



COMPOSTING VS LANDFILL

Summary: In this lesson, students explore the environmental hazards of landfills and prepare a soup using parts of food that would have otherwise been discarded.

Learning Goals and Objectives:

- Learn how to utilize food scraps to prevent personal food waste.
- Understand what happens when you introduce food to landfills.
- Learn how to make vegetable stock

Materials:

- Autumn Harvest Soup and Stock ingredients, recipes, and visual aide (included below)
- Kitchen equipment: stove, stockpots, strainer, garlic peeler, wooden spoons, ladle, chef knives, paring knives, cutting boards, measuring cups, measuring spoons

Teaching Notes

- Before offering this lesson, educators may want to first teach the skills covered in the [Knife Safety](#) and [How To: Cut Vegetables](#) lessons.
- This lesson is written using a “pay-it-forward” approach for cooking soup stock: the previous class of students prepares the stock for the upcoming class. For the first set of students, our recommendation is to have the stock already prepared before the lesson.

References:

- Composting Impacts. Retrieved from <https://www.epa.gov/sites/default/files/2021-03/composting-food-waste-keeping-good-thing-going-2.jpg>
- Municipal Solid Waste Landfills. Retrieved from <https://www.epa.gov/landfills/municipal-solid-waste-landfills>
- Leachate: the ugly truth about food waste in landfills. Retrieved from <https://foodcyclescience.com/blogs/food-waste-industry/leachate-the-ugly-truth-about-food-waste-in-landfills>



Opening Circle

- Explore the environmental impact of food waste in landfills:
 - “In landfills, food scraps can cause landfill runoff. This is when the toxic chemicals and bacteria from the landfill leaches into the groundwater, which can contaminate water supplies for local communities and ecosystems. When this happens, both people and animals that live near the area aren’t able to safely drink the groundwater.”
 - “Food scraps in landfills also release tons of CO₂ and methane gas into the atmosphere. Under normal conditions, these gases are not bad. They naturally collect in our atmosphere and are responsible for trapping some of the heat from the sun, allowing us to live and thrive on this planet. But when these gasses collect in abundance they begin to trap too much heat from the sun, which contributes to global warming.”
 - “One way to reduce the amount of greenhouse gases is by composting our food scraps, which reduces CO₂ emissions of food waste by about 50% and almost completely reduces methane emissions.”

Introduce Recipe

- “To ensure that as little food goes to waste as possible, even to compost, it’s important to learn how to utilize every bit of food as much as we can. So, today we’re going to be making a soup using every bit of produce including the food scraps.”
- Transition into table groups.

Table Groups

- Review knife safety with students.
- Introduce the term “vegetable stock.” Explain that cold water heated slowly over low heat extracts flavor from the vegetables. Ask students to use the visual aid to identify which parts of the vegetables will be used for the soup, the stock, or put into the compost.
- Explain that all food scraps will be saved and used to prepare the stock for the upcoming class of students.
- Assign food preparation jobs and begin cooking.

Closing

- Clean up the classroom
- Ask: What are some reasons you waste food in your daily life? In what ways could you lessen that food waste?



AUTUMN HARVEST SOUP



4 TABLESPOONS OLIVE OIL

AROMATICS:

3 CARROTS

1 ONION

3 STALKS CELERY

4 CLOVES GARLIC

6 SPRIGS ASSORTED FRESH HERB
SUCH AS PARSLEY, THYME, OREGANO
OR BASIL



LEAFY VEGETABLES:

1 BUNCH LEAFY GREENS SUCH AS:
CHARD, KALE, SPINACH, COLLARDS

8-10 CUPS VEGETABLE STOCK

5 TOMATOES - FRESH OR CANNED
DEPENDING ON THE SEASON



SALT AND PEPPER TO TASTE

CRUNCHY VEGETABLES:

3-4 CUPS CRUNCHY VEGETABLES SUCH
AS: SQUASH, POTATOES, PUMPKIN, BEETS,
OR TURNIPS



1) IN A LARGE SOUP POT HEAT THE OLIVE OIL OVER MEDIUM HEAT. PEEL AND CHOP THE ONION AND THE CARROTS. CHOP THE CELERY. PEEL AND MINCE THE GARLIC. CHOP THE LEAVES OF THE HERBS. (SAVE ALL THE PEELS, STEMS AND TRIMMINGS FOR THE VEGETABLE STOCK.) ADD THE AROMATICS TO THE OLIVE OIL AND SAUTE' FOR FIVE MINUTES.

2) PEEL AND CHOP THE CRUNCHY VEGETABLES AND THEM TO THE SOUP POT. (AGAIN SAVE ALL THE PEELS, PULP AND SEEDS FOR THE VEGETABLE STOCK.)

3) ADD THE STOCK AND TOMATOES AND SIMMER FOR 5-10 MINUTES, TILL VEGETABLES ARE TENDER.

4) CHOP THE LEAFY GREENS AND ADD THEM TO THE SOUP POT. SEASON WITH SALT AND PEPPER. SHARE WITH FRIENDS AND FAMILY!





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VEGETABLE STOCK

BASIC:

- 1 GALLON COLD WATER
- 2 CARROTS
- 1 ONION
- 4 STALKS OF CELERY
- 1 TEASPOON WHOLE PEPPERCORNS

CAN ALSO ADD:

- CARROT PEELS.
- GARLIC PEELS.
- CELERY LEAVES.
- PULP FROM PUMPKINS.
- SQUASH PEELS.
- KALE STEMS.
- HERB STEMS.
- TOPS OF LEEKS.
- BEET PEELS.
- SPINACH STEMS.

POUR ONE GALLON OF COLD WATER INTO A LARGE POT. WASH AND ROUGHLY CHOP THE CARROTS, ONION, AND CELERY AND ADD THEM TO THE POT. ADD IN THE WHOLE PEPPERCORNS AND ANY ADDITIONAL VEGETABLE PEELS, SCRAPS ETC...

HEAT SLOWLY OVER MEDIUM HEAT - DO NOT RUSH AS THE SLOW HEAT IS WHAT BRINGS OUT THE FLAVORS. DO NOT BOIL.

SIMMER FOR UP TO 3 HOURS. STRAIN OUT THE VEGETABLES AND PUT THEM IN THE COMPOST AS THEY DON'T HAVE MUCH FLAVOR NOW, IT'S IN THE LIQUID! STORE YOUR VEGETABLE STOCK IN THE REFRIGERATOR OR FREEZER.

AUTUMN

HARVEST SOUP

CARROT
PEELS



HERB
STEMS



ONION
SKINS



LEEK
TOPS



CELERY
LEAVES



SQUASH
PEEL +
SEEDS



GARLIC
PEELS



KALE
STEMS



SLICED
CARROT



DICED
ONION



SLICED
LEEK



CHOPPED
KALE



SLICED
CELERY



MINCED
GARLIC



HERB
LEAVES

DICED
POTATO



DICED
SQUASH



