

Mapping the Roots of Learning



Connecting School Gardens with BC's K-12 Curriculum

September 2011

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School Gardens and Learning in BC Schools

A world of sustainably grown food for all, ripe with rich educational experiences to nurture caring citizens, is a goal that our schools can address in important ways. School gardens are a vital learning environment in which to pursue these goals, getting students outdoors and engaging in physical activities, learning about nutrition, health and food security, building environmental awareness and stewardship skills, and fostering collaboration, teamwork and leadership in the community. These varied foci are at the heart of personalized learning for the 21st century.

Fortunately, school gardens are a growing trend around BC and this momentum is building on the need for more effective and experiential learning about soil, plant life and food sustainability, and the excitement of students to take action in their schools and communities. At root, students are driving the creation of school gardens, supported by educator champions and others community leaders.

Complementing and supporting the growth of school gardens in BC, our K-12 curricula contain a vast number of learning outcomes that can be explored through a focus on gardens, soil and food, with a school garden as a primary learning environment. There is also a curriculum framework for sustainability and environmental education in BC, *Environmental Learning and Experience* (ELE), which includes a strong focus on complex systems, aesthetics, responsibility and environmental ethics. The ELE framework is now into full implementation by partners across the province, and provides additional policy foundations and linkages for learning rooted in BC's school gardens.

Connected to the ELE curriculum framework, a set of curriculum maps relating prescribed learning outcomes (PLOs) to the ELE's CARE framework is also available to support teachers in their planning and practice. Visit www.bced.gov.bc.ca/environment_ed for these foundational policy documents and other resources to support teaching and learning of environmental concepts, topics and themes.

In addition to clear connections to BC's provincial curricula, learning and school gardens are strongly supported by BC's Ministry of Education through their *Green Schools* initiative. The key priorities of *Green Schools* education programs are to support teachers and learners, to build community, to catalyze infrastructure such as gardens, and to build communities for sustainable and carbon-neutral schools. School gardens can play a significant role in striving to meet these broad goals for green schools in BC and serve as an important bridge between schools and communities.

Purpose, Guiding Goals and Project Objectives

The purpose of this project is to identify and highlight connections between school gardens and learning outcomes across K-12 curricula in BC. These curriculum maps present a set of possibilities grounded in mandated goals for student learning throughout their years in school. These connections also constitute permission to grow and use school gardens as learning environments, and offer an invitation to lead students outside, where learning is sparked by direct experience and deeply connected with the natural world. Finally, this document may also affirm what many teachers are already doing and provide additional, concrete links to learning based in the substrate of curriculum.

Beyond explicit connections with specific learning outcomes in BC's provincial curricula, there are several guiding goals of school garden learning. First, it is place-based by nature and powerfully experiential in character. Learning *in, about* and *for* school gardens is also interdisciplinary, as is clearly evidenced in this curriculum mapping endeavour. Importantly, school gardens have the ability to help teachers and students build community in a school, and to connect their learning and action with the wider community beyond the school. Finally, but by no means exhaustively, school gardens can enable real-world, action-oriented learning for students. Considering these goals, it is clear that school gardens can provide a catalyst for truly personalized student learning.

With these and other needs, goals and opportunities in mind, this project addresses the following objectives:

- 1) Map the connections between school gardens and BC's K-12 curricula to support teaching and learning *in, about* and *for* school gardens
- 2) Present these linkages in matrices, maps, text and other formats useful for teachers, school administrators, school district staff and community members

It is our hope that this work in BC can be readily replicated in other provinces and jurisdictions, for the roots of learning related to gardens, soil and food can be found in other K-12 curricula. We trust the set of pathways presented here will fertilize these efforts in other places of learning.

Audiences and Applications

For Teachers

The great potential for teaching and learning is the most important reason for a school garden. Teachers take curricula and translate these mandated guidelines into learning experiences for their students. The reality is that teachers are driven by the need to use every available minute to guide students through required curricular learning outcomes. There are a great many ways to link school garden experiences with a wide variety of learning outcomes. This project strives to support teachers in maximizing these linkages and potentials in their cross-curricular program planning, unit/lesson plan development and practice.

For Learners

Clearly, learners can benefit greatly from school garden-connected learning. Beyond the links to curriculum presented in this document, learning in school gardens can also foster the development of self-esteem, social responsibility, leadership, teamwork and collaborative abilities, as well as a sense of global citizenship that is grounded by action at a local level. Special needs and 'grey area' students can also benefit greatly through alternative learning environments and experiences made possible by school garden learning.

For Administrators

For school and district administrators, this document has a range of applications. First, these curriculum maps emphasize learning across the curriculum, an approach supported by the BC Ministry of Education, and is easily applied to a school garden setting. The curriculum connections may also be useful as a strong rationale to parents and the community in support of creating and sustaining a school garden. With respect to

professional development, these curriculum maps also represent a useful tool to promote learning and school action projects related to school gardens. Finally, this mapping document also provides the curricular foundations to support district level planning for school garden development.

For Community Program and Resource Developers

There are numerous community organizations and individuals engaged in the support of school garden development and learning. Aligning program offerings and resources with provincial curriculum is essential. These curriculum maps offer a key tool to further connect community programs and learning resources with learning outcomes across K-12 curriculum so as to better support teachers, learners, schools and school districts in school garden-connected learning.

For Teacher Education Programs

Pre-service and beginning teachers have a strong need for curriculum implementation resources, and these curriculum maps can provide a solid substrate for planning and practice in a school garden and other outdoor learning environments. These maps are also an exemplary resource to support cross-curricular planning and teaching practices with a core focus on gardens, soil, food and sustainability.

The Curriculum Mapping Process

This curriculum mapping project was undertaken over a three month period and involved a team of certified teachers and community educators to ensure the validity of the linkages and applicability to teachers, learners and other audiences.

The first phase of the project involved a broad spectrum analysis of BC's K-12 Integrated Resource Packages (IRPs) and other curriculum documents to identify all reasonable linkages between school gardens and specific prescribed learning outcomes (PLOs) across grade levels and subject areas. Criteria for identification and inclusion of a PLO as 'curriculum connected' to school gardens included:

- a) the PLO addresses content that is clearly related to food, nutrition, plants, growth, soil, ecology, sustainability and other core elements and aspects of a garden
- b) the PLO explores process-based learning that would be facilitated by and/or suitable for a school garden learning environment
- c) the PLO can be linked to action-oriented, project-based and/or service learning related to school garden development and maintenance

Based on the extent of specific PLO connections, 'at-a-glance' curriculum connection matrices of these extensive curriculum linkages were also created.

In phase two, a consultation process was initiated with partner groups and experts in the field, notably practicing teachers accessed through existing networks and relationships. These partner organizations and individuals were invited to provide critical analysis and feedback on the draft curriculum maps through a focus group meeting and a web-based review process. Please see the Acknowledgements page for advisory team members and other supporters of the curriculum mapping process.

School Gardens across the BC K-12 Curriculum: An Overview

British Columbia's provincial curriculum documents, or IRPs, place notable emphasis on environmental learning and sustainability throughout the K to 12 school years. Specific to school gardens and food, there are numerous prescribed learning outcomes that are directly linked in terms of process and content connections. These PLOs are found in nearly all subject areas explored by students in both elementary and secondary grade levels.

A broad overview of curriculum connections with respect to school gardens is represented in Matrix 1 below. Through a rigorous process of PLO identification and correlation, the extent of curriculum connection of school gardens is shown for subject areas across all grade levels. The level of connection ranges from 'Numerous PLO Connections' (highest correlation) to 'Some Integration Potential' (lowest correlation). A legend is provided for the colour coding used in these matrices.



Matrix 1: Overview of PLO Connections with School Gardens across the K-12 Curriculum






ELEMENTARY

Grade	K	1	2	3	4	5	6	7
Subject								
Science								
Social Studies								
Health and Career Education								
Physical Education								
Language Arts								
Mathematics								
Fine Arts								

SECONDARY

Grade	8	9	10	11	12
Subject					
Science					
Science and Technology					
Earth Science					
Biology					
Chemistry					
Physics					
Sustainable Resources					
Social Studies					
Civics					
Geography					
Health and Career Education					
Planning					
Graduation Transitions					
Physical Education					
English / Language Arts					
Mathematics					
Fine Arts					
Applied Skills					
Home Economics					
Professional Cook I					
Business Ed					
Tech Ed					

Legend:

-  Numerous PLO Connections
-  Several PLO Connections
-  Strong Integration Potential
-  Some Integration Potential
-  Course not offered at this grade level

As might be expected, there is a high level of curriculum connection with the Sciences and Social Studies. In both of these subject area domains, it is important to note the distinction between process-oriented PLOs (more focused on inquiry-based skills and application of learning) and content PLOs (more focused on knowledge and understanding of concepts). Matrix 2 below presents curriculum connections for school gardens in the Sciences and Social Studies with this distinction in mind and the respective levels of PLO connection made clear.

Matrix 2: Overview of PLO Connections with School Gardens in Science and Social Studies





SCIENCES

		Prescribed Learning Outcomes	
IRP/COURSE	Grade	Process	Content
Science K to 7 (2005)	K		
	1		
	2		
	3		
	4		
	5		
	6		
	7		
Science 8 (2006)	8		
Science 9 (2006)	9		
Science 10 (2008)	10		
Science and Technology 11 (2008)	11		
Earth Science 11 and Geology 12 (2006)	11-12		
Sustainable Resources 11 and 12: Agriculture (2008)	11-12		
Chemistry 11 and 12 (2006)	11		
Biology 11 and 12 (2006)	11-12		
Physics 11 and 12 (2006)	11-12		

SOCIAL STUDIES

		Prescribed Learning Outcomes	
IRP/COURSE	Grade	Process	Content
Social Studies K to 7 (2006)	K		
	1		
	2		
	3		
	4		
	5		
	6		
	7		
Social Studies 8 (1997)	8		
Social Studies 9 (1997)	9		
Social Studies 10 (2006)	10		
Social Studies 11 (2005)	11		
Civic Studies 11 (2005)	11		
Geography 12 (2006)	12		

Legend:

	Numerous PLO Connections
	Several PLO Connections
	Strong Integration Potential
	Some Integration Potential

These at-a-glance matrices provide a broad sketch of connections between school gardens and their student learning outcomes across the curriculum. Clearly, there is great potential for teachers and learners to enjoy school gardens as a core learning environment and as a catalyst for learning throughout the school-age years. As teachers interpret curriculum in their efforts to create powerful learning experiences for students, all curriculum connections have the potential to provide effective teaching and learning opportunities. For more specific PLO connections to support planning and designs for teaching and learning, please refer to the *School Gardens across the BC K-12 Curriculum Maps*.

School Gardens across the BC K-12 Curriculum Maps – Specific PLO Connections

Elementary Curriculum Maps

For the elementary grade levels, two curriculum maps situating school gardens across the curriculum have been developed. With the great potential for cross-curricular instruction, the **PLO Map by Grade Level** can support integrated teaching and learning, as well as subject-specific focus, at that grade level. For educators focused on multiple grade levels or looking at the developmental sequence of PLOs that potentially connect with school gardens, a **PLO Map by Subject Area** is also provided.

An important caveat for users of these maps is that only selected PLOs were included across grade levels and subject areas as having clear connections to school gardens. The omission of a PLO from these maps does not mean that it has no potential connection to school garden learning. Rather, these maps are intended as a starting point for teachers and learners interested in linking their teaching and learning with school gardens.

Maps Included:

By Subject Area (see Appendix A):

- Science
- Social Studies
- Health and Career Education
- Physical Education
- Visual Arts
- Language Arts
- Math
- Fine Arts

By Grade Level (see Appendix B):

K-7

Sample Maps:

- Science K-7
- Kindergarten



IRP	Grade	Organizer	Sub-Organizer	Prescribed Learning Outcomes
<p>Science K to 7 (2005)</p>	<p>K</p>	<p>Processes and Skills of Science</p>	<p>Characteristics of Living Things</p> <p>Properties of Objects and Materials</p> <p>Surroundings</p>	<ul style="list-style-type: none"> - use the five senses to make observations * - share with others information obtained by observing - compare local plants - describe features of local plants and animals (e.g., colour, shape, size, texture) - describe properties of materials, including colour, shape, texture, size, and weight - describe ways to rethink, refuse, reduce, reuse, and recycle - identify materials that make up familiar objects - demonstrate the ability to observe their surroundings - describe features of their immediate environment
		<p>Life Science</p>		<p>Physical Science</p>
<p>1</p>	<p>Processes and Skills of Science</p>	<p>Needs of Living Things</p> <p>Daily and Seasonal Changes</p>		<ul style="list-style-type: none"> - classify objects, events, and organisms - communicate their observations, experiences, and thinking in a variety of ways (e.g., verbally, pictorially, graphically) - describe how the basic needs of plants and animals are met in their environment - describe the basic needs of local plants and animals (e.g., food, water, light) - classify living and non-living things - describe activities of Aboriginal peoples in BC in each seasonal cycle - describe changes that occur in daily and seasonal cycles and their effects on living things
	<p>Life Science</p>			<p>Earth and Space Science</p>

	Grade	Organizer	Sub-Organizer	Prescribed Learning Outcomes
	2	Processes and Skills of Science		<ul style="list-style-type: none"> - infer the probable outcome of an event or behaviour based on observations - use their senses to interpret observations
		Life Science	Animal Growth and Changes	<ul style="list-style-type: none"> - classify familiar animals according to similarities and differences in appearance, behaviour, and life cycles - describe ways in which animals are important to other living things and the environment
		Earth and Space Science	Air, Water, and Soil	<ul style="list-style-type: none"> - describe physical properties of air, water, and soil - distinguish ways in which air, water, and soil interact - explain why air, water, and soil are important for living things
		Physical Science	Properties of Matter	<ul style="list-style-type: none"> - identify the properties of solids, liquids, and gases - investigate the interactions of liquids and solids - investigate changes to the properties of matter when it is heated or cooled
	3	Processes and Skills of Science		<ul style="list-style-type: none"> - measure objects and events - ask questions that foster investigations and explorations relevant to the content
		Life Science	Plant Growth and Change	<ul style="list-style-type: none"> - compare familiar plants according to similarities and differences in appearance and life cycles - describe how plants are harvested and used throughout the seasons - describe ways in which plants are important to other living things and the environment
		Physical Science	Materials and Structures	<ul style="list-style-type: none"> - compare the effects of different materials, shapes, and forces on the strength and stability of different structures - conduct investigations into ways to improve the strength and stability of structures

	Grade	Organizer	Sub-Organizer	Prescribed Learning Outcomes
	4	Processes and Skills of Science	Habitats and Communities	<ul style="list-style-type: none"> - make predictions, supported by reasons and relevant to the content - use data from investigations to recognize patterns and relationships and reach conclusions
		Life Science		
		Earth and Space Science		<ul style="list-style-type: none"> - analyze simple food chains - compare the structures and behaviours of local animals and plants in different habitats and communities - determine how personal choices and actions have environmental consequences - demonstrate awareness of the Aboriginal concept of respect for the environment - analyze impacts of weather conditions on living and non-living things - measure weather in terms of temperature, precipitation, cloud cover, wind speed and direction
	5	Processes and Skills of Science	Renewable and Non-Renewable Resources	<ul style="list-style-type: none"> - describe the steps in designing an experiment - identify variables that can be changed in an experiment - evaluate the fairness of a given experiment - analyze how BC's living and non-living resources are used - analyze how the Aboriginal concept of interconnectedness of the environment is reflected in responsibility for and caretaking of resources - describe potential environmental impacts of using BC's living and non-living resources
		Earth and Space Science		
		Physical Science		<ul style="list-style-type: none"> - identify methods of extracting or harvesting and processing BC's resources - demonstrate mechanical advantage of simple machines, including lever, wedge, pulley, ramp, screw, and wheel - describe applications of simple and compound machines used in daily life in BC communities

	Grade	Organizer	Sub-Organizer	Prescribed Learning Outcomes
	6	Processes and Skills of Science Life Science	Diversity of Life	<ul style="list-style-type: none"> - apply solutions to a technical problem - manipulate and control a number of variables in an experiment - analyze how different organisms adapt to their environments - demonstrate the appropriate use of tools to examine living things that cannot be seen with the naked eye - distinguish between life forms as single or multi-celled organisms and belonging to one of five kingdoms: Plantae, Animalia, Monera, Protista, Fungi
	7	Processes and Skills of Science Life Science Physical Science Earth and Space Science	Ecosystems Chemistry Earth's Crust	<ul style="list-style-type: none"> - create models that help to explain scientific concepts and hypotheses - test a hypothesis by planning and conducting an experiment that controls for two or more variables - analyze the roles of organisms as part of interconnected food webs, populations, communities, and ecosystems - assess survival needs and interactions between organisms and the environment - assess the requirements for sustaining healthy local ecosystems - evaluate human impacts on local ecosystems - conduct investigations into properties of matter - measure substances and solutions according to pH, solubility, and concentration - classify substances as elements, compounds, and mixtures - analyze the dynamics of tectonic plate movement and landmass formation - compare the characteristics of the Earth's core, mantle, and crust, and describe the formation of rocks - explain how the Earth's surface changes over time

KINDERGARTEN – Specific PLO Connections

* **Bolded** = Strong Connection

Grade	IRP	Organizer	Sub-Organizer	Prescribed Learning Outcomes
K	Science (2005)	Processes and Skills of Science	Characteristics of Living Things Properties of Objects and Materials Surroundings	<ul style="list-style-type: none"> - use the five senses to make observations * - share with others information obtained by observing - compare local plants - describe features of local plants and animals (e.g., colour, shape, size, texture) - describe properties of materials, including colour, shape, texture, size, and weight - describe ways to rethink, refuse, reduce, reuse, and recycle - identify materials that make up familiar objects - demonstrate the ability to observe their surroundings - describe features of their immediate environment
		Life Science		Physical Science
Social Studies (2006)	Skills and Processes of Social Studies			<ul style="list-style-type: none"> - participate co-operatively in groups - gather information from personal experiences, oral sources, and visual representations - present information using oral or visual representations - demonstrate an awareness of the concept of change - identify groups and places that are part of their lives - describe their roles and responsibilities as members of the classroom and school community - identify individual human needs - identify work done in their community - identify examples of technologies used in their lives - identify characteristics of different local environments - demonstrate responsible behaviour in caring for their immediate environment
	Identity, Society, and Culture			
	Governance			
	Economy and Technology			
	Human and Physical Environment			

IRP	Organizer	Sub-Organizer	Prescribed Learning Outcomes
<p align="center">Health and Career Education (2006)</p>	Goals and Decisions		<ul style="list-style-type: none"> - identify opportunities to make choices - identify sources of support and assistance for children at school - identify a variety of jobs and responsibilities they have at home and at school (e.g., clean up toys, obey playground rules) - identify their personal skills and interests (e.g., things they are good at, things they like to do) - identify practices that contribute to health, including healthy eating, regular physical activity, emotional health practices, and disease prevention practices
	<p>Career Development</p> <p>Health</p>		<ul style="list-style-type: none"> - identify benefits of regular participation in physical activity (e.g., it's fun, it helps them grow strong, it keeps the heart healthy) - identify physical activities they enjoy doing - identify the importance of food as fuel for physical activity - participate daily (e.g., five times a week) in moderate to vigorous physical activities - perform movements in personal space while maintaining control - use their bodies to create shapes (e.g., by bending, curling, pulling, pushing, stretching, swinging, and/or twisting) - demonstrate proper technique for performing specific locomotor movement skills including but not limited to the following: *** walk *** run *** jump or hop *** body roll (e.g., log roll, shoulder roll) - demonstrate proper technique for performing specific manipulative movement skills including but not limited to the following: *** roll or slide an object toward a target *** carry an object *** two-handed throw of an object underhand toward a target - identify safety guidelines for participating in physical activity (e.g., follow instructions, stay within boundaries, use equipment only with supervision) - follow rules and directions when participating in physical activities (e.g., stop on signal, listen to instructions before beginning activity) - work co-operatively with peers during physical activity (e.g., respecting others' personal space, not pushing or shoving)
<p align="center">Physical Education (2006)</p>	Knowledge		
	Participation		
	Movement Skills		
	Safety, Fair Play, and Leadership		

IRP	Organizer	Sub-Organizer	Prescribed Learning Outcomes
Language Arts (2006)	Developing Oral Language (Speaking and Listening) Abilities Developing Reading and Viewing Abilities Developing Writing and Representing Abilities		All Language Arts PLOs, being process oriented, implicitly address environmental and experiential learning outcomes in each curriculum organizer (see below). The use of school gardens as a learning environment or associated core themes to drive program planning is recommended to engage students in powerful learning experiences. The inclusion of sustainability and environmental topics, issues and resources in designs for learning is also a logical extension that will help students appreciate the interrelationship between humans and the natural world.
Mathematics (2006)	Number Patterns and Relations Shape and Space Statistics and Probability	Patterns Variables and Equations Measurement 3-D Objects and 2-D Shapes Transformations Data Analysis Chance and Uncertainty	Mathematics PLOs, whether process or content oriented, can be readily set in the context of a school garden or other outdoor learning environments, and address sustainability and environmental issues, notably through problem solving and other real world applications for each curriculum organizer. Math PLOs can also be readily integrated into cross-curricular units of study exploring gardens, sustainability and environmental topics, issues and foci.
Visual Arts (2006)		Context Creative Processes Exhibition and Response Skills and Strategies	<ul style="list-style-type: none"> - describe various purposes of visual arts - use imagination, observation, and stories to create images - create images -using the image-development strategy of elaboration -that feature colour, line, or shape -that use the principle of pattern - experiment with a variety of materials, technologies, and processes to make images - create 2-D and 3-D images -that represent ideas and concepts -in response to experiences -in response to objects and other images - respond to artworks - identify and apply -the image-development strategy of elaboration -the visual elements of colour, shape and line -the principle of pattern - identify and apply a variety of materials, technologies, and processes to create images

Secondary Curriculum Map

In the secondary grade levels, teachers and learners are immersed in specific course offerings where focus tends to be on a single subject area. With that in mind, a **PLO Map by Course/Subject Area** has been developed to show potential curriculum connections with school gardens for secondary contexts. Of course, all subjects are interdisciplinary in nature or offer the potential for cross-curricular learning. As well, with the pressures of time, exams, timetables and such, we encourage secondary users of these maps to familiarize themselves with broader curriculum connections with respect to school gardens so that collegial collaboration and cross-departmental partnerships may be further enabled and enhanced.

An important caveat for users of these maps is that only selected PLOs were included across grade levels and subject areas as having clear connections to school gardens. The omission of a PLO from these maps does not mean that it has no potential connection to school garden learning. Rather, these maps are intended as a starting point for teachers and learners interested in linking their teaching and learning with school gardens.

Maps Included:

By Course / Subject Area (see Appendix C):

Science	Math
Social Studies	Fine Arts
Health and Career Education	Visual Arts
Planning	Applied Skills
Grad Transitions	Business Education
Physical Education	Technology Education
Home Economics	Professional Cook
English / Language Arts	

Sample Map:

Social Studies



SECONDARY SOCIAL STUDIES – Specific PLO Connections

*** Bolded = Strong Connection**

IRP	Gr.	Organizer	Prescribed Learning Outcomes
Social Studies 8 (1997)	8	Applications of Social Studies Society and Culture: Civilizations From 500 to 1600 Environment: Civilizations From 500 to 1600	<ul style="list-style-type: none"> - co-operatively plan and implement a course of action that addresses the problem, issue, or inquiry initially identified * - identify and clarify a problem, an issue, or an inquiry - plan, revise, and deliver written and oral presentations - compare daily life, family structures, and gender roles in a variety of civilizations - describe a variety of diverse cultural traditions and world religions - demonstrate awareness of artistic expression as a reflection of the culture in which it is produced - describe how physical geography influenced patterns of settlement, trade, and exploration - locate and describe current and historical events on maps

Social Studies 9 (1997)	9	Applications of Social Studies Society and Culture: Europe and North America From 1500 to 1815 Environment: Europe and North America From 1500 to 1815	<ul style="list-style-type: none"> - co-operatively plan, implement, and assess a course of action that addresses the problem, issue, or inquiry initially identified - identify and clarify a problem, an issue, or an inquiry - plan, revise, and deliver formal oral and written presentations - analyze roots of present-day regional, cultural, and social issues within Canada - describe daily life in Aboriginal communities, New France, and British North America - construct, interpret, and use graphs, tables, grids, scales, legends, contours, and various types of maps
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IRP	Gr	Organizer	Prescribed Learning Outcomes
Social Studies 10 (2006)	10	Skills and Processes of Social Studies Identity, Society, and Culture: Canada from 1815 to 1914 Economy and Technology: Canada from 1815 to 1914 Environment: Canada from 1815 to 1914	<ul style="list-style-type: none"> - apply critical thinking skills, including: - questioning - comparing - summarizing - drawing conclusions - defending a position - demonstrate effective research skills, including: - accessing information - assessing information - collecting data - evaluating data - organizing information - presenting information - citing sources - demonstrate effective written, oral, and graphic communication skills, individually and collaboratively - analyze Canadian society from 1815 to 1914 in terms of gender roles, ethnicity, daily life, and the arts - evaluate the influence of immigration on Canadian society from 1815 to 1914 - analyze the influence of the following on Canada's economy from 1815 to 1914: resource development and decline, technological innovations - describe the development of British Columbia's economy from 1815 to 1914 - describe the physiographic regions of Canada and the geological processes that formed these regions - analyze how geography influenced the economic development and settlement patterns in regions of Canada from 1815 to 1914 - evaluate attitudes and practices in resource development in British Columbia from 1815 to 1914 and their impact on contemporary resource management

Social Studies 11 (2005)	11	Skills and Processes of Social Studies Human Geography	<ul style="list-style-type: none"> - apply critical thinking—including questioning, comparing, summarizing, drawing conclusions, and defending a position—to make reasoned judgments about a range of issues, situations, and topics - demonstrate effective research skills, including: - accessing information - assessing information - collecting data - evaluating data - organizing information - presenting information - citing sources - demonstrate effective written, oral, and graphic communication skills - demonstrate skills and attitudes of active citizenship, including ethical behaviour, open-mindedness, respect for diversity, and collaboration - assess environmental challenges facing Canadians, including: global warming, ozone layer depletion, fresh water quality and supply - compare Canada's standard of living with those of developing countries, with reference to poverty and key indicators of human development - explain the significance of changes in world population with reference to: - population pyramids - distribution - density - demographic transition models
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IRP	Gr	Organizer	Prescribed Learning Outcomes
Civic Studies 11 (2005)	11	Civic Action Skills and Processes of Civic Studies	<ul style="list-style-type: none"> - implement a plan for action on a selected local, provincial, national, or international civic issue - apply critical thinking skills — including questioning, comparing, summarizing, drawing conclusions, and defending — to a range of issues, situations, and topics - demonstrate effective research skills, including: - accessing information - assessing information - collecting data - evaluating data - organizing information - presenting information - demonstrate effective written, oral, and graphic communication skills - demonstrate skills and attitudes of active citizenship, such as ethical behaviour, open-mindedness, respect for diversity, and collaboration

Geography 12 (2006)	12	Themes and Skills Weather and Climate Biomes Resources and Environmental Sustainability	<ul style="list-style-type: none"> - apply effective written, oral, and graphic communication skills to geography topics - describe the major interactions of the four spheres: - atmosphere - biosphere - hydrosphere - lithosphere - explain the following five themes of geography: - location - place movement - regions - human and physical interaction - analyze interactions between human activity and the atmosphere, with reference to: - global climate change - ozone depletion - acid precipitation - analyze specific weather phenomena, including: - fog - local winds - extreme events - explain factors affecting temperature, precipitation, pressure, and wind - explain how climate affects human activity - interpret information from weather maps and station models - analyze the interactions between human activity and biomes, with reference to: - deforestation - desertification - soil degradation - species depletion - describe how vegetation adapts to environmental conditions - relate soil types to biomes - assess the environmental impact of human activities, including: - energy production and use - forestry - fishing - mining - agriculture - waste disposal - water use - assess the various considerations involved in resource management, including: - sustainability - availability - social/cultural consequences - economic consequences - political consequences
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Acknowledgements

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The project was led by **Patrick Robertson** (School District #45, West Vancouver) and facilitated by **Tim Woods** (Executive Director) and **Tanya Black** (Public Affairs and Communications) of the Nutrients for Life Foundation.

A broad-based team of professionals, including practicing teachers and informal educators with a wide range of experience working in the K-12 sector, contributed their expertise to the development of these curriculum maps. Many of these professionals are deeply immersed in work related to school and community gardens, food security, and sustainability education. In addition to the above individuals, the *School Gardens across the Curriculum* advisory team included:

- Dolores Altin**.....Evergreen
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- Brent Mansfield**.....School District #39 (Vancouver), Think & Eat Green (UBC)
- Selina Metcalfe**.....School District #36 (Surrey), Simon Fraser University, EEPsA
- Jen Riske**.....BC Hydro Education Programs
- Johan Stroman**.....Educational Consultant, Sunshine Coast Regional District
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- Will Valley**.....School District #39 (Vancouver), Think & Eat Green (UBC)

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