

# Pepper Water Bath Canning

## Food Science



### Overview

This lesson will challenge students to examine the idea of food preservation by learning to safely can pepper jelly and how to evaluate canned items. Students will also look at when and where most produce items are grown and determine their carbon footprint.

### Time Needed

- 4 class periods

### Standards

- HUM-FS-14. Compare and contrast different food preservation methods and the resultant quality of preserved food.
- 14.5 Explain the importance of product pH and final water activity of the processed product to preservation of foods.
  - 14.6 Examine the factors to be considered in the selection and use of successful thermal processing techniques (canning, freezing and pasteurization) and describe commercial thermal-processing methods.
  - 14.8 Compare and contrast processes used for home and commercial preservation and evaluate resulting quality of the products preserved using different commercial and/or home methods.

### Objectives

- Students will understand the reason behind food preservation and the safety principles and how buying local is more sustainable than commercial canning.
- Students will watch a demonstration on canning.
- Students will work in teams to can pepper jelly.
- Students will present their canned pepper jelly to the class for evaluation.
- Students will evaluate others canned items according to the standards.

### Materials

- [Canning Extension Guide](#)
- [Carbon Footprint Calculators](#)
- Recipes
  - [Pepper Jelly with Apple Cider Vinegar](#)
  - [Pepper Jelly with White Vinegar](#)
  - [Candied Jalapeños](#)
  - [Canned Hot Peppers](#)
  - [Pickled Yellow Pepper Rings](#)
  - [Pickled Hot Peppers](#)
- Half pint canning jars, water bath canner, peppers, pectin, sugar, vinegar (See recipes above)
- [Food Preservation Basics PowerPoint.pptx](#)
- [Canning Judging Information](#)
- Video with Judging Guidelines:
  - [Getting Canned Fruits and Vegetables Ready](#)
  - [Canned Vegetables Judging](#)
- Canned items for the students to examine



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### Outline

- **Engage:** Students will determine if canned items are safe to eat. They will see how buying local can help reduce the carbon footprint of foods and how it is more sustainable.
- **Explore:** Students will look through the Canning Extension guide to determine what makes canned items safe to eat.
- **Explain:** Students will learn from the teacher how to safely can items and what criteria is used for judging at state fairs.
- **Extend:** Students will present their canned items for judging by their peers. They will also get to try their pepper jelly.

### Lesson Plan

- **Engage:** Students will be given a variety of canned items and ask them to determine if they are safe to eat and how sustainable their food sources are. They will use the food footprint calculators to determine how sustainable each produce item is.
- **Explore:** Let the students explore the extension guide for canning. Students will try to determine what makes canned foods safe to eat.
- **Explain:** Teacher will explain the process of canning using the Food Preservation PPT. Teacher will also demo the pepper jelly recipe for the students. Students will write down the recipe and take notes on the recipe as the teacher presents. Teacher will also explain how the judging process works at state fairs. (Teachers not familiar can show the videos about judging.)
- **Extend:** Students will work in teams to create their own pepper jelly.
- **Evaluate:** Students will evaluate the success of their project based on the official canning guidelines. They will evaluate their own and others in the class. The class will celebrate by trying the pepper jelly in different dishes.

### Pepper Jelly Recipe

#### Ingredients:

- 2½ cups finely chopped red bell peppers
- 1¼ cups finely chopped green bell peppers
- ¼ cup finely chopped jalapeño peppers (peppers can be substituted for any other peppers in equal quantities)
- 1 cup apple cider vinegar
- 1 (1.75 ounce) package powdered pectin
- 5 cups white sugar

#### Directions:

1. Heat water in a hot water canner.
2. Place bell peppers and jalapeño peppers in a large saucepan over high heat; stir in vinegar and fruit pectin. Bring to a rolling boil, stirring constantly. Stir in sugar; bring back to a rolling boil, stirring constantly. Allow to boil for 1-3 minutes, then remove from the heat and skim any foam off the top.
3. Quickly ladle jelly into sterile jars, filling to within 1/4-inch of the tops. Cover with flat lids and screw on rings tightly.
4. Place jars in the rack and slowly lower jars into the canner. The water should cover the jars completely and should be hot but not boiling. Bring water to a boil; cover the canner and process for 5 minutes for sea level canning.

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