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 9-10

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# Seed Starting

<u>Mindfulness minute</u>: 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 will start seedlings inside to be transplanted at a later date.

### LEARNING OBJECTIVES

Grade 9 Science: Biology

#### **OVERALL EXPECTATIONS:**

B1. Assess the impact of human activities on the sustainability of terrestrial and/or aquatic ecosystems, and evaluate the effectiveness of courses of action intended to remedy or mitigate negative impacts;

B2. Investigate factors related to human activity that affect terrestrial and aquatic ecosystems, and explain how they affect the sustainability of these ecosystems;

B3. Demonstrate an understanding of the dynamic nature of ecosystems, particularly in terms of ecological balance and the impact of human activity on the sustainability of terrestrial and aquatic ecosystems.

#### SPECIFIC EXPECTATIONS:

B1.4 - Evaluate the effectiveness of government initiatives in Canada, and/or the efforts of societal groups or nongovernmental organizations, such as Aboriginal communities, environmental groups, or student organizations, with respect to an environmental issue that affects the sustainability of terrestrial or aquatic ecosystems B2.1 - Use appropriate terminology related to sustainable ecosystems, including, but not limited to: bioaccumulation,

biosphere, diversity, ecosystem, equilibrium, sustainability, sustainable use, protection, and watershed B2.2 – Interpret qualitative and quantitative data from undisturbed and disturbed ecosystems (terrestrial and/or aquatic), communicate the results graphically, and, extrapolating from the data, explain the importance of biodiversity for all

sustainable ecosystems

# Health and Physical Education SPECIFIC EXPECTATIONS:

C3.1 – Analyse the influence of social and environmental factors on food and beverage choices (e.g., financial status, culture, religion, media influence, peer influence, family food traditions, accessibility of different kinds of food, restaurant choices, proximity to where food was produced, environmental impact of food production methods)

#### Grade 10 Science: Biology

#### **SPECIFIC EXPECTATIONS:**

B1.2 – analyse, on the basis of research, ethical issues related to a technological development in the field of systems biology (e.g., cloning, stem cell research, live organ transplants, transgenic transplants), and communicate their findings

#### **Health and Physical Education**

#### **SPECIFIC EXPECTATIONS:**

C3.1 – Demonstrate an understanding of how they, as consumers, can have an impact on food and beverage choices at school and in the community (e.g., promoting availability of healthy choices in restaurant and cafeteria menus and in grocery stores, raising awareness of ethical and environmental considerations related to food choices)





#### MATERIALS NEEDED

Newspaper strips approximately 4" wide (or jiffy pots)

- Full soda cans (if using newspaper pots)
- Soil-less seed starting mix
- Open-pollinated organic seeds; 2 varieties each for pumpkin, zucchini, squash and
- sunflower
- Popsicle sticks
- Plastic tray
- Biodiversity Power-point (available on the Growing Up Organic website under GUO Workshops)
- USC Video: "Banking Diversity" or the "Story of Food"
- https://www.youtube.com/watch?v=PzGSHTP-U20
- National Geographic Chart "Our dwindling food variety" available at:
- <u>https://www.nationalgeographic.org/media/infographic-design/</u>

## STRUCTURE / ACTIVITY

#### Part 1: Heirlooms

Before beginning, ask the students in groups of five or six to write down all the different varieties of given vegetables (tomatoes, squash, and lettuce work well here). What do we mean when we say heirloom? Does anyone have heirlooms in their own family?

Like important family heirlooms, heirloom seed varieties are passed down from generation to generation, preserving biodiversity along the way. While we often rely on a few varieties of vegetable species, there exist hundreds more. Unfortunately, we are losing this biodiversity at a rapid rate. Some efforts are taking place around the world to save heirloom varieties of vegetables – a process that we can participate in as well. If time allows, view the Banking Diversity (or Story of Food) video and follow with a discussion of the loss of biodiversity of edible plants.

How many varieties of various vegetables did you write down with your peers?

Display the National Geographic chart and compare these numbers. Why do you think we have lost so many varieties?

View the "Biodiversity Slide Presentation" as a game having students try to guess the various vegetables shown on the slides.

Seed Saving is an age-old tradition that works against the loss of biodiversity by preserving many of the varieties of fruit, vegetables and grains that would otherwise be lost. There are several reasons to conserve varieties.

Why do you think it is important to preserve these varieties?

Remember to include reasons of:

- Food security and disease resistance
- Consumer choice and the different priorities of large companies versus smaller growers/eaters

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• Grower independence from companies controlling the food chain

#### Part 2: Seed Starting

Have students create paper pots and fill them with prepared soil-less mix. Plant one seed in each pot, according to seed packet instructions. Identify what vegetable (and variety) has been planted on one side of the Popsicle stick, and the student's name on the other side. Place the seedlings on a plastic tray and keep them in a warm spot for germination (a light table is ideal). Water daily.

A watering schedule with assigned responsibilities can help ensure that seedlings receive proper daily care.

#### Extension

Have each student choose one type of fruit or vegetable and research its genetic history:

- How many varieties existed at one point? How many exist today?
- Do we know its wild ancestor?

What are three of the most interesting varieties still in existence? Find a seed producer for these varieties in North America.

