



Sunflowers, Health and Biodiversity

Grade 5 Facilitator Notes

Objective: Students will connect their personal food experience with larger food security issues.



Recipe Category: Plants & Gardening



Cooking Time: 25 mins



Level of Difficulty: Grade 5



Recipe Ingredients:

- Paper – reused, recycled, homemade
- One or more of: Crayons, Pencil Crayons, Pastels, Paints
- Photos of Sunflowers
- Seeds – a variety of one type (ex. Sunflowers)
- Mix of Soil, compost, coconut fiber
- Small pots (reuse plastic ones from a local nursery or reuse a variety of small containers)
- Video: <http://www.grist.org/article/food-2010-09-24-11-year-old-schools-us>



Curriculum Links: (example)

Grade	Subject Area	Ontario Curriculum Links
5	Health and Physical Education	<p><i>Healthy Living-Making Connections For Healthy Living</i></p> <p>Demonstrate the ability to make connections that relate to health and well-being – how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others’ health and well-being; (O)</p> <ul style="list-style-type: none"> ▪ describe how advertising and media influences affect food choices and explain how these influences can be evaluated to make healthier choices (S)
	Social Studies	<p><i>Heritage and Citizenship – Early Civilizations</i></p> <p>Identify and compare the ways in which people in various early civilizations met their physical and social needs, including how they interacted with and used the natural environment; (O)</p> <ul style="list-style-type: none"> ▪ explain how two or more early civilizations shaped and used the environment to meet their physical needs for food, homes, clothing, and health (S)
	Science & Technology	<p><i>Understanding Life Systems – Human Organ Systems</i></p> <p>Analyse the impact of human activities and technological innovations on human health; (O)</p> <ul style="list-style-type: none"> ▪ assess the effects of social and environmental factors on human health, and propose ways in which individuals can reduce the harmful effects of these factors and take advantage of those that are beneficial

Introduction: (5 mins)

- Children's Garden and Exploring Toronto Programs – we run Environmental Education Programs at High Park and on a variety of Discovery Walks throughout Toronto. Some of our main topics include organic gardening and food related issues.
- This workshop is designed to get students thinking about the bigger picture. Using the sunflower as a starting point the exercise gets students thinking about how modern agricultural techniques are affecting our health and the health of the planet. It also delves into the origins of farming and what farming meant to a civilization that was traditionally hunter/gatherers. It will involve hands on activities that draw on their creativity and their concentration. The questions listed below can be touched on briefly or studied more in-depth. They also provide a starting point for further questioning and research.
- Overview of the workshop/ what to expect from the next 20mins
 - There will be two hands-on activities, drawing of a sunflower and planting of sunflower seeds
 - There will be in-depth discussion of biodiversity/lack of biodiversity and what it means to traditional and modern methods of farming
 - There will also be discussion of how advertising and the media have shaped and changed farming in the past 50 years

Sunflower Portraits: (10 mins or as long as you want to discuss)

This activity will help students understand the lack of diversity in today's commercial agriculture industry. It can be linked to all three curriculum points above.

- Hand out scrap paper and colouring pencils, etc.
- Ask students to picture in their mind a sunflower. Have them draw the sunflower in as much detail as they can in 5 minutes.
- Once the 5 minutes are up have the students show their pictures to the rest of the group. Discuss any similarities or differences (most likely they will all look similar – larger sunshine yellow flowers with brown centres).
- Show pictures of the actual number of sunflower varieties available.
- Discuss the issues surrounding the lack of biodiversity in modern agriculture

- Growing the same thing in the same soil every season results in poor soil quality requiring farmers to use large quantities of chemical fertilizers – chemicals that affect our health, environments health
- Disease can wipe out an entire crop if only producing one type of crop
- Discuss the availability of so many types of fruits and vegetables in their off season – how far away must they be grown/shipped from, do hydroponically grown fruits and vegetables have the same nutritional content?
- When ancient civilizations began farming they understood that diversity helped their crops grow stronger and healthier. Example – The First Nations Story of the Three Sister's - corn, beans and squash. Corn grows to provide something for the beans to climb which help fix nitrogen to the soil for the use of the other plants and the squash spreads out it's leaves to cover the soil acting like a mulch to keep in moisture and keep roots cool.

Plant Seeds: (10 mins or as long as you want to discuss)

The object of this activity is to discuss what is needed to produce healthy plants for food and for the planet.

- What should your soil consist of?
 - Sand, organic matter (compost), clay, air, water, micro-organisms, insects, fungus
- Planting sunflower seeds for sprouts
 - Mix up soil (sand, clay, some organic matter, micro-organisms, fungus), compost (fertilizer), coconut fiber (air and moisture retention) and fill pots with mix
 - Plant sunflower seeds
 - Stick finger into soil to first knuckle and place seed in hole
 - Repeat for as many seeds as you can fit in the container
 - Spread soil around to cover seeds, water and keep moist until seedling is 3-5 cm tall
 - To be eaten as sprouts in a week or two (trim just above dirt, rinse and enjoy)
- What would ancient civilizations use to fertilize their crops?

- Manure, food scraps (compost), parts of animals they could not eat or use elsewhere (bones)
- What effects have modern methods of farming had on communities?
 - Fertilizer and animal waste runoff into waterways (see the Gulf of Mexico dead zone created at the mouth of the Mississippi River every year)
 - Diversion of waterways for farmland irrigation often causing drought in areas downstream
- What effects have advertising and the media had on the way people farm?
 - Much larger, more intensive farming, use of more chemicals, much less biodiversity, fewer varieties of the same vegetable/fruit available
 - Fruits and vegetable varieties chosen for their "packability" and "portability" not for taste or nutritional value
 - More packaging on foods that traditionally have none. Examples: Grapples – grape flavoured apples that come in a plastic package of 4, Disney pictures on individual sized plastic bags of baby cut carrots, plastic packages of salad greens and baby spinach



Serving Suggestions:

