

# Children's Garden of the Senses

## Ontario Curriculum Connections

### Kindergarten and Grades 1, 2 and 3

#### PRE-SCHOOL

##### Play-Based Learning / Reggio Emilia

- Our sensory gardens and the children's programming area as well as our garden programs have all been designed to create a play-based learning environment as envisioned under the Ontario Curriculum for Kindergarten children (see below) and adapted for pre-school children
- Our approach to the delivery of the garden programs for pre-school children is consistent with the Reggio Emilia approach to early childhood learning: the child is an active participant in learning, the outdoor natural environment plays a significant role in the learning process, others are collaborators in the learning process, and learning is made visible
- Children are engaged in the garden programs through play and hands-on guided activities where they can explore their surroundings, manipulate natural objects, and play with others or individually
- Children develop an appreciation for living things and the natural world
- Children learn through sensory experiences: sight, smell, hearing, taste and touch

#### JUNIOR AND SENIOR KINDERGARTEN

##### Ontario Curriculum - Play-Based Learning

- Our sensory gardens and the children's programming area as well as our garden programs have all been designed to create a play-based learning environment as envisioned under the Ontario Curriculum
- A play-based learning environment, including the outdoor natural environment
  - Supports children's development: cognitive, mental, emotional, social, and physical health and well-being
  - Allows children to feel comfortable and secure and apply unique ways of thinking that is innovative and creative
  - Nurtures children's active learning through exploration, play and inquiry, fostered by a natural curiosity
  - Encourages children's relationships with the natural environment, where they can explore, engage with, and experience in a sensory way their surroundings
  - Encourages children's relationships with others, where they can play/learn collaboratively with others
- Children's individual views, ideas, imagination, creativity, interests and experiences are valued and respected

- Children are engaged in the garden programs through play and inquiry, through hands-on guided activities
  - Allowing them to question, explore natural objects, make observations, gather, compare and sort natural objects, describe characteristics, draw conclusions, use simple tools and materials, and work with others or individually
  - While we facilitate and encourage observations, questions and investigations, provide a variety of natural materials, and respond and provide feedback to clarify and expand children's thinking and making connections
- Children learn by exploring ideas, manipulating objects, acting out roles, and experimenting with various materials
- The garden programs allow for creative use of time, space and materials to respond to children's interests and needs
- Children develop an appreciation for living things and their relationship with the natural world

### **Landscape and Child Development**

- The Toronto District School Board and the not-for-profit organization, Evergreen, published landscape design guidelines for early-learning outdoor play environments that connect children to nature and that focus on meeting children's developmental needs (refer to <https://www.evergreen.ca/downloads/pdfs/Landscape-Child-Development.pdf>) These guidelines focus on a new design approach that draws on knowledge of how physical space and natural features can stimulate healthy early child development. **Our design of the Children's Garden of the Senses follows this new design approach.** (refer to Landscape and Child Development)

## **GRADES 1, 2 and 3**

### **HEALTH**

#### **Living Skills**

- Our sensory gardens and the children's programming area (a play-based learning environment) as well as our garden programs have all been designed to:
  - Promote a positive sense of oneself - self esteem and self confidence
  - Develop communication, relationship and social skills
  - Encourage critical and creative thinking

#### **Active Living**

- Encourage participation in physical activity through fun-filled interactive and inclusive garden activities
- Encourage cognitive development, drawing on imaginations, through creative play and exploration of the garden environment

#### **Movement Competence**

- Develop personal movement and motor skills, including balance/strength, manipulation, coordination through garden activities
- Use physical activity as a vehicle for learning

## Healthy Living

- Understand the factors that contribute to healthy living e.g. physical activity and healthy eating
- Discuss the garden as a source of healthy food
  - Food is a source of energy for healthy human growth
  - Vegetables and fruit from the garden are nutritional and make a healthy food choice (what are some examples of healthy food choices for meals and snacks from the garden?)
  - Importance of washing vegetables, fruits and hands before food preparation
- Discuss possible uses of herbs from the garden (e.g. cooking, tea, fragrant potpourri's)
- Discuss how the origins of vegetables and fruit, i.e. where and how they were grown, affect their nutritional value and environmental impact. (e.g. organic versus inorganic treatment) (Grade 3)
- Discuss how local fresh vegetables and fruit from different cultures can expand the range of healthy eating choices (what are some examples?) (Grade 3)

## GRADE 1

### SCIENCE

#### Understanding Life Systems - Needs and Characteristics of Living Things

- Identify and compare the physical characteristics of a variety of plants including edible plants (i.e. size, shape, colour, flower, leaf, stem, roots, and their sensory quality - visual, scent, sound, taste, feel)
- Describe the basic needs of all living things, including air, water and food and why important for all living things
- Describe the characteristics of a healthy environment for living things, with focus on clean air and water, and nutritious food
- Identify the basic needs of plants and their natural environments to grow well
  - Sun, warmth
  - Water, air (the kind that plants need)
  - Healthy soil (with living and nonliving items in the soil) and its function
- Show how care and respect for living things, e.g. plants, help maintain a healthy environment and provide food for other living things (such as the hummingbirds in our Hummingbird Garden and the caterpillars and butterflies in our Butterfly garden)
- Identify what living things provide for other living things:
  - Plants provide the air we breathe,
  - Plants are at the beginning of the food chain and provide food for animals and humans,
  - Plants (such as tree stumps, cedar trees) provide shelter for animals
- Use appropriate science vocabulary, including *identify*, *explore*, *needs*, *food*, *environment* and *healthy* in oral communication

### **Understanding Matter and Energy - Energy in Our Lives**

- Describe how the sun is a source of energy, warmth and light and is needed for plant growth
- Describe how food is a source of energy for living things
- Use appropriate science vocabulary, including *energy*, *temperature*, *survival* and *purpose* in oral communication

### **Understanding Earth and Space Systems - Daily and Seasonal Changes**

- Describe the changes in light from the sun that occur during the day and seasons (e.g. how our interactive analemmatic sundial works for each month and season casting a shadow to tell the time of day)
- Describe the four seasons and the changes in appearances of plants (showing examples of plants in our sensory gardens) as they adapt to seasonal changes
- Use appropriate science vocabulary, including *hibernate*, *dormant* and *survival* in oral communication

## **GRADE 2**

### **SCIENCE**

#### **Understanding Life Systems - Growth and Changes in Animals**

- Identify different types of animals (e.g. insects, mammals (deer, rabbits, chipmunks, squirrels), and reptiles (turtles)) in the garden
- Identify animals (e.g. insects) that are helpful and those that are harmful for plant growth
- Describe how animals (e.g. insects) meet the needs of other living things (e.g. birds and wildlife)
- Identify insects in the garden that can be harmful to humans (e.g. bee stings)
- Describe ways in which a variety of animals adapt to their environment and/or to changes in their environment
- Use appropriate science vocabulary, including *life-cycle*, *migration*, and *adaptations* in oral communication

#### **Understanding Earth and Space Systems - Air and Water in the Environment**

- Identify water as a liquid that is necessary for the life of plants
- Investigate the characteristics of water, e.g. takes up space in soil (plant bed or container) and flows/evaporates (need contain and replenish water for plants)
- Identify sources of water in the natural environment (e.g. ponds, streams, springs, water infiltration of soil, water table) that plants depend on (and how we can collect rainwater to recycle for our garden)
- Identify ways in which humans and plants depend on air
  - Humans depend on the air (oxygen) that plants provide
  - Plants depend on the air (carbon dioxide) that we cannot breathe
  - Plants need space in the soil for water uptake in roots
  - Some plants depend on wind for the dispersal of their seeds
- Use appropriate science vocabulary, including *liquid*, *precipitation*, *infiltration* and *evaporation* in oral communication

## GRADE 3

### SCIENCE

#### Understanding Life Systems - Growth and Changes in Plants

- Identify the basic needs of plants and their natural environments to grow well
  - Sun, warmth
  - Water, air (the kind that plants need)
  - Healthy soil (with living and nonliving items in the soil) and its function
- Identify the major parts of plants, their function and how each contributes to the plant's survival (i.e. root, stem, leaf, flower, stamen, pistil, fruit and seed), observe and compare a variety of plants, and discuss how a plant's sensory quality can contribute to its survival (attraction or defense mechanism) (showing some examples of plants in our sensory gardens)
- Describe the changes that different plants undergo in their natural life cycle (e.g. growth from bulb or seed) and how they adapt or react to their environment
- Show how we can help plants propagate, by planting a seed for germination or by splitting and transplanting a plant
- Describe how plants get energy directly from the sun and turn energy into food for themselves
- Describe how the Aboriginal people used plants for food (e.g. herbs, and the beautiful and exotic camas bulbs)
- Describe ways in which plants and animals depend on each other ( e.g. plants provide food for energy, animals consume plants and disperse seeds)
- Discuss the different ways plants are grown for food (e.g. home gardens, community gardens, greenhouses, farms) and the benefits of locally grown and organically produced food
- Use appropriate science vocabulary, including *root, stem, leaf, flower, stamen, pistil, fruit, seed, germination* and *adaptation* in oral communication

#### Understanding Earth and Space Systems - Soils in the Environment

- Identify and describe the composition of soil
  - Mineral matter - disintegration and decomposition of rocks - classified based on particle size - sand, silt (smaller than sand), clay (smaller than silt)
  - Organic matter (humus) - plant decay, animal remains, microbial tissues
  - Organisms - worms, insects, microbes
  - Water
  - Air, gases
- Describe the different types of soil, i.e. soil types and textures vary based on relative proportion of sand, silt and clay in soil e.g. loam

- Describe the major properties of soil
  - Physical properties - texture, colour, density, capillarity (upward movement of water), permeability (downward movement of water), shrinkage/swell and cohesion
  - Construction related properties - elasticity, plasticity, frost susceptibility, compaction, strength, drainage, erodibility
  - Gardening, horticulture related properties - available moisture, adequate drainage, soil acidity/alkalinity, clay content, depth to water table
- Describe the key characteristics of sand, silt and clay
  - Sand - gritty feel, does not stick together, water drains quickly, erodes easily
  - Silt - softer feel, sticks together better, retains water and nutrients, drains well
  - Clay - slick, smooth, plastic feel, binds together with little/no air pockets, poor drainage and aeration
- Describe the interdependence between living and nonliving things that make up the soil and the function of soils for plants, i.e. provides water and nutrients for root uptake and anchors the roots and stabilizes the plant in the ground
- Describe the ways in which components of soil provide nutrients for different kinds of living things
  - Organic matter is constantly being digested and re-digested by waves of increasingly smaller organisms (e.g. from earthworms to bacteria/micro-organisms) breaking down complex substances and releasing stored nutrients and converting them into forms useable by plants, e.g. nitrogen for healthy plant growth
  - Humus is the organic component of soil and organisms play an important role in its creation. Humus is mixed into the soil by burrowing animals and action of earthworms.
- Compare soil samples and investigate their components and discuss how the soil types can be used and which soil types will sustain plant life.
- Use appropriate science vocabulary, including *soil*, *texture*, *sand*, *silt*, *clay*, *loam*, *humus*, *micro-organisms*, *nutrients* and *drainage* in oral communication