

How has technology made meal preparation quicker and safer?

EDIBLE GARDEN PROGRAM (6-8)

Preparing the Meal **(ILS 3A, 13A, 13B, 24C)**

Overview

The key question for this activity is, "How has technology made meal preparation quicker and safer?" And there is no better way for students to answer that than to grow and cook their own food. Using the garden and kitchen as the facilitators, they will inspire student inquiry and teach them about Sustainable Agriculture, specifically, local food production and consumption.

For the purpose of this curriculum sustainable agriculture shall be defined as follows: "Sustainable Agriculture is a system of food production, supported by consumers, where farming operations, practices and technologies *work in harmony* with the natural systems that sustain life on earth."

Suggested Grade Level

This curriculum is designed for middle school/junior high grade levels. The topics covered can be built upon in complexity throughout that age range.

Approximate Time

This activity requires one 75 minute session and one 2 hour and 45 minute session.

Objectives

1. The students will learn about proper food handling, hygiene, kitchen tool and equipment safety.
2. The students will gain an understanding of how kitchen technology has changed and made food preparation easier.
3. The students will compare the use of kitchen hand tools and mechanical tools.
4. The students will prepare (and eat!) the meal they planned in the "Planning the Meal" activity.

Activity Abstract

During session 1, students will rotate through 8 stations, in groups of two to three students. They will make a salad they can enjoy when through with this project. The stations include:

- Apple Prep
- Carrot Prep
- Lettuce Prep
- Peel a Tomato Prep
- Can Opener Test



- Proper Hand & Dish Washing
- Kitchen Safety Survey
- Ice Box Improvement

The apple and carrot prep and can opener tests will involve a time comparison. The lettuce prep station teaches the students how to wash greens. The peel-a-tomato station teaches hot water and hot pot safety. The washing station will teach the students proper dish and hand washing. . The apples, carrots, tomatoes and lettuce can be combined to make a toss salad. The kitchen safety survey has the students survey the kitchen for potential safety hazards in the kitchen. The ice box improvement lets the students reflect what life must have been like without a refrigerator.

Session 2 involves the preparation of the meal planned by the students. When the meal is complete, eat and enjoy!

Materials

- Kitchen (large enough for class to work in!)
- Station instruction sheets for each student, and one set to stay at the station (laminated is good!). The instructions are in Appendix A.
- Apple Prep station: (two apples per group) knife, vegetable peeler, apple peeler/slicing machine, two bowls, cutting board
- Carrot Prep station: (one carrot per student) knife, vegetable peeler, food processor, 2 bowls, cutting board
- Lettuce Prep station: (3 heads for class) lettuce spinner, salad bowls, spoons
- Peel a Tomato station: (2 tomatoes per group) 2 pot holders, knife, pot for boiling water, slotted spoon, 2 bowls, cutting board
- Washing station: dish washing utensil, dish soap, hand soap, dish towels, hand towels
- Can Opener Test station: electric can opener, hand can opener, two cans per group (can be empty of one lid is left)
- Notebook and writing utensil for each student
- Large clock with second hand
- Compost bin
- Extra adults, including a food hygienist, if possible
- Ingredients and materials for recipes selected by students – will vary depending on menu selection
- Dining area
- Table settings for each person eating the meal!
- Table cloths, etc. (optional)

Set-up

For session 1, select locations around the kitchen for each station. Put the proper supplies and the instruction card at each station. For session 2, consider sending invitations for special guests to enjoy the meal with the class.

Procedure (Session 1)

1. **Tap prior knowledge.** Ask students about their past cooking experience.



2. Have students wash their hands as they will be working with food.
3. Divide the class into 8 groups of students. Explain that the groups will rotate through 8 stations. Assign adults either to specific stations or to specific groups.
4. **Hands-on Activity/introduce scientific principles.** Assign starting stations and allow each group approximately 10 minutes per station. They will need their notebook and writing utensil as they rotate.
5. **Conclusion/Wrap-up.** Hand out copies of the instruction cards to students so they have them for future reference or to finish the questions for homework.
6. Eat the salad!

Procedure (Session 2)

The procedure for session 2 will vary depending on the menu chosen. Here are some general guidelines to follow:

- Try to have all the menu items done at the same time. Look at cooking and prep times on the recipe and start making the food accordingly.
- Arrange meal prep into stations and have groups of students in charge of different recipes.
- Have no more than 5 students per group.
- Spread groups out through out the kitchen.
- Have enough adults for each group.
- Students who finish early can set the tables and get the dining area ready.

Appendix A: Station Instructions.

APPLE PREP

The apple peeler/slicer machine is a very old style machine that has lived throughout the years as the best tool for peeling and slicing apples.

You will compare the time it takes to peel and slice an apple by hand with the time it takes to peel and slice it on the peeler/slicer machine. **First, write a hypothesis stating which method of peeling and slicing you think will take the least time. Then, as a group, time how long it takes to peel and slice an apple by hand and with the machine. Write the times for each in your notebooks. Write the conclusion to your experiment.** Place the sliced apples into the apple bowl.

Put the apple core and peelings in the compost bucket.

CARROT PREP

Carrots can be prepared by either washing the outside well with a vegetable scrubber or they can be peeled using a vegetable peeler. The "skin" of a carrot contains the most minerals because it was in direct contact with the soil.

You will compare the time it takes to peel and slice a carrot by hand with the time it takes to peel and slice it using the food processor machine. **First, write a hypothesis stating which method of peeling and slicing you think will take the least time. Then, as a group, time how long it takes to peel the carrot with the vegetable peeler and slice it into 1/4 inch pieces by hand. Secondly, time how long it takes to peel the carrot with the vegetable peeler and slice it using the food processor machine. Write the times for each in your notebooks. Write the conclusion to you experiment.** Place the sliced carrots into the carrot bowl. Put the carrot tops, bottoms and peelings in the compost bucket.



LETTUCE PREP

Salad greens provide lots of vitamins and minerals in a salad. "If it's green it's good for you!" Watch out for those greens because they are good hiding places for garden critters and rain-splattered soil. The greens need to be washed carefully, leaf by leaf, when ever possible.

Each person wash three lettuce leaves. Remove any brown spots on the lettuce and put in the compost bucket. Tear the lettuce into bite size pieces and place in the lettuce spinner. Spin the lettuce dry when each person in the group has finished with their lettuce. Place the cleaned, dried lettuce into the salad bowl.

In your notebook create a title for this exercise and describe the scientific FORCE created by the lettuce spinner that dries the lettuce.

PEEL A TOMATO PREP

There are times when it is not desirable for a tomato to have its skin. Generally leaving the skin on a tomato for a salad is fine, but its fun to remove the skin and someday you may need to.

You must do this exercise with adult supervision. The water on the stove will be near boiling (212F) and can burn your skin severely if there is an accident.

Using two tomatoes for the group, puncture each in several places with a fork. Place the tomatoes in boiling water for 30 seconds. Carefully remove the tomatoes with a slotted spoon and place in cold water. Peel the skin off of the tomates with your hand.

Slice the skinned tomatoes into wedges for the salad and place them into the tomato bowl.



CAN OPENER TEST

Technology has not always made life in the kitchen easier and faster. Let's see what you discover in this can opener exercise.

You will be testing a hand held can opener and an electric can opener. **First, write a hypothesis stating which method of opening a can will take the least time. As a group, time how long it takes to open a can with the hand can opener and with the electric opener. Write the times for each in your notebooks. Write the conclusion to your experiment.**

PROPER HAND & DISH WASHING

Washing your hands and dishes may seem a simple task. It is!!! However both must be done properly for your hands and the dishes to be truly clean, free of food, bacteria and soap. In fact, the greatest risk for food prep related sickness is due to poorly cleaned hands and soap residue left on dishes.

Learn from the expert how to properly wash your hands and dishes.

In your notebook come up with a title for this exercise and write the procedure for washing your hands and washing dishes.



Kitchen Safety Survey

Your job as a group in this exercise is to investigate the kitchen. Find three safety hazards that your group feels need to be improved upon so everyone in the kitchen is safe at all times.

In your notebook come up with a title for this exercise and present the three safety hazards your group selected. Describe what needs to be done to improve them.

Ice Box Improvement

Did you know that the refrigerator use to be called the ice box? Discuss with your group why it had this name and why the refrigerator may be the best technological improvement made in the kitchen.

In your notebook come up with a title for this exercise.

Write about the following:

1. Explain why a refrigerator had the name ice box.
2. Describe what life must have been like before there was a refrigerator.

