Growing Up Organic operates on traditional and unceded territory of the Algonquins: now known to many as Ottawa, and now home to many from across Turtle Island and beyond.

Grades 6-7

Garden Planning Workshop

Mindfulness minute: If it speaks to you, take two minutes with your students before this workshop to slow down and root down with this mindfulness minute.

LESSON FOCUS AND GOALS

In this workshop, students work in groups to develop a plan for the school garden. We explore plant diversity and companion planting, as well as the important roles they play in creating a healthy, thriving garden .

LEARNING OBJECTIVES

Grade 6
Science and Technology: Understanding Life Systems- Biodiversity

OVERALL EXPECTATIONS:

1 - Assess human impacts on biodiversity, and identify ways of preserving biodiversity
2 - Demonstrate an understanding of biodiversity, its contributions to the stability of natural systems, and its benefits to humans

SPECIFIC EXPECTATIONS:
2.2 - Investigate the organisms found in a specific habitat and classify them according to a classification system
3.2 - Demonstrate an understanding of biodiversity as the variety of life on earth, including variety within each species of plant and animal, among species of plants and animals in communities, and among communities and the physical landscapes that support them
3.4 -Describe ways in which biodiversity within and among communities is important for maintaining the resilience of these communities
3.5 - Describe interrelationships within species, between species and between species and their environment, and explain how these interrelationships sustain biodiversity

Grade 7
Science and Technology: Understanding Life Systems-Interactions in the Environment

OVERALL EXPECTATIONS:
1 - Assess the impacts of human activities and technologies on the environment, and evaluate ways of controlling these impacts
2 - Investigate interactions within the environment, and identify factors that affect the balance between different components of an ecosystem
3 - Demonstrate an understanding of interactions between and among biotic and abiotic elements in the environment

SPECIFIC EXPECTATIONS:

3.1- Demonstrate an understanding of an ecosystem (e.g., a log, a pond, a forest) as a system of interactions between living organisms and their environment;
3.2 - Identify biotic and abiotic elements in an ecosystem, and describe the interactions between them
3.3 - Describe the roles and interactions of producers, consumers, and decomposers within an ecosystem (e.g., Plants are producers in ponds. They take energy from the sun and produce food, oxygen, and shelter for the other pond life. Bacteria and fungi are decomposers. They help to maintain healthy soil by breaking down organic materials such as manure, bone, spider silk, and bark. Earthworms then ingest the decaying matter, take needed nutrients from it, and return those nutrients to the soil through their castings.);
3.5 - Describe how matter is cycled within the environment and explain how it promotes sustainability (e.g., bears carry salmon into the forest, where the remains decompose and add nutrients to the soil, thus supporting plant growth; through crop rotation, nutrients for future crops are created from the decomposition of the waste matter of previous crops);
3.8 - Describe ways in which human activities and technologies alter balances and interactions in the environment
3.9 - Describe Aboriginal perspectives on sustainability and describe ways in which they can be used in habitat and wildlife management

MATERIALS NEEDED

Biodiversity in the Garden Planning Cards
Map of the school
Large Chart Paper or Butcher Paper Roll
Colour "sharpie" markers

STRUCTURE / ACTIVITY

Part 1

Use the PowerPoint Biodiversity Principles to guide a discussion on biodiversity and resiliency: Why is it important to encourage diversity in our organic vegetable garden?

Background

Organic food production is ecological food production. By this, we mean it works the way nature does by creating and allowing for complex relationships to develop between the organisms it harbours, be they plants, animals, insects or tiny micro-bacteria in the soil. The inter- connectedness creates strength and resiliency.
Imagine a large web with many different strands going from here to there: snip one string and the web will still hold - an ecological garden works in this way. Diverse habitats shrink pest pressure (a garden bed planted exclusively with broccoli would be a magnet for broccoli pests). A conventional response uses pesticides, while an organic approach looks to natural solutions, such as creating equal habitat for a pest's predators - beneficial insects that can help keep harmful insects, such as aphids and Japanese beetles, under control. Almost everything in an organic ecological garden has more than one function.

Multi-functionality

In a typical garden, or conventional farm, each organism has a single function: corn is grown to sell; trees are planted to provide shade. When we garden organically and ecologically, we take into account the multiple roles that each component plays. For example, what other role or function could a tree play? A tree provides: shelter and nesting sites and materials for birds and squirrels; pollen for bees; nuts or food for humans. Its leaves also help build the soil when they fall. Can you come up with some other examples of the multiple roles played by various garden organisms?
Multi-functionality also implies that not only does each organism play multiple roles, but each role is supported by multiple organisms. Instead of relying on a single pesticide to eradicate all pests, we rely on a wide variety of predators. That way if one predator leaves, there are many others to take its place and the web still holds.
If ~~we can make it so~~ that all the "jobs" in the garden are covered by various plants, animals and insects, there is no need for external (and harmful) inputs, such as pesticides and synthetic fertilizers.
Of course, the garden we'll be creating is a human intervention. We are creating an ecosystem that benefits us, but that also relies on us to function. We only have to look outside to realize that if we planted some tomatoes in the front of the school, we couldn't just let nature be and expect an abundant harvest. Instead we have to create the conditions for this web of biodiversity to exist. So that's what we'll be doing today.

Part 2

Divide the class into three groups and distribute "biodiversity planning cards". One option is to have each group focus on a certain group of organisms (plants/animals and other invertebrates/insects). Each group will develop 2 or 3 ideas for contributing to enhancing biodiversity in the garden space. Many ideas will cross over into the realms of animals and plants, and students will have to consult with other groups to ensure that all the proposals work in concert.

Part 3

Transfer the map of the school grounds or garden area onto large chart paper and invite students to present their group's ideas to the class and add them to the map. Encourage discussion of each idea and input from students from other groups. Will these proposals be easy to implement? What materials are necessary? Evaluate and select only the proposals that are deemed possible and popular. Once each proposal is integrated into the map, list the multiple functions provided by the components planned for the garden. How do the proposals from one group impact biodiversity in another realm?
Make a list of what will be needed to implement the plan in the next workshop. Some items will be provided by GUO, others are the school's responsibility.