms. Krauss in kindergarten that year.
“Yeah! We grew beans at school,” said Jim.
“We did too,” said Charlie and Ellie at the same time.

“Let’s make a list of what we need to grow beans,” said Olivia, who liked to make lists.
Jim thought of the first thing and Olivia wrote it down in her best printing:
GET BEANS
They stopped the list there, which made Olivia a little grumpy, and went in search of beans. Paolo’s mom gave him pinto beans from the kitchen cupboard. Ellie’s dad gave her some kidney beans from a jar in the pantry. Charlie got five little green bush beans from his garden.

The next day, they met at the tree house to look at their beans. The kidney beans and pinto beans were dry, but the green beans were still fresh and the seeds inside looked very small and too soft to be planted.

“We need more beans,” said Jim.
“We need them to be dry beans,” added Ellie.
Olivia wrote on her list:

GET A LOT MORE BEANS.
GET DRY BEANS.

“What will we do when we get all these beans?” wondered Paolo. “How will we tell them apart?” Olivia suggested that they put them in paper bags and write the name of the bean on the bag. Jim ran home and came back panting. “Paper bags!” he announced, as he plunked them on the floor of the tree house.

Paolo grabbed a marker and wrote on one bag: Pinto beans, from Paolo’s house.
Ellie wrote on her bag: Kidney beans, Ellie’s house.
Little Maria ate the green beans.
Olivia wrote on the list:

PUT BEANS IN PAPER BAGS.
LABEL BAGS (bean name, where from).

Over the next few weeks, they went looking for more beans.

Elijah Bernstein gave Paolo two kinds of pole bean. “Sometimes these grow 20 feet high if I’m lucky!” he said.
He pointed to the scarlet runner beans. “These ones have big red flowers,” explained Elijah.
Paolo put the scarlet runner beans in one bag and wrote: scarlet runner pole beans, Elijah’s farm.
He wrote on the other bag: liana pole beans, Elijah’s farm.

Charlie went to Tumbleweed’s community garden and found string beans, yellow beans and waxed beans that had dried on their beanstalks.

Olivia asked Ming Pi for some of his special Chinese long beans. “Each bean grows three feet long,” said Ming Pi proudly.

Ms. Krauss gave Ellie some rattlesnake snap beans and said, “Please give me a few back if you grow extras so I can grow them with the kindergarten class next year.”

Paolo and Maria’s uncle Ricardo gave them six kinds of beans. He gave them black turtle beans and more kidney beans. He even gave them some Mexican jumping beans.

“Why do they jump?” asked Maria.
“The jumping bean has a little worm that lives inside. When it wiggles, the bean jumps up and down,” explained Ricardo.
Uncle Ricardo gave Paolo some special orca beans too. “They look like an orca whale or a yin yang sign if you squint just right,” he said.

One day, they all visited Joe Piper, Tumbleweed’s most famous bean farmer. He was really old and rumour was he’d been growing beans forever. Joe Piper listened to what they were up to and said, “Well, at long last.”
He offered them some lemonade and said, “Until you walked in the door and told me your story, I thought I was Tumbleweed’s only Bean Keeper. I’ve been one since I was knee high to a beanstalk. All my friends were too. Truth is, I’m getting a little old to be the only Bean Keeper now, so I’m very glad you’re here to help. Do you know that Bean Keepers have a special and very important job to do?”
They looked at each other. Olivia and Jim asked in unison, “What? What’s our job?”

“Each year you have to plant beans, water them, pick them when they’re ready to be picked. Then you store some of them for future planting. You don’t have to grow all the beans out every year, but it is good to grow them out every three years or so to replenish your bean seeds so they don’t get too old.” said Joe Piper. “That sounds like what we’re doing, only we hadn’t figured out how we were going to do it,” said Charlie.

“Do you have any beans for us?” asked Ellie. Joe Piper smiled, rolled up his sleeves and went deep into his cupboards. He pulled out paper bag after paper bag of beans. Soon the bags were piled so high on the table that the kids had to stand on chairs to see the top of the pile.

When he was done, Joe Piper gave them some beans from each bag. Paolo, Olivia, Ellie and Jim carefully labelled each one while Maria and Charlie counted the bags. There were 77 kinds of beans all together. When they had labelled every last bag, Joe Piper said, “Welcome to the Bean Keepers.” “Thanks Joe!” they said, as they waved goodbye. “We’ll do our best to be good Bean Keepers, we promise!”

That night, they counted all their paper bags. They had a hundred kinds of beans. Maria had brought some jelly beans in a paper bag that were labelled “Jelly beans, candy store,” but they all knew jelly beans wouldn’t grow so they didn’t count them.

Thinking back to what Joe Piper had told them earlier that day, Olivia pulled out her favourite marker and wrote on their list:

PLANT BEANS.
WATER BEANS.
LET BEANS DRY (on the vine).

They wrote down how they had become Bean Keepers and what they had said to people along the way. They turned Olivia’s list into a rap song. They used their bean bags as props for the show. They made a kitchen table like Joe Piper’s. They even made a mural of their tree house. They practiced and practiced and finally the talent show night came.

“Announcing the Bean Keepers!” said Paolo. Charlie started by acting out how he discovered that fresh beans couldn’t be grown. Maria made everyone laugh when she tried to convince them they could grow jelly beans. Jim played the part of Joe Piper and Ellie acted the part of telling Joe Piper that they’d be good Bean Keepers. Olivia explained, “Bean Keepers always use a list to help them, now let’s rap it!”

Spring was still a few months away so they wouldn’t be able to grow beans for a while. They skated and waited. They drank hot chocolate and waited. They hung out in the tree house and waited.

One cold day Paolo said, “Let’s do a play about the Bean Keepers and perform it at the school talent show.”

“We can use the list to help us with our play!” suggested Olivia.

Jim said, “We can invite all the kids to help us grow the beans!”
They rapped:

"WANT TO BE A
BEAN KEEPER?
THIS IS HOW.

GET BEANS
INTO PAPER BAGS,
THEN LABEL.
WAIT, WAIT, WAIT TILL SPRING.

PLANT BEANS
INTO THE SOIL,
THEN WATER.
WAIT, WAIT, WAIT TILL FALL.

PICK BEANS
OFF THE VINE.
WAIT, WAIT, WAIT TILL THEY DRY.

GET BEANS
INTO PAPER BAGS
THEN LABEL.
WAIT, WAIT, WAIT TILL SPRING.

WANT TO BE A
BEAN KEEPER?
NOW YOU KNOW HOW.
SO DON'T WAIT, WAIT,
WAIT AT ALL!"

Paolo, Ellie, Jim, Olivia, Maria and Charlie spent the final weeks before spring distributing the beans among all the new Bean Keepers. Finally the soil warmed up, the trees began to leaf out and Joe Piper said, “It is time to plant the beans. Plant them close to your houses so you remember to water them.” Everyone got busy planting.

It was another year of hardly any rain. Early in June, Joe Piper said, “Time to mulch your beans. Put straw around them. That way they need less water.”

In July, Ellie had a great idea. “Let’s grow the beans with leftover bath water.” They convinced almost everyone in Tumbleweed to plug their tubs when they showered. They collected water in buckets and carried it to the beans. It was hard work.

The beans grew and grew.

A few weeks before the harvest festival, the kids collected their beans, put them in paper bags, labelled them and gathered together.

“Each of my waxed beans made 150 more beans,” said Charlie.
“My scarlet runner beans and my orca beans are really beautiful,” said Paolo.
“My Chinese long beans are over three feet long,” said Olivia.

Everyone had a story to tell.

They invited Joe Piper to see the beans they had grown.

“You kids are spectacular Bean Keepers. It looks like you’ve grown over 100 pounds of beans during the worst drought year Tumbleweed has seen in a long time. You oughta show mayor Emma Jones in case she is still thinking about cancelling the harvest festival,” he suggested.

The applause was deafening! At the end of the show Ms. Krauss announced with tears in her eyes that they had won the talent show and that her class would help from now on. Dozens of kids came and said they’d help too.
Mayor Jones couldn’t believe what she saw. “You children have done an amazing thing! You’ve grown more beans than most of you weigh! We definitely can’t cancel the festival now.” “Could we put on our play at the harvest festival?” asked Maria. “Absolutely! We’ll invite schools from other towns to come too so they can learn how to be Bean Keepers,” said the mayor.

School kids came to the harvest festival from all around. Elijah Bernstein and Ms. Krauss couldn’t stop talking about the Bean Keepers. Paolo, Charlie, Jim, Olivia, Ellie and Maria put on their show again. Olivia even printed up the rap song and a new version of the list and handed them out to everyone who came. Old Joe Piper just smiled. There would be Bean Keepers aplenty for years to come.

THE END

Epilogue
In case you were wondering, here’s Olivia’s final list...

In Fall,
GET DRY BEANS.
PUT INTO PAPER BAGS,
THEN LABEL (bean name, where from).

Food Garden Curriculum Resources
Evergreen’s resources:

Patterns through the seasons: A year of school garden activities.
This resource, a joint production of Lifecycles and Evergreen, is a BC curriculum-based experiential learning tool focused on food gardening. Order at (http://www.evergreen.ca/downloads/pdfs/Patterns-Seasons.pdf)

Patterns in Relationships: Ethnobotany.
This module can be used in conjunction with Patterns, Plants and Playgrounds, and is designed for grades 4–7. It was written by educator Illene Pevec and piloted at Grandview/’uuqinak’uuh Elementary School in Vancouver, BC. Activities all focus on ethnobotany—the plant knowledge of social groups of people, and how this relates to food, clothing, ceremonies, etc. Activities range from making a medicine wheel to identifying plants in Halkomelem, a West Coast First Nations language. Order at (http://www.evergreen.ca/downloads/pdfs/Patterns-Relationships-Ethnobotany.pdf)
Teacher’s Corner

Evergreen’s on-line resource has several food garden related activities to help teachers get the most out of the outdoor classroom and garden (http://www.evergreen.ca/get-involved/resources/teachers-corner/).

Other curriculum resources:

Worms Eat Our Garbage: Classroom Activities for a Better Environment


The Wonderful World of Wigglers: Exploring the Mysteries and Magic of the Mighty Earthworm


Beans and their Buddies: An Integrated Primary Science Resource

Sandy Pollmer and Diana Mumford, eds. Gabriola, B.C.: B.C. in the Classroom Foundation.

Grow Lab: Activities for Growing Minds


Feeding Minds, Fighting Hunger

This site offers “an international classroom for exploring the problems of hunger, malnutrition and food insecurity.” There are sample materials and lessons, and an interactive forum for exchanging ideas and experiences around the world. For primary, intermediate and secondary levels.


Discovering the Food System: An Experiential Learning Program for Young and Inquiring Minds

This site offers on-line curriculum for understanding the food system, and is designed for teachers and leaders of middle- and high-schooled aged youth. http://www.discoverfoodsyst.cornell.edu/

Teaching unit on how to educate about food systems, Green Teacher 65, Summer 2001

Activities and topics include: What is a Sustainable Food System?; A Three Sisters Garden; Classroom Hydroponics. Order copies on-line at http://greenteacher.com/back-issues-index/greenteacher-65-summer-2001/

Kids Gardening

http://www.kidsgardening.org/
Other Resources

Seeds of Diversity Canada
A non-profit group of gardeners that save seeds from rare and unusual garden plants for the purpose of preserving the varieties. http://www.seeds.ca

Organic Gardening
Soil; composting; flowers; vegetables; natural lawn care; permaculture; pests & diseases; herbs; urban gardening:
http://www.rodalesorganiclife.com/garden

Plants for a Future: Edible and Useful Plants
For an excellent database of plants, their uses, their needs, check out
http://www.scs.leeds.ac.uk/pfaf/index.html.

Worms
Learn about worms and vermicomposting at: http://www.evergreen.ca/downloads/pdfs/Green-City-Toolkit-Vermi-Composting.pdf

Rethinking School Lunch
A growing movement has emerged to transform school lunch into a vibrant expression of environmental education. The Center for Ecoliteracy has launched the Rethinking School Lunch initiative to help restore the connection of farms to communities, meals to culture, and health to environment. http://www.ecoliteracy.org/pages/rethinking/rethinking-home.html

City Farmer
http://www.cityfarmer.info/

Organic Opportunities
Canada’s largest directory and guide to natural and organic food, gardening and agriculture: http://www.planetfriendly.net/
Maintenance Strategy
A well-planned and organized maintenance strategy will protect your investment of energy, resources, money and time.

- Over time, the need for maintenance will decrease—but the more you plan for it in the beginning, the less work there will be later.
- Have one person oversee the maintenance plan to ensure the work is done.
- Realize that assessment of maintenance needs is on-going as conditions change.

**WHEN MAKING YOUR MAINTENANCE PLAN CONSIDER THE FOLLOWING:**

1. **Include good quality maintenance tools** in your grant applications (i.e. shovels, wheelbarrows, gardening gloves, hoses, hose reels, buckets, clippers, tree guards, weeding tools and edging tools).

2. **Compaction strategy** (see Choosing Wildflowers, Trees and Shrubs, Ch. 4)

3. **Protection from pests such as rodents**—protect young trees with tree guards.

4. **Moisture strategy (watering and mulching)**—Make sure you have a watering schedule to ensure trees, shrubs and plants get enough (see Watering Issues). Maintain a 15cm thick layer of mulch around the base of your plants. Mulching will retain moisture and improve the organic content of the soil.

**Watering Issues for Native Plants**

**Newly planted trees and shrubs** will need summer watering until they become established (approx. three years).

**Wildflowers** usually need watering for the first year to develop a good root system.

**On-going watering** after these time periods will depend on the suitability of the vegetation for your site. Consult with your local arborist or tree nursery for recommendations re: how much watering your trees need (i.e. slow trickle for three hours two times per week).

Even **established plants** may need assistance during periods of **extreme drought**.
5. **Weed control strategy (mulching and hand weeding)**—Mulching will also keep weeds to a minimum. However, make sure you have a work schedule to hand pull any weeds before they spread. If you keep on top of it, weeding is quick and easy.

6. **Replacing damaged plants**—If you can keep your project in good shape, people will tend to show it more respect than if it looks beaten-up and damaged. Replace or remove any damaged plant material right away.

7. **Maintaining trails**—Another way of avoiding possible damage. Keep paths clear and well marked so people will use them - not make new ones! If new paths develop indicating a usage pattern, consider making the path a permanent one.

8. **Mulching, trimming and pruning**—Scheduling these activities will keep your plants healthy and protected. Mulch in the spring, prune in February and trim when the tree or shrub is not in a transitional period (i.e. transition periods are early spring and late fall).

9. **On-going general clean-up**—If you want others to show your project respect, lead by example. Provide garbage bins and empty regularly. Keep litter picked up. Maintain signage, seating and fencing.

10. **Plan an annual spring cleanup and garden closing in the fall.** This makes good use of available student power. In the fall, don’t forget to drain your hoses.

11. **Seed collection**—Collected native plants and heritage vegetable seeds can be scattered in different areas or packaged and sold as a fundraiser. They can also be shared with the community through the North American Native Plant Society seed exchange program ([www.nanps.org](http://www.nanps.org)) or Seeds of Diversity ([www.seeds.ca](http://www.seeds.ca)).

12. **Ease of maintenance**—Trees and shrubs are easier to maintain than wildflowers. Wildflowers will always need more maintenance.

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**WHAT TO DO DURING THE SUMMER MONTHS**

It may seem a little early to be worrying about summer maintenance plans, but figuring out who is available for watering and regular upkeep now, will save you from last minute scrambling later.

- Make sure maintenance teams have access to an **outdoor tap**, which may require a special key. Arrange for the key to be kept in a central location.
- Organize student volunteers to water and maintain the area for **one-week** periods during the
During the summer, there are few people to do the work but the demands are greatest in terms of watering and weeding. Here are some creative solutions:

- Have a get-together **BBQ in September** for those who helped.
- Ask **neighbours and community groups** i.e. Guides and Scouts for a helping hand.
- Invite a **local gardening** or conservation organization to donate some time and energy.
- Coordinate with **summer school/recreation programs** to incorporate use and maintenance into their programs.
- Organize **work parties**. This is a fun way to share the load.
- **Hire a student**. Fundraising and matching government grants can assist with hiring a part-time student to weed and water.
- Some schools **recognize planting volunteers** with a native wildflower to grow at home. This recognizes their contribution and creates a seed bank in the community for natural regeneration and backup should you have a crop failure.
- Enlist the help of **school teams or clubs** to come out and volunteer their time each year.
- A **maintenance log** will help keep track of what was done and provide suggestions for the next round of maintenance.
- **Caretakers and office staff** may be willing to help with summer watering.
- Small areas can be assigned to **individuals or small teams** who can come at a time that suits them.

**All Hands in the Dirt** p. 34

has a year round calendar called **A Year in the Outdoor Classroom**. Use this as a guide for each season to get the most out of your project.
Organizing

Planning

Your
Organizing Your Planting

1) BEFORE YOU START
   a) First Things First:
      Take Some “Before” Pictures

2) WHEN TO PLANT?
   a) Select a Date
   b) Determine When Your Nursery Stock will be Available for Planting
   c) Set a Backup Rain Date

3) EVENT PLANNING LOGISTICS
   a) Permission and Approvals
   b) Purchase and Delivery of the Plant Material, Mulch and Planting Equipment
   c) Publicity for Your Event

4) THE PLANTING DAY:
   READY, SET, GO!
   Pulling It All Together
   a) Prepare Your Site
   b) Marking The Planting Areas
   c) Equipment
   d) Safety Issues
   e) Supervision
   f) Time Considerations
   g) Getting The Job Done—Work Teams
   h) Balance Your Work Force With The Amount of Material To Be Planted
   i) Dealing With The Dirt
   j) Food and Refreshments
   k) Weather Considerations
BEFORE YOU START

a) FIRST THING’S FIRST—TAKE A “BEFORE” PICTURE

**Designate a Photographer.**
- Find someone who would enjoy taking pictures of your project before, during and after each phase.
- Be sure to do this each year.
- Perhaps someone from a photography club would like to be involved.

**Consider Film and Processing costs.**
- Costs for film and processing need to be included in your grant applications/fundraising.

**Pictures, Pictures, Pictures!**
- People will want to see how the project was done and will be impressed when they see it was students who did it!
- A few group shots are OK but most interest is captured in shots with one or two people working.
- Make sure you get permission from people before you take their picture, especially if you want to use it later for publicity.

**Consider video and digital records.**
- This will depend on your resources and how the images will be used to share your project with others.

**In fact, take a whole bunch!**
This will provide great promotional material for future additions to your project. Record where the pictures were taken and when so you can do accurate before/after comparisons.
Selecting a Planting Day

a) SELECT A DATE

Can you connect the planting day with an event?

Choosing a special event to commemorate will help attract extra attention to your project and will provide additional opportunities for people to participate.


Best Fit

- Does the date coincide with availability of plant material?
- Are there any conflicting activities going on in the school at that time?
- Does the focus of the special event match your own?
- Can the coordinators of large-scale events like Earth Day or Pitch-In Day provide you with some sort of support?

Implications of Your Choice:

- If you choose Earth Day you will have an increased chance of attracting media attention. Media will tend to provide umbrella coverage for such events. On the other hand, you may be competing for media time with other Earth Day events.
- If you choose Graduation you may have an opportunity for Green Gifting—when individuals or groups donate trees to commemorate their graduation.

Spread the work over several days.

- Site preparation, planting, watering and wood chipping can be done on separate days.

Tips

- **Bare root stock**—needs to be planted before it ‘leafs out’ in early spring.
- **Ball and burlap and container grown stock**—can be planted any time.
- **Planting early in the fall**—gives the trees an early start in the spring and they do better. It is the best time to plant caliper trees.
b) DETERMINE WHEN YOUR NURSERY STOCK WILL BE AVAILABLE FOR PLANTING.

- The date you choose may be dependent on when the nursery stock will be ready for planting. This can be variable due to weather and ground conditions (i.e. a very wet spring can delay when trucks can get the trees).

c) RAIN DATE

- Be prepared. Always schedule a rain day for your planting event.

EVENT PLANNING LOGISTICS

a) PERMISSION AND APPROVALS

This must happen both within your school and the community.

- **Within School**—Make sure your plans are all approved by your Principal and school board maintenance staff.

- **Within the Community**—Call before you dig! Ensure that you have obtained any permits necessary for planting. Check with the works department, gas, power, cable and phone companies to ensure there are no cables or pipes below ground.

b) PURCHASE AND DELIVERY OF THE PLANT MATERIAL

Shop around.

- Once you have chosen the plant material for your project, you will need to find a nursery or grower who sells the particular native species that you are looking for. This may require that you order your material from more than one source.

- **Get the lowest possible price** by obtaining three quotes from growers/suppliers before making the purchase.

- Many growers will offer wholesale prices to school projects. Note—this is usually half the retail cost and comes without a guarantee.

- Large-scale wildflower plantings are best done with contract grown plugs (you pay a grower to grow the plants for you). Orders must be placed by January for a spring planting.
Order the nursery stock and arrange the delivery date in advance.

- To ensure you get the material when you want, give the nursery as much notice as possible (i.e. as soon as your grant is approved).
- Organize a delivery date when you confirm your order.

- Prior to delivery establish how payment will be made (i.e. on delivery or by invoice). Have the cheque ready if payment is expected on delivery.

Delivery day

- Someone needs to meet the delivery truck. Tell the company to ask the driver to go to the office. Then have someone give directions where to unload.
- If the company cannot guarantee a delivery time, consider having the material delivered the day before you plant.

Inspect the material.

- If any of your plants, trees or shrubs have been badly damaged during delivery, speak to the driver immediately and call the company.
- Prune broken branches before you plant the tree or you may not be able to reach them.

c) ORGANIZE PUBLICITY FOR YOUR EVENT

Publicity should happen both within your school and with the local media.

Within the School:

- By now everyone in the school should know about your plans, but be sure to turn up the volume closer to the big event.
- Remember that outside attention is fantastic and helpful, but most of the support for your project will come from under your own (school) roof. Make posters, announcements, flyers, and most of all—try to involve others!

With the Local Media:

- Be sure to get the word out to local papers, organization newsletters, and the community event section of major daily papers.
- Utilize public bulletin boards in stores and libraries.
- If you have a Web site—get your event posted.
- Notify any community organizations that may be interested. Send pictures and stories to Evergreen, Green Street, Green Teacher magazine, Teachers publications, your trustee, school superintendent and TV stations.
- Depending on the size of your event, you will likely have different degrees of attention from the media.
- It is worthwhile having a group spokesperson—a person selected beforehand who is prepared to speak to the media if they show up.

TIPS

For some great and easy-to-follow tips on how to write a Press Release, and on What To Do In an Interview, please refer to pages 58–59 of All Hands in the Dirt.

Note: Info on Evergreen is in the Evergreen Backgrounder Ch. 14.
Create a Web site with pictures and a description of your project.

People will be interested in:
- how you came up with a plan;
- who gave you help;
- where on school property you planted stuff;
- what you planted;
- what obstacles you ran into and how you overcame them; and
- quotes from students and teachers about your project.

If you don’t have a Web site:
Utilize social media!
Create a Facebook page
Tweet about your success & your challenges

4 PLANTING DAY: READY, SET, GO!

Pulling It All Together

a) GETTING READY

Prepare your site for planting.
- Sod can be solarized (with black plastic for three months), removed manually or smothered with thick newspaper or cardboard and covered with wood mulch 15cm thick.
- Holes for trees can be dug the day before and marked off for safety.

Mark your planting areas.
- Mark off planting areas with stakes and strings well in advance to make expectations clear.
- If the planting is to be done over successive days, colour-code the areas to indicate which ones are to be planted on what days.

- Leave the string boundaries in place until the plants have had a chance to grow to protect them from being trampled.
- Indicate exactly which trees and shrubs go where.
- Plant wildflowers 22–30 cm apart in groups of six or more of one species.

Make sure you have enough suitable equipment for each student.
- This may include shovels, rakes, pitchforks, pick axes, wheelbarrows, bushel baskets, green garbage bags, gardening gloves, hoses, watering cans, trowels and weed diggers.
- You can include equipment in your grant application and purchase it for the school or have teachers and students bring equipment from home.
- If equipment is borrowed make sure each item is clearly marked with the owner’s name. School equipment can also be marked with an identifying paint colour for easy identification.
b) PLANTING

You will need one or two people (staff or senior students) who will supervise the operation throughout the day.

- Most schools work with one class at a time.
- Supervisors are needed for teaching, safety, quality control and to ensure that everyone is occupied.

Safety Issues

It’s a good idea if there is a lot of equipment being schleppeled around that some equipment rules be established (i.e. avoid carrying shovels over the shoulder and don’t dig in a hole if someone’s fingers are doing something down there). Caution against jumping on shovels. Some schools have someone assigned to watch for unsafe practices.

Consider the amount of time for each activity.

- Classes or groups of students work well for 1 period. Allow time to get to the site from the classroom and for wash-up afterwards.
- Make sure that the last group of the day helps with clean up (i.e. brings in the equipment and remaining plant material).

Consider these organizational options to get the job done.

- Work in teams of two to three students.
- Teams could complete the whole planting process: digging, planting, mulching and watering.
- Have teams of students specialize in one task area; one team digs and plants, another mulches all the planted material and a third group follows with watering.
  - Explain the task to the group and let them figure it out.

Balance your work force with the amount of material to be planted.

- Try to ration the plant material so that everyone can be involved in the planting.
- If you run out of things to plant during a group’s allotted time period have other activities for them to do such as picking up litter, moving wood chips or watering.

Prepare for the dirt and mud that will accumulate on peoples’ hands and shoes.

- Speak with custodians for help with this. Gloves are a huge help. Make sure you wash them after each planting day.
c) OTHER CONSIDERATIONS FOR HAVING FUN

Reward hard working students with snacks and drinks during the day.

This is a great opportunity to have a local restaurant demonstrate its support for your project with a donation of sandwiches and snacks.

Be prepared for all kinds of weather.

- Especially for early spring and late fall plantings, come dressed in warm layers.
- Good solid shoes, preferably boots, will help you push the shovel into the ground.
- For hot summer days, have lots of water on hand and sunscreen readily available. Hats are a must.

Remember:

The hotter it is the less time people will last. Progress will not be as fast. Try to avoid planting in June.
Templates

Here are some templates that may be of use to you for organizational purposes.

PLANTING NOTICES      FEEDBACK      SPECIAL EVENTS
DONATION REQUESTS      SCHEDULING
Hopewell Avenue Public School Yard Campaign

Let's bring back the leaves! Help us bring back trees and build new play spaces at Hopewell. Let's raise $200,000 by March 1, 2015 so we can have a better yard for the next school year.

We're closer than you think! Click here to view campaign progress (updated February 14).

Wonder how to donate? Click 'Give to the Campaign' and your donation will automatically be counted. Or, look through the Giving Groups and make your donation to a family fund or community effort.

Parents and guardians - you can also make your gift through the 'Hopewell Parents & Guardians' Giving Group. Your donation will still go right to the yard, but you'll be able to add your name, share a message, and get updates.

Alumni: there are Giving Groups for the many decades. Please find your year, join up and spread the word to your classmates.
LATEST NEWS: Nurture Nature Playscape Project at L’École King George Public School

Have you noticed the big changes that took place over the summer on the school grounds? Here is the backstory and latest news. Read on...

When L’École King George Public School was built in 2012, it included only a basic playing area and a small field for the grade one to eight students. They had few options for their recess and lunch breaks and almost no space to room to the field to.

Volunteers Made It Happen
The Growing and Greens Committee, which is part of Parent Council, formed, in part, to provide more options for the wide range of kids who would be using the school yard daily. While the existing space was appropriate for games like soccer and tag, some kids preferred more relaxed forms of fun during their breaks from lessons - and the flat grassy field construction was perfect for their imaginations.

Everyone Had an Opportunity to Provide Input
To determine what kind of playground our school population wanted, the Growing and Greens (G&G) Committee engaged as many people as possible. A report from Emerere, a national not-for-profit that promotes schoolyard “growing,” who has a contract with our board, engaged the students through an assembly and classroom activities designed to gather feedback about what would make them happy. The G&G Committee also hosted a viewing session to get input from parents and teachers about the types of features they thought would best serve the needs of the kids.

A landscape architect was hired to design what we collected from students, parents, teachers, the school district and playground experts to design a playground that met our requirements and as many of our objectives as possible. At about the same time, in June 2013, we began raising the money needed to start transforming our field.

Lots of People Helped Pay for It
Some generous support from our students, parents and neighbours encouraged us to get started. However, the arrival of an extremely generous $50,000 donation from neighbours John and Pan Rennie at the end of June was a game-changer. We very quickly ramped up our efforts to complete as much of the playground foundation as we could over the summer break.

While most of our supplies and labour were purchased directly using donated funds, other things - such as the time that the kids like so much and the area that they can run around on - were special. We simply would not have them without the involvement of some dedicated parents and the generosity of their community-minded employers.

All of these materials were transported to the site using specialty equipment and installed by student-organized groups of 15 to 20 students.

Lots More Fun Ahead
Our playgrounds still need some climbing structures, plant life and bright colours to realize its full potential. We’re looking forward to enhancing the playground with some exciting new features, such as:

- balance logs to add some new challenges,
- new trees to provide some shade,
- a “spiral trail” of play structures,
- an area to provide some interesting views for study,
- a butterfly garden that will provide opportunity to learn and observe, and
- a climbing feature, including a “monkey bar” complex, that will promote even more active play.

We’re gearing up to decide on our priorities, raise some money to buy the new features, and recruit some new volunteers to participate in this exciting endeavor.

So Many Ways to Help!
If you’ve been sitting, back and watching the transformation, now is a great time to get involved and enjoy the process of making the playground a great place for your kids to have fun.

There are so many ways to help!
Let us know whether you prefer to use a shovel, a pen or a phone, and we’ll find a way for you to be involved. To get on our information list, you can receive more about upcoming volunteer work parties and our needs for special tools, contact our volunteer coordinator, Linda, at linda@ourville.net.

For more details about how we pulled all of this together, visit our (volunteer-driven) blog at http://growing-committee.blogspot.ca.

The Before and After Pictures Will Amaze You!
'Yoga for Trees'
Family Yoga Event
For Fundraising

Sunday June 2nd, 2013
Pleasantview Community Centre: 545 Van Horne Avenue

Session A: 9:30-10:45
Session B: 10:30-11:45

Bring your Family –
Mom, Dad, Auntie, Grandad, Baba, Papou,
Zizi, Mimi, Teta, Baby Brother, Big Sister…

For a Family Yoga Session –
No yoga experience necessary!!
Play and learn along with your children.
Everyone wears comfy clothes and socks!

To Raise Money for –
Trees for Brian Public School …
3 beautiful Silver Maples to 'green' the asphalt play area,
and give the children shade and cleaner air.

Tickets $20 per Family in Advance –
Purchase at office of Brian Public School
Or from Yoga Instructor: Andrea (Pleasantview CC)
Limit of 12 families per session

Session Includes –
A fun, gentle warm-up that everyone can do, followed by
Simple yoga poses 'stations', yoga games
Face painting, mural-making,
A 'Yoga for Trees' craft to take home…
And a light refreshment!

This event is brought to you by:
Brian Public School The Parent Council at Brian Public School
& Pleasantview Community Recreation Committee

For Information, please contact the Yoga Instructor:
Forest Glen Public School

Greening the Glen

You are cordially invited to attend
the Ribbon-Cutting Ceremony
for the Grand Opening of our Learning Grounds Project

Wednesday September 30th, 2015 at 12:00 pm

Forest Glen Public School
(Outdoor Classroom Area behind school)
437 Waterloo St., New Hamburg, (519) 662-2830
R.S.V.P zisterz5@gmail.com by September 25th

A Big Thank You to our Contributing Partners!
Supporting Materials
Designing for Shade
Introduction

One of the mandates of the Toyota Evergreen Learning Grounds program is to provide safe and healthy school grounds for children. Canadian school grounds are typically barren places with little to no vegetation. Frequently missing are large trees, which provide shade for children playing outdoors. Children spend approximately 25% of their school day outdoors, including before/after school, lunch and recess periods. The lack of trees, and therefore shade, on school grounds is of increasing concern given the amount of time children spend outside and the rising incidence of skin cancer due to ultraviolet radiation (UVR).

Learning Grounds is supporting the creation of shade by encouraging the planting of trees, shrubs and vines on school grounds. Shade in active and passive play areas will protect students who are most vulnerable to the long term effects of solar ultraviolet radiation (UVR). Shade can also contribute considerably to the reduction of heating and cooling costs.

This guide will give you the facts about UVR and help you to determine your shade goals, develop a shade strategy and evaluate the outcome of your plan.

Facts About Ultraviolet Radiation (UVR)

NEGATIVE SUN (UVR) EFFECTS:
Skin Cancer

- One in seven Canadians will develop skin cancer in their lifetime. Canadian Cancer statistics (2000)
- 80% of our exposure to UVR occurs before the age of 18. (Health Canada)
- Although fair-skinned people are at greatest risk, all skin types are at risk for skin damage from the sun. (Canadian Dermatology Association)
- Sun damage is cumulative and irreversible. (Canadian Dermatology Association)
- Skin cancer is largely preventable. (Canadian Dermatology Association)
Melanoma

- One in 200 Canadians will develop melanoma in their lifetime. Dr. Lynn From, head of dermatology, Sunnybrook and Women’s College Health Sciences Centre, June 2003, Designing for Shade Conference
- Sunburns during childhood may increase the risk of developing malignant melanoma. (Canadian Dermatology Association)
- People with freckles and red hair are at risk, as are some blonds and those with blue or green eyes. (Canadian Dermatology Association)
- Those with lots of moles (more than 50) have an elevated risk. (Canadian Dermatology Association)

Other Effects of UVR

- Causes temporary eye damage (for example: snow blindness).
- Increases risk of permanent blindness (for example: cataracts, macular degeneration).

Facts about UVR

- UVR is reflected by snow, sand, water, cement and asphalt.
- UVR is measured on a scale of 1–10 (1 is low, 10 is high).
- Protection from UVR is particularly challenging because you can’t see it or feel it.

POSITIVE SUN EFFECTS:

- Helps body produce Vitamin D.
- Psychological benefits/mood lifter.
- Essential source of energy for all living things.
- Helps sterilize and purify certain environments.
- Provides warmth.

Shade is the best protection from UVR
If shade is there, people will use it.

Where do we Need Shade?
An Assessment Tool

This Shade Assessment Tool will help you determine existing shade usage patterns on your school ground. LGG p.54

- Once you have determined how and where the grounds are used you will know where you need to provide shade (Shade Goals).
- After you have determined your Shade Goals you will need to figure out how to get it there (Shade Strategy). LGG p.59
- The Shade Assessment Tool can be used annually to evaluate and track the progress of your Shade Strategy.
Shade Assessment Tool

**Goal:** To reduce students and staff exposure to UVR on school grounds  
To use shade for energy conservation.

**Basic Assumptions:**
Tree canopies and built structures can be used to shade a variety of school ground areas to protect students from solar UVR.
Trees planted in appropriate locations will provide shade and shelter to buildings to reduce energy consumption.
Trees planted in appropriate areas will reduce wind speeds and moderate air temperatures.

<table>
<thead>
<tr>
<th>Natural Shade on School Grounds</th>
<th>Sufficiently shaded</th>
<th>Increase the amount of shade</th>
<th>Time of Day Shade is required (am recess, lunch, pm recess, other)</th>
<th>Implement This Year</th>
<th>Implement Later Phase:</th>
<th>Achieved</th>
<th>Comments</th>
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<tbody>
<tr>
<td><em>Trees planted to shade the following areas:</em></td>
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<td>1. active play areas—within 50 meters of the school building (asphalt play areas, adjacent to basketball courts, hopscotch, etc.)</td>
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<td>2. play structures</td>
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<td>3. sand play</td>
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<td>4. meet and greet areas—where caregivers/buses pick-up and drop off children</td>
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<td>5. outdoor classrooms</td>
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<td>6. large group seating areas</td>
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<td>7. small group seating areas</td>
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<td>8. spectator areas adjacent to sports fields</td>
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<td>9. spectator areas adjacent to baseball diamonds</td>
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<td>10. perimeter of school grounds</td>
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<td>11. connecting corridors and pathways into school grounds</td>
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<td>12. next to school buildings on the south and south west sides to cool the building and reduce energy consumption.</td>
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<tr>
<td>13. evergreens planted on the north and west sides of the building to reduce exposure to wind (windbreak)</td>
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<td>14. building entrances where students line up</td>
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<td>15. portables</td>
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Design Considerations When Planning for Shade
Types of Shade Strategies

**Effective shade**
- Considering the movement of the sun, make sure the shade is where you want it when you want it.

**Natural shade**
- Advantages: aesthetic, environmental, no stored heat, low capital cost
- Disadvantages: slow growing, unpredictable, variable protection, high maintenance

**Built Shade (permanent)**
- Advantages: predictable outcome, quick results, less maintenance, rain protection, structures that support shade can be used for growing vegetables.
- Disadvantages: no environmental benefits, stores heat, higher cost, target for vandalism.

**Demountable Shade**
- Portable, can be put up and taken down i.e. tents at sport and school events.

**Retractable Shade**
- i.e. awnings

**Use of Existing Shade**
- Reschedule activities outside of the peak UVR times between 11:00 and 4:00.
- Redesign the existing shade at the front of your school or 'out of bounds' areas to make it safely accessible to students.
- Make program and supervision changes that will allow you to use existing shade.

**Guiding Principals**
- Quality of shade matters
  - **Rule of thumb:** The amount of diffuse UVR is proportionate to the fraction of sky that you see.
- Plan for a minimum of 94% protection (spf16)
- Some materials can be clear and give high levels of protection i.e. polycarbonate gives 99% protection.
- Indirect UVR can increase UV levels by approximately 50%.
- You can decrease reflective characteristics of materials making them less smooth and less even.
  - Note: Painted surfaces reflect UVR at the same rate regardless of the colour.
Plan for summer and winter comfort (i.e. deciduous trees and adjustable louvers)

Summer—decrease UVR, heat and light
Winter—decrease UVR but allow heat and light (warmth and protection from winter winds)

**Effect of shade on buildings**
Plant trees and vines on the south and western exposures of buildings to provide passive cooling
Careful selection and placement of trees can result in a 30% reduction of cooling and 20–50% reduction in heating loads
Effective shade can decrease indoor temperatures by 11 degrees Celsius

**Effective shade**
Considering the movement of the sun, make sure the shade is where you want it when you want it.
Plant trees in a configuration to maximize shade.

**Tree Shadow Template—**
How to Indicate on Your Design Where the Shade Will be Cast

Use the **tree shadow template** below to see what direction the shade is being cast by the trees you are planting.

This will help you determine where seating should be placed and if the shade will be cast where you want it, when you want it, i.e. during peak sun periods.

**To determine the tree shadow at noon**

**Steps:**
1. Place a circle on your diagram to represent the tree.
2. Draw a line from the center of the tree toward North (the opposite direction of the sun) on your site map.
3. Place two more lines at a 45° angle from the centerline.
4. The area between the 45° angles will show you where the shade from the tree will fall.

**Tree Shadow Template**

**Credit:** Adapted from Energy-conserving Site Design Edited by Gregory McPherson 1984, p.126

*Note: this template can be used to determine tree shadow in the morning and afternoon by pointing the arrow in the opposite direction from the sun at those times.*
5. Go outside on a sunny day and test where the shade is falling at the time of day when it is needed.

- Two people are needed to complete this process.
- Go out to the proposed planting site, i.e., play structure, sand pit, etc. One person should stand with their back towards the sun.
- The other person should measure the length of the shadow and record where the shadow falls on a copy of the site plan.
- Repeat this step during morning recess, lunch-time and afternoon recess. If you want the spectator areas adjacent to sports fields shaded then go to those spaces at the times of the day you want the shade and record the shade patterns.

Recommended Trees For Shade

Check out the Evergreen Native Plant Database for lists of native trees, shrubs and vines that you can use for your shade strategy.

http://nativeplants.evergreen.ca/lists/

Where to find more information about shade.

Sunsafety for Kids

http://www.sunsafetyforkids.org/

The Toronto Cancer Prevention Coalition has published a document called Shade Guidelines. It is a comprehensive guide for preschool to grade 6, regarding Ultra Violet Radiation and how to plan for shade.

http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=a1a17ace84387410VgnVCM10000071d60f89RCRD

Why trees are important:  http://www.ecokids.ca/pub/eco_info/topics/forests/benefits_of_trees.cfm

Canadian Dermatology Association


Health Canada


Environment Canada

https://ec.gc.ca/uv/
STRATEGY FOR SHADE AND ENERGY CONSERVATION

Legend

Phase 1
- Shade play structures
- Shade meet and greet areas (groves of trees)
- Extend Kindergarten play area (fence shaded area)
- Shade asphalt active play and shade the building (plant trees 7m from the building and add seating)

Phase 2
- Shade spectator areas (allée of trees)
- Shade social gathering areas (groves of trees, circle of trees)

Phase 3
- Build windbreaks by enhancing line of Maples on west side of school grounds (woodland project and naturalizing north-west slope)
- Develop walking trail (tree trail)

Phase 1
- Add seating in shade
Phase 2
- Circles of trees
Phase 3
- Woodland

Originally published in, *Ontario EcoSchools: Designing for Shade and Energy Conservation*
We have been struck by an odd kind of spring fever called *Plantwatching*. But there is more to *Plantwatching* than just going outdoors and reveling in the beauty of plants.

**Attracting Plantwatchers**

Plantwatching is a systematic survey of when plants flower. It also has a fancy Greek name—*phenology*, meaning, “to study the appearance”. (This is not to be confused with phrenology, a supposed science popular last century when doctors tried to characterize human personalities based on bumps on the skull.)

Plant *phenology* is the study of the seasonal appearances and the timing of life-cycle events in plants—mostly flowering and cone-bearing plants, but sometimes also including mushrooms and other kinds of plants. Phenology surveys help us to understand the secret messages of flowers, what makes them unfold their spring colours.

These surveys also have a broader purpose—using the flowers as indicators of weather changes and forecasters for the future.

More seriously, the plants, like canaries in a coal mine, may be warning us of a pending disaster—in this case, *global warming*.

Since the flower is the essential part of a plant’s life cycle that ensures its future survival, plants must fine-tune their flowering to weather conditions. There is no point in flowering before—or after—the creatures that carry pollen are out and wind conditions are good. Flowers do respond sensitively to changes in the weather, and this is why they are important to *Plantwatching*. 
Flowers as Weather Forecasters

Studies in Europe have revealed over the centuries, that some spring wildflowers are super-sensitive weather instruments that can be used to indicate local temperature, precipitation and wind. They can even be used to forecast the best time for planting, harvesting, avoiding pests or taking a holiday.

Plantwatching in Canada

Today scientists across Canada are using the help of Plantwatchers to observe and record the flowering time of selected spring wildflowers. Beginning in Alberta, the plantwatch data were fed into computers that compared the thousands of numbers with weather across the nation. These studies show that spring flowering in Alberta is now up to 10 days earlier than 45 years ago, seemingly the result of global warming.

Plantwatch species are chosen for their known sensitivity to spring temperature rather than the seasonal light changes that prompt the flowering of our summer flowers and trees. The main species are native wild flowers and trees found in your province, so everyone has a chance to Plantwatch.

How to Begin Plantwatching

To participate in this discovery adventure of climate change, the main things you need to do:

- Check out the Web site: https://www.naturewatch.ca/plantwatch/
- Plant the Plantwatch species in your school ground naturalization project. For details on the plants and where you are most likely to find them (their habitat) check out the Plantwatch Web site.
- Find out on the Web site who is coordinating this program in your province.
Originally published in, *Ontario EcoSchools: Designing for Shade and Energy Conservation*
PLAY AND USE PATTERNS

Legend

Hot and Sunny
Cool and Shady
Westerly winds

Sunnyview Public School

Originally published in, Ontario EcoSchools: Designing for Shade and Energy Conservation
PHASE ONE: SHADING THE PLAY STRUCTURE

Originally published in, *Ontario EcoSchools: Designing for Shade and Energy Conservation*
Site Plan

Native Species Interpretive Garden

(Not exactly to scale)

- Red Oaks (Pre-existing)
- Woodland Flowers (Shady Area)
- Stone Path (Washed Gravel)
- Sweet Viburnum
- Woodland Flowers (Shady Area)
- Common Elder
- Field Wild Flowers (Sun Tolerant)
- Red Maple (Pre-existing)
- High Bush Cranberry
- Brick Edging (Pre-existing)
- Staghorn Sumac

Michele Mougeot
John Diefenbaker Secondary School
Hanover, ON
About EverGreen
All About
Evergreen

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BACKGROUND

EVERGREEN—THE ONLY NATIONAL ORGANIZATION DEDICATED TO COMMUNITY—BASED URBAN RESTORATION

More than 85 percent of Canadians currently live in cities. Canada’s transformation from a largely rural, agricultural population last century into today’s dynamic and cosmopolitan society has been accompanied by great changes in the ways we live our lives. Many of these changes have been overwhelmingly positive, but our development into an ever more urban country has also meant that our disconnect from nature has never been greater—causing problems for the health of the environment, our communities and our economy.

Evergreen is a national not-for-profit that has been working since 1991 to restore the connection between Canada’s cities and the natural environment. Focusing on four program areas—Children, Greenspace, Food and CityWorks—Evergreen builds partnerships with diverse groups and engages key influencers and the public to inspire local action and create sustainable urban development. Our work is driven by a belief in the power of people to enact positive change to restore the natural health of their communities.

Evergreen Brick Works is a unique development in the heart of Toronto’s Don Valley that serves as the site of Evergreen’s national headquarters. As a community environmental centre, it offers visitors the chance to draw upon Evergreen’s years of experience building green communities across Canada, and to participate in a range of programs intended to empower members of the public to get involved in cultivating new ideas.
The Evergreen Way: Working together

Over the years, Evergreen has been greatly enriched by our ability to collaborate effectively with so many passionate organizations across the country. Working in partnership with governments, agencies, other non-government organizations, community groups, and corporations, we strive to make our communities more vibrant, sustainable and inclusive:

- Working with Sketch, a Toronto working arts group for street-involved and homeless youth, collaborating on social enterprise opportunities
- Building outdoor classrooms with YMCA daycare services
- Building green roofs for cats at Humane Societies across Canada
- Supporting Homegrown National Parks with the David Suzuki Foundation
- Creating bicycle hubs to develop skills building, bike safety and peer-to-peer learning at Wellesley, Jamestown, Thorcliffe, Rivertown community centres in Toronto
- Growing community gardens and hosting cooking workshops with Boys and Girls Clubs
- Farmers’ Market vendors sharing their bounty with Second Harvest

These examples just scratch the surface of Evergreen’s range of partnerships. We’ve shared our knowledge and experiences with a wide variety of social actors, and in so doing have woven the environment into discussions on city building, the economy and society while demonstrating that inspiring action to green cities is a rewarding and worthwhile effort.

A community is best measured not just by economic indicators, but by how much positive creativity and collaboration can happen between people who share a commitment to caring deeply about others and where they live. At Evergreen we celebrate and seek out connections, forming a web that helps keep our communities stitched together. We’re honoured to be part of this web and to get so much out of these relationships.
Evergreen is a national non-profit environmental organization with a mandate to bring nature to our cities through naturalization projects. Evergreen motivates people to create and sustain healthy, natural outdoor spaces and gives them practical tools to be successful through its three core programs: Learning Grounds (transforming school grounds); Common Grounds (working on publicly accessible land) and Home Grounds (for the home landscape). We believe that local stewardship creates vibrant neighbourhoods, a healthy natural environment and a sustainable society for all.

The Toyota Evergreen Learning Grounds Program

The Toyota Evergreen Learning Grounds program brings school communities together to transform barren school grounds into healthy, natural and creative outdoor classrooms. By planting trees, shrubs and vines, and adding shade, seating and heritage vegetable gardens, the learning opportunities come alive. These outdoor classrooms provide students with a healthy and safe place to play, learn and develop a genuine respect for nature and each other.

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