

Sriracha Shortage!!!

Personal Finance and Economic / Food Science

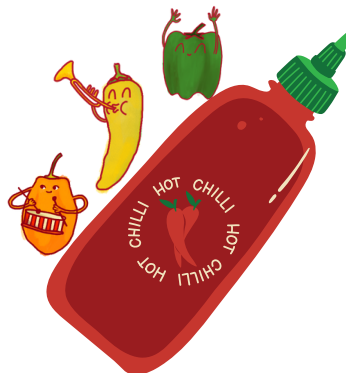


Overview

This lesson will challenge students to examine the concepts of supply and demand, and work to create another viable option in case of shortages. They will also brainstorm reasons for climate change and how biodiversity and supporting local agriculture can offset these issues.

Time Needed

- 3 class periods
- Plus up to 2 weeks waiting time for fermentation



Standards

SSEF1 Analyze how scarcity affects the choices of individuals, businesses, and governments.

- a. Explain that scarcity is a basic, permanent condition that exists because unlimited wants exceed limited productive resources.
- b. Compare and contrast strategies for allocating scarce resources such as by price, majority rule, contests, force, sharing, lottery, authority, first-come-first-served, and personal characteristics.
- c. Define and give examples of productive resources (i.e. factors of production): natural resources (i.e. land), human resources (i.e. labor and human capital), physical capital and entrepreneurship.
- d. Apply the concept of opportunity cost (the forgone next best alternative) to personal choices, as well as business and government decisions.

HUM-FS-12 Analyze the principles of fermentation.

- 12.1 List the reasons that food is fermented and identify common food products that result from fermentation.
- 12.2 Define probiotics and the relationship to fermented foods and the benefits for gut health.
- 12.3 Differentiate among yeast, bacterial and mold fermentation and identify food products produced for each type of fermentation.
- 12.4 List the factors that impact the growth of single-celled organisms.
- 12.5 Describe the process of pickling and compare and contrast the use of fermentation versus the addition of vinegar to produce cucumber pickles.
- 12.6 Describe the making of a fermented food product, such as vinegar, cheese, yogurt or chocolate.

Objectives

- Students will understand the concepts of scarcity, and supply and demand. They will also examine climate change and other reasons for scarcity.
- Students will discover the process of lactobacillus fermentation.
- Students will create a fermented hot sauce.
- Students will present their hot sauce to the class, explain their process and discuss how this product could help solve the problem of scarcity.

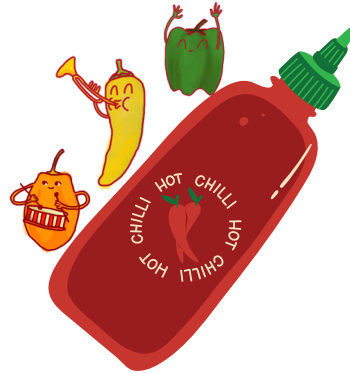
Sriracha Shortage!!!

Personal Finance and Economic / Food Science



Materials

- [Sriracha Shortage Article](#)
- [How to Make Fermented Hot Sauce](#)
- [Chili Pepper Madness](#)
- [Video: Fermented Hot Sauce Recipe](#)
- [Practical Guide to Making Fermented Hot Sauce](#)
- [Fermentation Supplies](#)
 - Clean large mouth glass jars (quarts or half gallons)
 - Pickle pipes or airlocks for large mouth mason jars
 - Fermentation weights
 - Sieve or strainer
 - Food processor or blender
 - Jars for bottling
 - Ingredients for hot sauce
- [Buying Fermentation Supplies](#)
- [Fermentation PowerPoint.pptx](#)



Outline

- Engage: Students will discuss the upcoming Sriracha shortage.
- Explore: Students will understand the fermentation process and how it preserves food.
- Explain: Students will read about the fermented hot sauce process and design their own recipe.
- Extend: Students will present their completed hot sauce with an explanation of how their sauce could address scarcity.

Lesson Plan

- **Engage:** Students will be given the article on the Sriracha shortage as an opening activity. Students will highlight why there is a shortage and brainstorm possible solutions for the shortage. Students will share what they know about climate change and the importance of biodiversity. They will brainstorm ideas for how to solve the Sriracha shortage problems using locally sourced peppers.
- **Explore:** Let the students explore how fermented hot sauces are made by reviewing the recipes.
- **Explain:** Teacher will explain the fermentation process and how it acts as a food preservation method using the powerpoint. Teacher will also explain how fruits, vegetables, herbs and spices can be used to enhance the hot sauce.
- **Extend:** Students will use the basic recipe to create their very own hot sauce.
- **Evaluate:** Students will present their sauce to the class with their own explanation how this could help alleviate the issue of the pepper shortage.

Sriracha Shortage!!!

Personal Finance and Economic / Food Science



Basic Fermented Hot Sauce Recipe

Ingredients:

For half gallon jar

- 1 quart filtered water
- 3 Tbsp. sea salt
- 2 lbs. spicy peppers
- 4 to 6 cloves garlic
- 3 carrots, chopped
- 1 onion, chopped
- Optional: ginger, herbs, fruit, white or apple cider vinegar

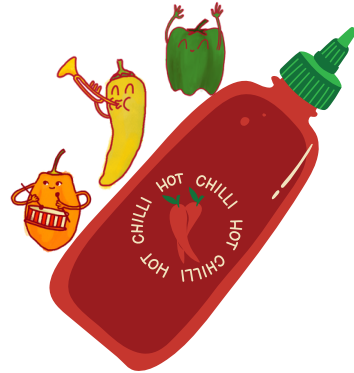
For quart jar

- 1 pint filtered water
- 1½ Tbsp. sea salt
- 1 lb. spicy peppers
- 2 to 3 cloves garlic
- 1½ carrots, chopped
- ½ onion, chopped
- Optional: ginger, herbs, fruit, white or apple cider vinegar

Instructions:

1. Wash chili peppers and remove tops. Using a sharp knife, chop the peppers into pieces roughly 1-inch in length. If including carrots and onion, cut them into similar-sized pieces and keep separate from the peppers.
2. Add chili peppers to the half-gallon jar, packing them tightly to fill the jar. Add carrots and onion; place garlic cloves on top of chopped vegetables. Leave 1-inch headspace at the top.
3. Mix together lukewarm water and salt, stirring until the salt has dissolved completely. Pour brine over the pepper mixture.
4. Place fermentation weights in the brine and on top of vegetables — they should be completely submerged.
5. Cover and seal the jar with an airlock lid. You should see airbubbles escaping after a day or two.
6. Give the chili peppers 1 to 2 weeks to ferment.
7. When the peppers are ready, carefully strain the fermented peppers and add-ins from the brine. Reserve brine.
8. Transfer fermented ingredients to a food processor or blender. Add 1 cup of brine to the mixture before processing until smooth. Add more brine or vinegar as needed.
9. OPTIONAL: Strain hot sauce through a fine mesh sieve for a smooth texture (skip this step if you prefer a chunkier sauce).
10. Decant hot sauce into clean jars or bottles. Store in the fridge for up to 1 year.

*Recipe adapted from [Practical Guide to Making Fermented Hot Sauce](#)



Lesson Created by Brooke Lewis-Slamkova for Georgia Organics