

Seed Starting Workshop

In this workshop students will germinate seeds for school garden squash and zucchini seedlings. In the process they will explore the role of energy in the food supply chain and discuss different ways of increasing the sustainability of our food supply chains, by reducing energy and resource inputs. They will compare a conventional supply chain to a local organic chain and identify ways of reducing the use of nonrenewable energy in food production and consumption.

Grade Level

5

Curriculum Objectives

Science and Technology: Understanding Earth and Space Systems

Overall Expectations

- Analyse the immediate and long-term effects of energy and resource use on society and the environment, and evaluate options for conserving energy and resources
- Demonstrate an understanding of the various forms and sources of energy and the ways in which energy can be transformed and conserved

Specific Expectations

- 1.1 – Analyse the long-term impacts on society and the environment of human uses of energy and natural resources, and suggest ways to reduce these impacts
- 1.2 – Propose ways in which individuals can improve energy conservation

Materials

- A fresh tomato (optional)
- Farmer McDonald and Farmer Green food chain sheets
- Two ten-foot lengths of string
- Clothespins
- Newspaper strips approximately 4" wide
- Full soda cans
- Soil-less seed starting mix
- Seeds (recommended: pumpkin, zucchini, squash)
- Popsicle sticks
- Plastic tray

Activity

1) Introduction: 15 minutes

Present the fresh tomato to the students. Ask if anyone is able to tell where this tomato came from? Or how it was produced? *The truth is that it's often very difficult to tell where our food comes from or how it was produced. Today we are going to explore two different ways food gets from the farm to our table and what difference it means for the energy used along the way.*

Introduce students to the concept of the food supply chain. Ask them to think about the steps that take place to bring food from the farm to their kitchen table. Explain that the food system uses a lot of energy and resources. For every unit of energy we get from the food we eat, seven times the amount of energy has gone in to producing, transporting and preparing the food as it comes from the farm to our table!

Divide the class into three groups to rotate through the following stations. In stations 1 and 2, students reconstruct two contrasting supply chains by determining the order of various steps presented to them on sheets of paper. The sheets can be hung in order on a clothes' line with pins, against a wall. For each supply chain, ask students to sift through the images and icons representing energy or resources and match them to the appropriate step along their chain by clipping them to the paper or sticking them on the wall next to the corresponding step.

Station 1: Farmer Green

See *Farmer Green Handouts*.

This chain follows an organic tomato from a local farm to a farmers' market in Ottawa. It is a low-energy and low-resource chain, relying mostly on renewable sources of energy (such as solar and kinetic) and reducing resource use through practices such as seed-saving.

Station 2: Farmer McDonald

See *Farmer McDonald Handouts*.

This chain follows a conventional tomato from a farm in Mexico to a superstore in Ottawa. This chain is resource-intensive and requires a lot of energy, including from non-renewable sources (such as fossil fuels).

Station 3: Garden-to-Classroom and 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.

Recap

At each station, the students came up with types of energy and resources used in the particular chain. At the last station, students planted a seed to be transplanted later in their school garden, but did not get to discuss the types of energy and resources that will be used in the steps of organic gardening. This can be included as a group discussion after the workshop activity, or in the following workshop when students transplant their seedlings.

Helpful Reading

Beyond Food Miles: http://www.postcarbon.org/article/273686-beyond-food-miles#_edn5

This article examines energy in the food system by looking at various steps in the food supply chain and assessing what difference transportation makes. Some of the main conclusions:

- How food travels is far more important than how far it goes;
- Eating well doesn't necessarily require a lot of energy; eating badly does.
- The way that food is grown usually has a bigger impact on energy use than the distance it travels.