

# Home • Lesson 16

## Safe Food Storage

**Class periods:** two 30-min. class periods

**Supplement section:** Home PA PAS for FCS: 9.3.3 A, 9.3.3 B, 9.3.6 B, 9.3.9 B.

**National Education Standards:** FCS 8.2.1, 8.2.2, 8.2.3, 8.2.5, 8.2.6, 9.2.1, 9.2.2, 9.2.3, 9.2.5, 9.2.6; LA 2, 3, 035, 132, 278; MA 130; SC 5.

### LESSON SUMMARY

Students will learn about different safe food storage methods and leftover food safety at home.

### Objectives

*The students will be able to:*

- List at least five safe food storage methods.
- Identify safety practices to use with leftover food.
- Diagram home kitchen and refrigerator food storage locations.
- Identify safe and unsafe food storage and improvements in food storage in the home kitchen and refrigerator.
- Conduct the Storing Food Safely Experiment and determine safety practices with leftover food.
- Find newspaper articles about food storage methods, new products on the market for storing food, tips on food storage, etc. and write a summary of their findings.

### Materials Provided

**Worksheets:**

1. Storing Food Safely Experiment/ Observations
2. Storing Food Safely Experiment Discussion Questions
3. Storing Pizza Safely Experiment/ Observations

4. Storing Pizza Safely Experiment Discussion Questions

**Handouts:**

1. Storing Food Safely Experiment
2. Storing Pizza Safely Experiment

**Teacher Information Sheets:**

1. Storing Food in the Kitchen
2. Food Safety for Leftovers

### Suggested Presentation Aids

- Perishable food: milk, cheese, meat, fresh fruit or vegetables, homemade bread, etc.
- Storage containers: resealable plastic storage and freezer bags, foil, wax paper, plastic wrap, plastic containers with lids, etc.

# LESSON PLAN

## Class Period 1

### Introduction

In the home, food safety involves proper storage, handling, and cooking. Most food-borne illness can be prevented through some simple food handling and storage steps. It is important to think about food safety at each step, from shopping to cooking to storing leftovers, to help avoid foodborne illness. Once you get foods home, you must store them properly to keep them safe. Microbial growth is one of the problems that may occur if foods are stored incorrectly. The following tips will help ensure that the foods you store are safe and retain quality.

### Lesson Sequence

- Use Teacher information sheet 1, Storing Food in the Kitchen, for background information.
- Teacher brings in two bags of groceries and places on kitchen counter. Ask students how each food should be stored as it is taken out of the bag.
- What foods should be stored first? (Refrigerated and frozen foods)
- At what temperature should the refrigerator and freezer be set? (At most 40° F for the refrigerator and lower than 30° F for the freezer)
- How do you determine the temperature of the refrigerator and freezer? (Use a thermometer) Have students come up to read the thermometer in the refrigerator and freezer. Check to see if it is the correct temperature.
- As groceries are taken out of the bag, ask students where each food is stored in the refrigerator and freezer. Do any foods need special packaging, and if so, what is it? Fresh carrots or broccoli, deli meats, yogurt, milk, cheese, package of fresh meat or poultry, frozen juice, and ice cream.
- Fresh meats, poultry, and seafood that are to be frozen need to be re-packaged to preserve color, flavor, texture, nutrients, and appearance, and to prevent freezer burn.
- Freezer containers: plastic resealable freezer bags, freezer paper, foil and plastic containers. Show how to remove air from all the containers using a food as an example.
- Store raw and cooked foods separately in the refrigerator. Raw meat and poultry should be stored on the bottom shelf on a plate to prevent juices from dripping onto other foods. Show how the food taken from the grocery bag is organized in the refrigerator.
- What foods can be stored on the kitchen shelves or in cupboards? Where do I put these foods in the cupboards and in what order? (Any nonperishable food item: canned goods, cereal, dry soups, pasta in boxes, glass jars of food [tomato sauce, pickles, vinegar, molasses, gravy, etc.], cake mixes, salt, sugar, flour, spices, syrup, etc.) Newly purchased foods with newer expiration dates should be put in the back of the cupboard and older foods should be put in front. Rotate foods after purchase according to expiration dates. Foods that are used most often should be put on the lower shelves for easier access to wall cabinets. Foods such as flour, sugar, cake mixes, etc. are used less often and should be stored on the middle or upper shelves. Adjust shelves to accommodate to size of food containers.
- Place the foods used most often (canned goods, soups, pasta) on the lower shelves, above counter level. Organize shelf placement to accommodate large food containers, and put new foods in back and older foods in front (to be used first, rotation of foods). Throw out foods that are past the expiration date.
- Never store food under the kitchen sink. Damp areas attract insects and rodents and pipe leakage may damage food products.

- Do not store dry mixes near the stove because they do not keep well when exposed to heat.
- Food items in dry storage should be kept in airtight containers to prevent rodent and insect infestation. Insects and rodents carry harmful bacteria that can contaminate food. Show a variety of containers that would prevent insect and rodent contamination (plastic containers with tight-fitting lids, resealable plastic bags, refrigerator and freezer storage).
- Never store food alongside household chemicals.
- Pack perishable foods in a cooler when defrosting the refrigerator or freezer.
- How is your kitchen at home organized for food storage? What special areas are set aside for food items and what goes where?

### **Closure class period 1**

- Homework: Draw two diagrams: one of their kitchen and one of their refrigerator. Indicate types of foods and location of storage. What is the unsafe part of food storage in your kitchen? What can you do to change the way food is stored in your kitchen?

### **Class Period 2**

- Discuss the homework assignment. Share what can be done to improve our home kitchens for food storage.
- Use Teacher information sheet 2, Food Safety for Leftovers, for background information.
- Leftover foods can be safely stored and eaten for a later meal if the following practices are observed.
- Show a variety of good and bad storage containers of food. Good: bread in a resealable plastic bag, celery sticks (in water) in plastic container with tight-fitting lid, and steak tightly and securely wrapped in foil (in refrigerator). All containers are dated. Bad: Loosely foil wrapped chicken, cheese sitting on paper towel in refrigerator, box

of cereal, bread bag, and potato chips left opened on counter, hot casserole dish of lasagna, opened bottle of mayonnaise, and soup in refrigerator with lid ajar. All bad foods are not dated.

- Date leftover foods so you are not guessing the age of the foods.
- Refrigerate foods promptly after serving (within two hours after cooking). Never leave food out or hold at room temperature for an extended period of time.
- You don't need to cool food first, but do divide large amounts of leftovers into small portions and place in shallow containers.
- Use leftover foods within **four** days.
- Freeze leftovers that you won't use within a few days.
- Never taste leftover food that looks or smells strange to see if you can still use it. When in doubt, throw it out.
- Dispose of any contaminated food in the garbage.

### **Closure class period 2**

- Experiment: Storing Foods Safely: See Handouts 1 and/or 2 for two experiments. Worksheets 1, 2, 3 and 4. You may do one or both.

### **Suggested Learning Activity**

- At home activity: Look in your refrigerator at home and determine what food has been stored too long and food that is still edible. Get rid of those "secret packages." When in doubt, throw it out. Clean up any food spills.
- Find newspaper articles about food storage methods, new products on the market for storing food, tips on food storage, storing leftovers during the holiday season, etc. and report findings to the class.

### **Evaluation**

- Homework assignment: discussion of kitchen and refrigerator diagram (Indicate

types of food and location of storage).

Examine refrigerator and freezer for left-over foods that have been stored incorrectly and for a long period of time. (When in doubt, throw it out.) Evaluation of improvements made in kitchen storage.

- Storing Food Safely Experiment: Organization, procedure, results, and conclusions. This activity will test students' knowledge of safe storage practices for leftovers.
- Newspaper article reports to class
- Quiz #16
- Examination #5 at the end of the Home unit

## References

- Plating It Safe: A Market-to-Mealtime Checklist to Help Keep Food Safe. USDA/ Food Safety and Inspection Service/Extension Service, 21-036 (894500). National Live Stock and Meat Board, 444 North Michigan Avenue, Chicago, Illinois 60611. 1-312-467-5520. Developed by the National Cattlemen's Beef Association in cooperation with U.S. Department of Agriculture/Food Safety and Inspection Service.
- Nova Online/ The Brain Eater/Food Safety Tips Web site: <http://www.pbs.org/wgbh/nova/madcow/tips.html>
- Food Safety: Food Purchasing, Preparation and Storage, Preparing Meals at home Web site: <http://google.netscape.com/netscape?q=ground+beef+%2B+food+safety&site=search&start=10&sa=N>
- Food Talk Newsletter, September 1996. Web site: <http://lancaster.unl.edu/food/ftsep96.htm>

# Worksheet 1

Name \_\_\_\_\_

Class/Period \_\_\_\_\_

Date \_\_\_\_\_

## Storing Food Safely Experiment

*Food stored in the refrigerator*

### Observations

Day: \_\_\_\_\_

Food: \_\_\_\_\_

<b>Storage area used:</b>	<b><i>Original container</i></b>	<b><i>Resealable plastic bag</i></b>	<b><i>Foil</i></b>	<b><i>Plastic wrap</i></b>	<b><i>Plastic container with lid</i></b>
<b>Surface dryness</b>					
<b>Color</b>					
<b>Odor</b>					
<b>Mold growth</b>					



### Worksheet 3

Name \_\_\_\_\_

Class/Period \_\_\_\_\_

Date \_\_\_\_\_

## Storing Pizza Safely Experiment

*Pizza stored in refrigerator*

### Observations

Day: \_\_\_\_\_

Food: \_\_\_\_\_

<b>Storage area used:</b>	<i>Original container</i>	<i>Resealable plastic bag</i>	<i>Foil</i>	<i>Plastic wrap</i>	<i>Plastic container with lid</i>
<b>Surface dryness</b>					
<b>Color</b>					
<b>Odor</b>					
<b>Mold growth</b>					



## Handout 1

### Storing Food Safely Experiment

**Hypothesis:** Foods stored in the refrigerator over a period of fifteen days will each have a different shelf life.

#### **Materials:**

- Perishable foods (fresh fruit, milk, cheese, luncheon meat, fresh vegetables, homemade bread, canned stew, green pepper slices).
- Storage containers: Resealable plastic food storage bags, resealable freezer bags, foil, plastic wrap, plastic containers with lids).
- Storage facilities: refrigerator shelf and bin, freezer.

#### **Procedure:**

- Choose a perishable food. Wash, cut, into pieces, and dry each food.
- Place a piece or whole part of the food in each of the storage containers.
- Leave one piece of the food in its original container after opened as a control.
- Label each container with the name of the food and the date.
- Place each container of food into one of the storage areas in the refrigerator.
- Observe twice weekly and record results of food contamination over a period of three weeks on the chart(s) provided. Characteristics to test: surface dryness, color, odor, and mold or microorganism growth over the specified time period.

## Handout 2

### Storing Pizza Safely Experiment

**Hypothesis:** Pizza stored in the refrigerator will spoil more or less depending on the method of storage and storage container.

#### Materials:

- Pizza slices
- Storage containers: resealable plastic food storage bags, resealable freezer bags, foil, plastic wrap, plastic containers with lids), and original cardboard container
- Storage facility: refrigerator

#### Procedure:

- Cut pizza into sixteen pieces.
- Place a piece or whole slice of pizza in each of the storage containers.
- Leave one piece of the food in its original cardboard container after opened as a control.
- Label each container with the name of the food and the date.
- Place each container of food into the refrigerator.
- Record results of food contamination over a period of two weeks. Characteristics to test: surface dryness, color, odor, and mold or microorganism growth over the specified time period.

## Teacher information sheet 1

### Storing Food in the Kitchen

- Refrigerate or freeze cold and frozen foods right away.
- Your refrigerator should be at most 40° F and the freezer should be 30° F or lower.
- Do not exceed the proper storage times for refrigerated and frozen foods.
- Space items in refrigerator and freezer so that air can circulate freely.
- Store raw and cooked foods separately in the refrigerator.
- Freeze fresh meat immediately.
- Wrap raw meat, poultry and sea-food in separate plastic bags and set on a plate in the bottom of the refrigerator to prevent juices from dripping on other foods.
- Use the oldest cans first. Canned goods can keep for one year if properly stored in a cool, dry place.
- Throw out foods that are past the expiration date.
- Never store food under the kitchen sink. Damp areas attract insects and rodents and pipe leakage may damage food products.
- Do not store dry mixes near the stove because they do not keep well when exposed to heat.
- Food items in dry storage should be kept in airtight containers to prevent rodent and insect infestation. Insects and rodents carry harmful bacteria that can contaminate food.
- Never store food alongside household chemicals.

## Teacher information sheet 2

### Food Safety For Leftovers

- Date leftover foods, so you are not guessing the age of the foods.
- Refrigerate foods promptly after serving (within 2 hours after cooking). Never leave food out or hold at room temperature for an extended period of time.
- You don't need to cool food first, but do divide large amounts of leftovers into small portions and place in shallow containers to refrigerate.
- Use leftover foods within four days.
- Freeze leftovers that you won't use within a few days.
- Never taste leftover food that looks or smells strange to see if you can still use it. When in doubt, throw it out.
- Dispose of any contaminated food in the garbage.

**Quiz 16**

**Unit: Home**

**Lesson: Safe Food Storage**

Name \_\_\_\_\_

Class/Period \_\_\_\_\_

Date \_\_\_\_\_

**Short Answer and fill in the blank: Write short answers or fill in the blank to the following questions and statements. Use complete sentences when answering questions.**

1. Your refrigerator should be at most \_\_\_\_\_ F and the freezer should be \_\_\_\_\_ F or lower.
2. How do you determine the temperature of your refrigerator or freezer?
3. Why should raw and cooked foods be stored separately in the refrigerator?
4. Why should you never store food under the kitchen sink?
5. Use the \_\_\_\_\_ cans of food first.
6. \_\_\_\_\_ leftover foods, so you are not guessing the age of the foods.
7. List two guidelines for storing food in the kitchen.
  - a.
  - b.
8. Use leftover foods within \_\_\_\_\_ days.

**Quiz 16 Key****Unit: Home****Lesson: Safe Food Storage**

Name \_\_\_\_\_

Class/Period \_\_\_\_\_

Date \_\_\_\_\_

**Short Answer and fill in the blank: Write short answers or fill in the blank to the following questions and statements. Use complete sentences when answering questions.**

1. Your refrigerator should be at most 40° F and the freezer should be 30° For lower.

2. How do you determine the temperature of the refrigerator or freezer?

*Use a thermometer (one that is made for taking the temperature in the refrigerator and in the freezer)*

3. Why should raw and cooked foods be stored separately in the refrigerator?

*To prevent cross contamination of raw food juices with cooked foods. Raw food juices can generate microorganisms and pathogens that can cause foodborne illness.*

4. Why should you never store food under the kitchen sink?

*Damp areas attract insects and rodents and pipe leakage may damage food products. Molds like to grow in damp areas.*

5. Use the oldest cans of food first.

6. Date leftover foods, so you are not guessing the age of the foods.

7. List two guidelines for storing food in the kitchen.

- *Refrigerate or freeze cold and frozen foods right away.*
- *Your refrigerator should be at least 40° F and the freezer should be 0° F or lower.*
- *Do not exceed the proper storage times for refrigerated and frozen foods.*
- *Space items in refrigerator and freezer so that air can circulate freely.*
- *Store raw and cooked foods separately in the refrigerator.*
- *Freeze fresh meat immediately.*
- *Wrap raw meat, poultry, and seafood in separate plastic bags and set on a plate in the bottom of the refrigerator to prevent juices from dripping on other foods.*
- *Use the oldest cans first. Canned goods can keep for one year if properly stored in a cool, dry place.*

- *Throw out foods that are past the expiration date.*
- *Never store food under the kitchen sink. Damp areas attract insects and rodents and pipe leakage may damage food products.*
- *Do not store dry mixes near the stove because they do not keep well when exposed to heat.*
- *Food items in dry storage should be kept in airtight containers to prevent rodent and insect infestation. Insects and rodents carry harmful bacteria that can contaminate food.*
- *Never store food alongside household chemicals.*

8. Use leftover foods within four days.

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