Seed Saving

This workshop allows students to explore the loss of biodiversity associated with industrial food production while creating an opportunity for them to participate in the age-old tradition of seed-saving thereby contributing to preserving their own genetic diversity in the school garden. There are many opportunities to extend this lesson to connect to classroom lessons, for example, around classification and Linnaean Binomial system (Grade 11); plant reproduction;

Grade Levels

Secondary

Curriculum Connections

Grade 9

Biology

Overall Expectations

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

Grade 11

Biology

Overall Expectations

- Describe some evolutionary mechanisms (e.g., natural selection, artificial selection, sexual selection, genetic variation, genetic drift, biotechnology), and explain how they affect the evolutionary development and extinction of various species.

- Analyse the economic and environmental advantages and disadvantages of an artificial selection technology, and evaluate the impact of environmental changes on natural selection and endangered species;

Materials:

- Plants gone to seed in the garden (Lettuce, beans, basil, pumpkin, tomatoes)
- Various commercial seed packets
- Envelopes
- Biodiversity Powerpoint (available on the Growing Up Organic website under GUO Workshops)
- USC Video: “Banking Diversity”
- National Geographic Chart “Our dwindling food variety” available at: http://ngm.nationalgeographic.com/2011/07/food-ark/food-variety-graphic

Activity

Part 1: Why Save Seed

- 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
- Grower independence from companies controlling the food chain

Part 2: Seed Collecting

Discuss seed saving with students: its historical significance and present day value, as well as the difference between open-pollinated vs. hybrid seeds.

Show students how to choose plants from which to collect seeds, and how to collect the seeds (depending on the plant variety). Demonstrate how to extract the seeds. (If the seed feels a little damp, leave them to dry on a plate before labelling and storing).

See resources on the Growing Up Organic Website for more information.

Extension

1. 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.

2. Organize a "Seed Swap" with a neighbouring school or a seed sale.