

## Workshop #1 Types of Plants in NYC

### Age Groups:

- 5-8 year-olds
- 9-13 year-olds
- 14+ year-old

### Learning Objectives:

- Students gain understanding on the accessible forms of produce that can be grown in NYC community gardens.
- Students can define the difference between fruits and vegetables.
- Students gain a basic, foundational understanding to why different plants grow at different times and when it's appropriate to grow certain foods.

### Materials/Resources Needed:

- Laminated Fruits and Vegetables
- Chalk
- Construction Paper and Markers

Estimated Time Needed	Activity				
10 Minutes	<p><b>Introduction to activity:</b></p> <ul style="list-style-type: none"> <li>● Identify the four seasons of the year (and the appropriate months) while you draw a 2x2 table with chalk on the ground. Label each section:</li> </ul> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;"><i>Winter</i> (December, January, February)</td> <td style="text-align: center;"><i>Fall</i> (September, October, November)</td> </tr> <tr> <td style="text-align: center;"><i>Spring</i> (March, April, May)</td> <td style="text-align: center;"><i>Summer</i> (June, July, August)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>○ <b>5-8:</b> <i>Engaging questions to ask:</i> What do these seasons look, sound, feel, taste, and smell like? (Identify the 5 senses)</li> <li>● Identify the laminated fruits/vegetables: <ul style="list-style-type: none"> <li>○ <i>Engaging questions to ask:</i> What are these called? What do they taste like? When do you eat them?</li> </ul> </li> </ul>	<i>Winter</i> (December, January, February)	<i>Fall</i> (September, October, November)	<i>Spring</i> (March, April, May)	<i>Summer</i> (June, July, August)
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- **9-13/14+:** What is the difference between a fruit and a vegetable?
  - *Answers can include:* Fruit are seed-bearing products, vegetables are other plant parts that include leaves, roots, and stems.
    - **Trick Question:** Is a tomato a fruit or a vegetable, and why? *Answer: Fruit (even though it is grown in the ground, tomatoes are grown from the base of the flower and contains the seeds of the plant).*
- **14+:** Why do you think that we chose these fruits/vegetables to be represented on these cards?
  - Can be locally grown in NYC

● 10 Minutes

**Practice Activity:**

- Go back to the 2x2 table of the four seasons.
- Take the laminated fruits/vegetables and distribute them among the children (dependent on class size and age group, you can split the children into groups of 3-4, so they can discuss and work together to figure out where to place their fruit/vegetable).
  - If students do not speak English as their first language, you can write the names of fruits and vegetables in a dry erase marker on top of each laminated picture in other languages.
- **5-8:** Have them place the fruits/ vegetables in the appropriate season they think in which they grow.
  - *Engaging Questions to Ask:* What time of year do you usually eat this fruit/vegetable?
- **9-13/14+:** Before students place their fruit/vegetable, ask them why they're deciding to place it where they did.
  - Discuss why it is correct, engage others to move the produce if it needs to move.
  - **14+:** Introduce different plant needs, such as temperature, moisture, soil (see below for additional information about these variables). Plants can grow in certain season if they are resilient to these variables.

*Answer Key:*

<p style="text-align: center;"><b>Winter</b></p> <p><i>** Key Take-Away: discuss why no plant species are available locally in the winter months</i></p> <ul style="list-style-type: none"> <li>● This is due to cold temperature</li> </ul>	<p style="text-align: center;"><b>Fall</b></p> <ul style="list-style-type: none"> <li>● Brussel Sprouts (Sept-Nov)</li> <li>● Cauliflower (Aug-Nov)</li> <li>● Celery (Aug-Oct)</li> <li>● Fennel (Oct-</li> </ul>
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	<p>s/ lack of moisture (variables discussed below)</p>	<p>Nov)</p> <ul style="list-style-type: none"> <li>• Leeks (Aug-Dec)</li> <li>• Squash (Aug- Dec)</li> </ul>	
	<p><b>Spring</b></p> <ul style="list-style-type: none"> <li>• Asparagus (May &amp; June)</li> <li>• Arugula (May-Sept)</li> <li>• Herbs (April-Sept)</li> <li>• Rhubarb (May-July)</li> <li>• Spinach (May-Sept)</li> </ul>	<p><b>Summer</b></p> <ul style="list-style-type: none"> <li>• Beets (June-Dec)</li> <li>• Broccoli (June-Nov)</li> <li>• Cabbage (June-Oct)</li> <li>• Carrots (June - Sept)</li> <li>• Cucumbers (July-Oct)</li> <li>• Eggplant (July-Oct)</li> <li>• Garlic (July-Oct)</li> <li>• Green Beans (July - Oct)</li> <li>• Kale (June-Nov)</li> <li>• Onions (July-Oct)</li> <li>• Peas (July-Oct)</li> <li>• Peppers (July-Oct)</li> <li>• Potatoes (July-Dec)</li> <li>• Tomato (July-Sept)</li> <li>• Zucchini (June-July)</li> </ul>	
	<ul style="list-style-type: none"> <li>• Ask the students if they like any fruit or vegetables that are not on this list/present in the activity. <ul style="list-style-type: none"> <li>○ Record their answers in a list in chalk next to the 2x2 box.</li> </ul> </li> <li>• <i>Engaging Questions to Ask:</i> Why do you think you can <i>eat</i> these items in NYC, but not grow them here? Why can you find them in the grocery store? Where do you think they come from? <ul style="list-style-type: none"> <li>○ <b>9-13:</b> Discuss climate in NYC: seasons of frozen</li> </ul> </li> </ul>		

	<p>ground, cold temperatures, short daylight (details in variables below) Certain foods on the list are unable to grow in colder climates. Many produce items can only be grown in countries near the equator that have warmer climates:</p> <ul style="list-style-type: none"> <li>■ Examples: Oranges, Bananas, Mangoes, Coconuts</li> <li>○ <b>9-13/14+:</b> Ask students where these foods might otherwise be grown and then shipped to NYC. <ul style="list-style-type: none"> <li>■ Take-away: foods that must be shipped/transported from far away often cost more: must incorporate the cost of shipping into the price of the food</li> </ul> </li> <li>○ <b>14+:</b> Have you seen the prices of fruits/vegetables in the supermarket fluctuate dependent on the season? Why do you think that is?</li> <li>○ <b>14+:</b> How do fruits and vegetables that are not native to growing in NY stay fresh when they travel? How fast do you think the market has to pick, package, transport, and distribute fruit?</li> </ul>
5 Minutes	<p><b>Wrap Up/Conclusion</b></p> <ul style="list-style-type: none"> <li>● <b>5-8/9-13:</b> On a large piece of paper, have each student write down a new fact they learned from today.</li> <li>● <b>14+:</b> Go around in a circle and state something new you learned from today's activities.</li> </ul>

**Variables (for 14+):**

**Temperature:** Most plants require a certain temperature range of the surrounding climate in order to grow

- Some plants can tolerate more shade, some direct sunlight, some a combination of both
- Some plants, like perennials, have adapted to colder temperatures and require a dormant period of freezing temperatures between fruiting seasons in order to re-blossom.
- Temperature can influence the growth rate of plants: depending on ideal temperatures for differing species some plants will grow slower in extreme heat or cold.

**Moisture/Precipitation:** Plants require adequate water in order to complete the process of photosynthesis

- Water helps nutrients be absorbed by a plant's roots, stems and leaves from inside the ground: how plants eat.
  - Best to water in the afternoon/evening because the plants will evaporate less water as the sun goes down.
  - Most important to water plants and seeds in the first two weeks after being planted to provide aquifer for nutrient access to seeds and roots.
  - There are no hard or fast rules for water, it depends on the type of pant, the soil and the weather. In summer heat, most plants require more moisture.

- If too much water is applied at once, it won't be accepted by plant roots
- Focus on the root zone when watering
- Mulching plants annually can cut down on the need to water by retaining water.

**Soil:** Healthy soil is the best way to ensure healthy plants.

Soil Composition - sand, silt, clay, loam. Good soil is made up of a combination of all of these

- Ribbon Test - rolling a sample of soil back and forth in your hands
  - If it sticks together easily, it high in clay. If it falls apart it's higher in sand.
  - Clay doesn't drain well, difficult for roots of plants to penetrate
  - Sand drains well but doesn't retain nutrients.

pH Levels - a scale to measure the concentration of hydrogen ions in a solution from 0-14. Acidic substances have a smaller pH number and more hydrogen ions. Basic substances have a larger pH number and fewer hydrogen ions. 7, the middle of the scale, is neutral.

- By measuring pH, you can indicate how plants will perform. Different kinds of plants thrive across the pH scale.

Organic Material - by adding substances like compost and mulch to soil you can balance the pH levels as well as improve nutrient retention and drainage.

*\*\* Sources:*

Urban Gardening Help: Soil Basics for Urban Gardeners <http://www.urbangardeninghelp.com/soil-gardening/>

Burpee Garden Advice Center: Gardening 101

[https://www.burpee.com/gardenadvicecenter/areas-of-interest/flower-gardening/gardening-101/gardening\\_101.html](https://www.burpee.com/gardenadvicecenter/areas-of-interest/flower-gardening/gardening-101/gardening_101.html)

Gardeners.com When To Water

<https://www.gardeners.com/how-to/when-to-water/8108.html>

The Spruce, New York Season Fruits and Vegetables

<https://www.thespruce.com/new-york-seasonal-fruits-and-vegetables-2217192>

## Season Fruits and Vegetables in NYC

<p><b>Winter</b> <b>(December, January, February)</b></p> <p><i>Many plants cannot grow in the winter due to freezing temperatures and lack of moisture in the air and soil.</i></p>	<p><b>Fall</b> <b>(September, October, November)</b></p> <ul style="list-style-type: none"> <li>● Brussel Sprouts (Sept-Nov)</li> <li>● Cauliflower (Aug-Nov)</li> <li>● Celery (Aug-Oct)</li> <li>● Fennel (Oct-Nov)</li> <li>● Leeks (Aug-Dec)</li> <li>● Squash (Aug- Dec)</li> </ul>
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